कृपया रेषा
पुस्तक खराब करु नये.

BRAIN TEASERS:

Multiple Choice Questions on Animal Husbandry and Veterinary Sciences

College of Veterinary Science, Udgir
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27. Which one is used in prophylaxis of trypanosomiasis:
A. Cymelarsan B. Suramin
C. Quinapyramine D. Diaminazine

28. Hemophilia B is a disease of
A. Factor IX deficiency B. Factor X deficiency
C. Factor VIII deficiency D. Prothrombin disorder

29. Testing of extrinsic and common pathways is done by
A. Prothrombin time B. Thromboplastin time
C. Thrombin time D. None

30. Which one is caused by defect in maturation of type I collagen:
A. Cutaneous asthenia B. Rubber puppy disease
C. Ehlers danolos syndrome D. All of above

31. Age of most susceptible pups for canine herpes virus is
A. 7–21 days B. 30–60 days
C. 1–3 days D. None

32. T wave of ECG represents
A. Repolarization of ventricles
B. Depolarization of ventricles
C. Repolarization of atria
D. None

33. P – R interval is also termed as
A. AV conduction time B. R- S interval
C. P – R relaxation time D. None

34. When heart rate is fast, P – R interval is:
A. Short B. Long
C. Not affected D. First short followed by long

35. Inverse relationship between blood pressure and heart rate is known as
A. Kuhni's reflex B. Marey reflex
C. Hammock reflex D. None

36. Periodontal ligament serves as
A. Shock absorber
B. Reservoir of T – cells
C. Venous drainage
D. None of these

37. Which animal shows greatest jaw movement during mastication:
A. Horses
B. Pigs
C. Camels
D. Cattle

38. In swine, drug of choice for scabies is:
A. Ivermectin
B. Lindane
C. Carbaryl
D. Coumaphos

39. Which is not a feature of scrapie in sheep:
A. Incoordination
B. Nibbling reflex
C. Wool nibbling and rubbing on fixed object
D. Prevented by vaccination

40. Scrapie affects:
A. Cellular immunity
B. Humoral immunity
C. Both
D. None

41. An ewe with lumpy wool examined and revealed diffuse thick mats and crusts, with areas of erythema. The most likely cause is:
A. Lymphadenitis
B. FMD
C. Dermatophilosis
D. Fleece rot

42. Sheep ked infection is most common in:
A. Fall
B. Winter
C. Both of above
D. Summer

43. Udder impetigo (nodules, pustules and scabs on udder) of a milking goat is most likely caused by:
A. Staphylococcus sp.
B. E coli
C. Corynebacterium
D. None

Match the following

44.	Sucking louse B	A. *Boophilus annulatum*
45.	Texas fever tick A	B. *Hematopinus suis*
46.	Spinose ear tick C	C. *Otobius magnimi*
47.	Heel fly D	D. *Hypodorma lineatum*

48. Identify the biting louse :
A. Boophilus annulatum
B. Otobius magnim
C. Bovicola bovis
D. None of the above

49. Which one poses transducer frequency that provides greatest depth of penetration:
A. 2.5 MHz
B. 10.0 MHz
C. 5.0 MHz
D. 7.5 MHz

50. Greatest axial resolution is provided by
A. 2.5 MHz
B. 1.5 MHz
C. 10.0 MHz
D. 7.5 MHz

51. Which one is greatest disease threat to commercial broilers:
A. Turkeys
B. Imported psittacines
C. Guinea fowl
D. Quail

52. Which virus is not directly associated with respiratory disease:
A. Reovirus
B. Adenovirus
C. Coronavirus
D. Herpesvirus

53. Ranikhet disease virus (NCD) belongs to family:
A. Paramyxoviridae
B. Coronaviridae
C. Birnaviridae
D. None

54. Which respiratory disease among following is not caused by a virus:
A. Infectious Coryza
B. Laryngotracheitis
C. Fowl Pox
D. Infectious bronchitis

55. Infectious bronchitis viruses differ from one another primarily by:
A. Infectivity B. Strains
C. Pathotype D. None

56. Major difference among NCD viruses is :
A. Pathogenicity (pathotype) B. Strains
C. Infectivity D. Tracheal area

57. Condition of Midgut with prominent ballooning and hemorrhage in chicken is caused by :
A. Eimeria tenella B. E acervulina
C. E mivati D. E maxima

58. Typical consolidated lung in turkey with sudden increase in mortality is characteristic of :
A. E coli infection B. IBD
C. 1 B D. Pasteurellosis

59. Gross lesions typically produced by Reo virus involve :
A. Musculoskeletal system
B. Alimentary system
C. Both A & B
D. Respiratory and circulatory system

60. Which one is center of humoral system in birds :
A. Cecal tonsils B. Bursa Fabricius
C. Spleen D. None

61. IBD in chicken cause dysfunction of :
A. Humoral immunity B. Cellular immunity
C. Brain D. Both A & B

62. Duck viral enteritis is another name of :
A. Duck plague B. Bird flu
C. Duck virus hepatitis D. Black head

63. As Bursa of Fabricius to birds, likewise bone marrow to :
A. Amoeba B. Mammals
C. Spider D. None

64. Which one is preferred culture medium for *Chlamydia psittaci*:
A. McConkey Agar B. Tryptose
C. Yolk sac inoculation D. None

65. Infectious disease of peripheral nerve is :
A. Pullorum disease B. Epidemic tremor
C. Rickets D. Star grazing

66. Fowl plague is another name of :
A. Epidemic tremor B. Avian influenza
C. Fowl typhoid D. None

67. Agalactia in animals of ≥ 5 years old, coughing, pyrexia, respiratory distress, Adventitious sounds on auscultation. Identify the disease in cattle :
A. Three day sickness
B. Ascites
C. Mastitis
D. Pneumonitis (Hypersensitivity)

68. Formaldehyde is :
A. 40% Formalin B. 10% Formalin
C. 70% Formalin D. 90% Formalin

69. Variable size of RBC in blood is also known as :
A. Poikilocytosis B. Anisocytosis
C. Polychromasia D. None

70. Beam restricting device in X-ray machine is called :
A. Chronometer B. Collimator
C. Altimeter D. Elevator

Answer Key

Q.	A.	Q.	A.	Q.	A.	Q.	A.
1.	A	2.	A	3.	A	4.	A
5.	A	6.	A	7.	A	8.	A
9.	A	10.	A	11.	A	12.	A
13.	A	14.	A	15.	A	16.	A
17.	B	18.	A	19.	A	20	D
21	A	22	A	23	C	24	C
25	A	26	A	27	C	28	A
29	A	30	D	31	A	32	A
33	A	34	A	35	B	36	A
37	C	38	A	39	D	40	D
41	C	42	C	43	A	44	B
45	A	46	C	47	D	48	C
49	A	50	C	51	B	52	A
53	A	54	A	55	B	56	A
57	D	58	D	59	C	60	B
61	A	62	A	63	B	64	C
65	B	66	B	67	D	68	A
69	B	70	B				

- If you score more than 80%, then you may be a Genius.
- If you score between 70-80%, then you are brilliant.
- If you score between 60-70%, then you are normal.
- If you score below 60%, then you are an average student.

CHAPTER -1

BASIC FACTS AND IMPORTANT INFORMATION

TOP FIVE STATES OF INDIA
(Livestock population in decreasing order)

1. Total livestock population
   U.P. > Rajasthan > Bihar > Maharashtra > West Bengal (W.B.)
2. Cattle population
   Bihar > U.P. > M.P. > Maharashtra > W.B.
3. Buffalo
   U.P. > Rajasthan > M.P. > Gujarat > Punjab
4. Sheep
   Rajasthan > Andhra Pradesh > Karnataka > Tamilnadu > Maharashtra
5. Goat
   Bihar > Rajasthan > W.B. > U.P. > Maharashtra
6. Pigs
   U.P. > Assam > Bihar > W.B. > Andhra Pradesh
7. Horse & Ponies
   U.P. > J.K. > Bihar > Haryana > Maharashtra
8. Mules
   U.P. > Haryana > Uttaranchal > J.K.. > Himachal Pradesh
9. Donkeys
   U.P. > Rajasthan > Gujarat > Haryana. > M.P.
10. Camels
    Rajasthan > Haryana > Gujarat > U.P. > Punjab
11. Yak
    J.K. > Arunachal Pradesh > Himachal Pradesh > Sikkim
12. Mithun (found only in three states)
    Arunachal > Nagaland > Manipur
13. Poultry
    Andhra Pradesh > Tamilnadu > Maharashtra > W.B. > Karnataka

TOP FIVE COUNTRIES IN LIVESTOCK POPULATION
(Decreasing Order)

1. Cow population
   India > China > USA > New Zealand > Australia
2. Buffalo
   India > Myanmar > Pakistan > Thailand > Bangladesh
3. Sheep
   Australia > China > India > New Zealand > Pakistan
4. Goat
   India > China > Pakistan > Bangladesh > Indonesia

TABLE : INDIAN STATES AND LIVESTOCK PRODUCTION (2004-2005)

Product→ Milk Position↓	(000, tons)	Egg (no. in lakhs)	Wool (000 kg.)	Meat (ooo, tons)
First	U.P. (16512)	Andhra Pradesh (158040)	Rajasthan (15049)	West Bengal (475)
Second	Punjab (8554)	Tamilnadu (63948)	J. & K. (7120)	Andhra Pradesh (451)
Third	Rajasthan (8310)	Punjab (36800)	Andhra Pradesh (3678)	Maharashtra (230)
Fourth	Andhra Pradesh (7257)	Maharashtra (34362)	Karnataka (95484)	Uttar Pradesh (190)
Fifth	Gujarat (6745)	West Bengal (28877)	Gujarat (2950)	Bihar (175)
All India	90733	452009	44519	2115

TABLE : COMFORT ZONES FOR CATTLE

Temperature	13 – 18^0 C
Humidity	60 -70 %
Wind velocity	5 – 8 km / hr.
Altitude	1000 m
Photoperiod	12 hrs.

TABLE : SCIENTIFIC NAMES OF ANIMALS

Common Name	Scientific Name
Alpaca	*Llama pacos*
Ass	*Equus asinus (Wild Ass)*
Butang	*Bos javanicus*
Buffalo	*Bubalus bubalis*
Camel	*Camelus dromedarianus*
	Camelus bactrianus
Cat	*Felis domesticus*
Cattle	*Bos indicus / Bos taurus*
Dog	*Canis familaris*
Gayal	*Bos frontalis*
Goat	*Capra hircus*
Guanaco	*Lama guanicoe*
Horse	*Equus caballus*
Llama	*Llama Llama glama*
Mithun	*Bos gaurus*

Pig	*Sus scrofa*
Rabbit	*Oryctolagus cuniculus*
Reindeer	*Rangifer tarandus*
Sheep	*Ovis aries*
Vicuna	*Vicugna vicugna*
Yak	*Bos grunniens*

TABLE : SCIENTIFIC NAMES OF BIRDS

Common Name	Scientific Name
Duck	*Anas platyrhynchos*
Geese	*Anser anser*
Golden eagle	*Aquila chrysactes*
Guinea fowl	*Numida meleagris*
Muscovy	*Cainna maschata*
Ostrich	*Struthio camelus*
Pea fowl (peacock)	*Pavo cristatus*
Pigeon	*Columba livia*
Pheasants	*Phasians colchrices*
Poultry	*Gallus domesticus*
Quail	*Coturnix spp.*
Red Horned owl	*Bubo bubo*
Screech Owl	*Tyto albo*
Swan	*Cygnus spp.*
Turkey	*Meleagris gallopovo*
Vulture	*Gyps bengalensis* (*Indian White backed vulture*) *Gypaetus borbatus* (*Bearded vulture*)

TABLE : WATER–BORN DISEASES

1.	Amoebiasis	2.	Anthrax
3.	Black Quarter	4.	Bordetellosis (Turkey Coryza)
5.	Borrelliosis	6.	Bovine contagious abortion
7.	Brucellosis	8.	Campylobacter
9.	Cholera	10.	E coli infection
11.	Fasciolosis	12.	Giardiasis
13.	Hog cholera	14.	Infectious canine hepatitis
15.	Influenza	16.	Jaundice
17.	Johnes' disease	18.	Kidney worm infection (*Dioctophyma renale*)
19.	Leptospirosis	20.	Parasitic bronchitis
21.	Parasitic Gastro enteritis	22.	Parvovirus infection
23.	Pasteurellosis	24.	Salmonellosis
25.	Schistosomiasis	26.	Swine erysipelas
27.	Trachoma	28.	Tuberculosis
29.	Vibrio cholerae	30.	Viral hepatitis

TABLE : MILK–BORN DISEASES

1.	Anthrax	2.	Cholera
3.	Diphtheria	4.	Dysentery
5.	FMD	6.	Gastro enteritis
7.	Mastitis	8.	Milk sickness
9.	Paratyphoid fever	10.	Scarlet fever
11.	Septic sore throat	12.	Small pox
13.	Tuberculosis	14.	Typhoid Fever
15.	Undulant Fever		

TABLE : AIR–BORN DISEASES

1. Air pollution syndrome in man
2. Allergy rhinitis
3. Aspergillosis
4. Asthma
5. Cancer
6. Canine distemper
7. Carbon monoxide poisoning
8. CBPP (Contagious Bovine Pleuro Pneumonia)
9. CCPP (Contagious Caprine Pleuro Pneumonia)
10. Chronic Respiratory Disease in Poultry
11. CPPP (Contagious Porcine Pleuro Pneumonia)
12. Dermatitis
13. Equine Influenza
14. Equine Viral rhinopneumonitis
15. Fluorosis
16. Fowl Cholera
17. Hay fever
18. Histoplasmosis
19. Immuno - suppression
20. Infectious Bronchitis
21. Infectious Bovine Rhinotracheitis (Red Nose)
22. Infectious Bursal disease
23. Marek's disease
24. New Castle Disease
25. Papillomatosis
26. Paramyxovirus type 3 infection
27. Plumbism
28. Psittacosis
29. Q – fever
30. Severe acute respiratory syndrome
31. Sheep pox and Goat pox
32. Swine Influenza
33. Tuberculosis

TABLE : FOOD–BORN INFECTIONS

Sl.	Disease
1.	Bacillary dysentery
2.	Brucellosis
3.	Cholera
4.	Coli infections
5.	Diphtheria
6.	Q fever
7.	Staphylococcal enterotoxic gastroenteritis
8.	Streptococcal infections (Septic sore throat, scarlet fever, Otitis media, Erysipelas.
9.	Tick–borne encephalitis
10.	Tuberculosis
11.	Typhoid & paratyphoid fever and other Salmonella infections.

TABLE : DUNG AND URINE EXCRETION IN DIFFERENT SPECIES

Type of animal	Quantity / day	
	Dung (kg.)	Urine (kg.)
Horse	16.10	3.6
Cattle	23.50	9.0
Sheep	1.13	0.60
Pig	2.70	1.5
Poultry	0.04	-

TABLE : COMPOSITION OF URINE (%)

Species content	Horse	Cattle	Buffalo	Sheep	Pig
Water	89.60	92.60	81.00	86.30	96.60
Organic matter	8.00	4.80	-	9.30	1.50
Mineral matter	8.00	2.10	-	4.60	1.00
Nitrogen	1.29	1.21	0.62	1.47	0.38
Phosphoric acid	0.01	0.01	Trace	0.05	0.10
Potash (K_2O)	1.39	1.35	1.61	1.96	0.99
Lime (CaO)	0.45	0.01	Trace	0.16	0.00

TABLE : TIME OF EGG FORMATION IN THE CHICKEN

Part of egg formed	Site of formation	Time of formation
Yolk	Ovary	7 – 9 days
Thick mucin	Infundibulum	15-30 minutes
Albumin	Magnesium	2-3 hrs.
Shell membranes	Isthmus	1.5 hrs.
Watery solution	Shell gland	3-5 hours
Shell	Shell gland	19-20 hrs.
Bloom (mucus)	Vagina	1-10 minutes

TABLE : COMPOSITION OF MILK AND EGG

Nutrients	Milk	Egg
Water (gm)	87	60
Protein (gm)	4	12
Fat (gm)	3.5	4
Calcium (mg)	118	48
Phosphorous (mg)	93	180
Iron (mg)	Trace	2.1
Vit. A (IU)	140	1080
Riboflavin (mg)	0.17	0.27
Niacin (mg)	0.11	0.07



TABLE : COMPOSITION OF MILK IN DIFFERENT SPECIES

Ingredients	Woman	Cow	Buffalo	Goat
Water	87.30	87.17	82.25	85.71
Total solids	12.70	12.83	17.75	14.29
Fat	3.50	3.69	7.57	4.78
Protein	1.63	3.55	5.05	4.29
Lactose	6.98	4.90	4.49	4.46

Table : ANIMAL UNITS OF LIVESTOCK

Type of Livestock	Animal Units
Cattle:	
• Cow, with or without unweaned calf at side, or heifer 2 years old or older	1.0
• Bull, 2 years old or older	1.3
• Young cattle, 1 to 2 years	0.8
• Weaned calves to yearlings	0.6
Horses:	
• Horse, mature	1.3
• Horse, yearling	1.0
• Weaning colt or filly	0.75

Sheep:

• 5 mature ewes, with or without unweaned lambs at side	1.0
• 5 rams, 2 years old or over	1.3
• 5 yearlings	0.8
• 5 weaned lambs to yearlings	0.6

Swine:

• Sow	0.4
• Boar	0.5
• Pigs to 200 pounds	0.2

Chickens:

• 75 layers or breeders	1.0
• 325 replacement pullets to 6 months of age	1.0
• 650 8–week–old broilers	1.0

Turkeys:

• 35 breeders	1.0
• 40 turkeys raised to maturity	1.0
• 75 turkeys to 6 months of age	1.0

FORMULA RELATED TO CATTLE AND BUFFALO

1. Calculation of Body Weight:

(a). Shaffer's formula:

$$\text{Live weight (lb.)} = \frac{\text{Length} \times \text{Girth}^2}{300}$$

Length = measure from point of shoulder to pin bone (in inches)
Girth = Circumference around the chest just behind the hump. (in inches)

(b) Formula by Military farm school and research centre, Meerut:

Live weight (lb) = 2 x Girth (cm) x 5.5 x Length (cm.)

(c) Mullick's formula (for buffalo)

X = 25.156 (Y) – 960.232

Where X = estimated body weight in pound (lb)
Y = Girth in inches.

(d) Formula by Bhandari and Co workers

i. For dry and non-pregnant buffaloes:

Body weight (lb.) = – 2123.73 + 26.356 (Girth in inches) + 21.50 (Length in inches)

ii. For lactating buffaloes

Body weight (lb.) = – 2387.60 + 27.12 (Girth in inches) + 24.55 (Length in inches)

iii. For dry and pregnant buffaloes:

Body weight (lb) = – 1934.48 + 20.52 (girth in inches) + 25.90 (length in inches)

(e) Formula by Aharma and Co workers

For buffalo bulls

Body wt. (kg.) = 143.3644 – 0.1978 x L + 2.019 x G

(L = length in inches, G = girth in inches)

(2). Fat Corrected milk (FCM) – By Gaines and Davidson

4 % FCM = 0.4 (total milk in lb) + (Total fat %)

(3) Milk Yield Correction:

(a) For lactation length over 305 days to be converted to a 365 day in record:

Days	Factor	Days	Factor
305 – 308	1.00	337 – 340	0.92
309 – 312	0.99	341 -344	0.91
313 -316	0.98	345 -348	0.90
317 -320	0.97	349 -352	0.89

TABLE : ORIGIN OF ORGANS

Ectoderm	Mesoderm	Endoderm
1. Epidermis, hair, nail, lens.	1. All type of muscles	1.Pharynx epithelium
2. Epithelium of sensory organs, enamel, mouth, anal canal	2. Blood, Bone marrow	2. Larynx, Lungs
3. Nervous tissue.	3. Lymphoid tissue 4. Blood vessel 5. Body cavities 6. Kidney, Ureter 7. Gonads 8. Joint Cavities	3. Digestive tube. 4. Bladder 5. Vagina, Urethra

TABLE : CRANIAL NERVES

No.	Name	Type
1.	Olfactory	Sensory
2.	Optic	Sensory
3.	Occulomotor	Motor
4.	Trochlear	Motor
5.	Trigeminal	Mixed
6.	Abducens	Motor
7.	Facial	Mixed
8.	Glossopharyngeal	Mixed
9.	Vagus	Mixed
10.	Spinal Accessory	Motor
11.	Hypoglossal	Motor

TABLE : VERTEBRAL COLUMN IN DIFFERENT ANIMALS

	Cervical	Thoracic	Lumber	Sacral	Coccygeal
Horse	7	18	6	5	15-20
Cow	7	13	6	5	18-20
Sheep	7	13	6-7	4	16-18
Hog	7	14-15	6-7	4	20-23
Chicken	14	7	14 (fused)	6	–
Human	7	12	5	5	4

TABLE : TYPE OF JOINTS

SL.	TYPE OF JOINTS	EXAMPLE
1.	Ginglymus (hinge) joint	Fetlock joint
2.	Arthrodial (plane) joint	Joints between adjacent carpals
3.	Trochoid (pivot) joint	Atlanto – axial joint
4.	Enarthrodial (ball and socket) joint	Coxo femoral joint
5.	Suture joints	Skull bone joints
6.	Synsarcosis	Joints between scapula and bony thorax
7.	Syndesmoses	Joint of shaft of split bones and cannon bone of horse

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TABLE : TYPE OF MUSCLES

SL.	TYPE OF MUSCLES	EXAMPLE
1.	Flexor	Biceps brachii for elbow
2.	Extensor	Triceps branchii for elbow
3.	Sphincter striated	Orbicularis oculi
4.	Cutaneous muscle	Cutaneous trunchi muscle
5.	Antagonistic	Biceps brachii and brachialis
6.	Synergists	Triceps brachii and Anconeus

TABLE : SENSATION AND NERVE ENDINGS

Sensation	Receiving nerve endings
Touch	Meissner's corpuscles, Merkel's discs
Deep pressure	Vater Pacinian corpuscles
Heat	Corpuscles of Ruffini
Cold	Krause end bulbs
Muscle sense	Neurotendinous organ

TABLE : TASTE PERCEPTION IN TONGUE

Area of tongue	Type of taste
Base	Bitter
Lateral side	Sour, salt
Tip	Sweet or salt

TABLE : IMPORTANT JOINTS OF BODY

NAME OF JOINT	BETWEEN THE BONE
Stifle joint	Femur and tibia
Hip joint	Pelvis and femur
Shoulder joint	Scapula and humerus
Elbow joint	Humerus and radius
Fetlock joint	Metacarpus and proximal phalanx
Pastern joint	Proximal phalanx and middle phalanx
Coffin joint	Middle phalanx and distal phalanx

TABLE : SYNONYMS OF BONES / PROCESSES

Real Name	Synonyms
Tuber coxae	Point of hip or hook bone
Tuber ischii	Pin bone
Metacarpal	Canon
First phalanx	Long pastern bone
Second phalanx	Short pastern bone
Third phalanx	Coffin bone
Oleocranon process	Point of elbow

TABLE : CARCASS CHARACTERISTICS

PARAMETERS	HORSE	OX
1. Side length	Unusual	Lesser
2. Muscular development of hind quarter	Great	Less

3. Thoracic cavity	Longer	Shorter
4. Ribs	18 pairs	13 pairs
5. Superior spinous process of first six vertebrae	Markedly developed	Less developed
6. Extension of ulna	Up to half the length of radius	Articulates with carpus
7. Articulation among last three lumbar vertebral	Articulates	Do not articulate
8. Flesh	Dark bluish red sweet taste, fibrous	Lacks blue tinge

TABLE : CARCASS CHARACTERISTICS

FEATURE	SHEEP	GOAT
Back and withers	Round and well fleshed	Sharp, litter flesh
Thorax	Barrel shaped	Flattened laterally
Tail	Fairly broad	Thin
Radius	1 ¼ times length of metacarpus	Twice as long as metacarpus
Scapula	Short and broad	Long
Flesh	Pale red and fine	Dark red of coarse with goaty odour

TABLE : IODINE VALUE OF MEAT

Animal species	Iodine value of meat
Horse	71 – 86 %
Ox	38-46 %
Sheep	35 – 46 %
Pig	50 -70 %
Good lard	66%

TABLE : REFRACTIVE INDEX OF MEAT

Animal species	R. I. of meat fat
Horse	53.5
Ox	< 40
Pig	< 51.9

TABLE : BLOOD AS % OF LIVE BODY WEIGHT

Species	Cattle	Calves	Pigs	Sheep	Lamb
% of blood	3-4	5-6	3-4	4-4.5	3.5 – 4

TABLE : COMPOSITION OF EGG

Sl.	Parameter	%	Water(%)	Protein(%)	Fat(%)	Ash(%)
1.	Whole egg	100	65.5	11.8	11	11.7
2.	White	58	88	11	0.2	0.8
3.	Yolk	31	48	17.5	32.5	2.0
4.	Shell	11				

TABLE : CHEMICAL COMPOSITION OF EGG (WITHOUT SHELL)

Sl.	CONSTITUENT	AMOUNT	Sl	CONSTITUENT	AMOUNT
1.	Protein	6.1 gm	9	Mn	4-10 µgm
2.	Fats	5.5 gm	10	Vit. A	550 I U
3.	Calories	77 kcal	11	Vit. D	50 I U
4.	Carbohydrate	0.3 gm	12	Vit. E	1 mg
5.	Ca	26 mg	13	Choline	300 mg.
6.	P	100 mg	14	Pantothenic acid	0.8 mg
7.	Fe	1.3 mg	15	Pyridoxine	60 µgm
8.	Water	37 gm.			

TABLE : HAEMATOLOGICAL PROFILE OF DOMESTIC ANIMALS

Parameter	Cow	Horse	Sheep	Pig	Dog
ESR (mm / min.)	0/30,	2-12/10	0/30	0-6/30	1-6/30
RBC (million / cumm)	7	7	11	7	7
RBC diameter (μm)	5.6	5.6	5.0	6.2	7.3
Hb (gm / 100 ml.)	12	12.5	11	12	13.5
Haematocrit (Volume % RBC)	40	42	32	42	45
WBC 9 000 / mm³)	9	9	8	15	12
DLC(%)					
Neutrophils	30	55	40	40	60
Eosinophils	5	4	4	2	5
Basophils	1	1	1	1	1
Monocytes	5	10	6	8	8
Lymphocytes	60	30	50	50	25
Blood pH	7.3	7.4	-	7.4	7.5
Clotting time (min.)	6.5	11.5	2.5	3.5	2.5
Blood volume (% of body wt.)	7.7.	9.7	8.0	-	7.2
Specific gravity	1.043	1.060	1.042	1.060	1.059

TABLE : PANCREATIC JUICE

Sl.	Parameters	Components
1.	Enzyme precursors	Trypsinogen, chymotrypsinogen
2.	Active enzymes	Elastase, Amylase, Lipase
3.	Cations	Sodium, Potassium, Calcium
4.	pH	7.5 – 8.0

TABLE : DIGESTIVE JUICE

Secretion	Source	Target	Contents	Remark
Saliva	Salivary glands	Mouth	Amylase, slat, mucus water	Break starch into dextrin and maltose
Gastric juice	Gastric glands	Stomach	HCl, Pepsinogen, Rennin, Mucos	Milk curdling, Protein Protease / Peptone
Bile	Liver	Small intestine	Bile pigments bile salts	Fat emulsification Neutralise chyme
Pancreatic juice	Pancreas	Small intestine	Lipase, Amylase, Trypsinogen, Chymotrypsinogen	Fat degradation Starch and dextrin break into maltose amino acid liberation
Intestinal juice	Duodenal glands and goblet cells	Small intestine	Enterokinase Peptidase Maltase Sucrose Lactase	Splits amino acid, maltose, sucrose, lactose

TABLE : RUMINANT STOMACH

Part	Remark
Rumen	Largest compartment of stomach, on left side. Dorsal sac is the largest sac of rumen. Lined by glandless stratified squamous epithelium (Turkish towel appearance). Rumen liquor has pH 5.8 to 6.8. Also known as Paunch. Temperature inside rumen is 39° C. Liquid phase has 350 mv redox potential and is devoid of oxygen.

Reticulum Also called Honey comb. Made up of stratified squamous epithelium located immediately behind diaphragm in opposition to heart. Inside temperature is 39° C. Liquid phase has 350 mV redox potential and is devoid of oxygen.

Omasum Primary function is to remove water by about 50% and to absorb VFA. (Absent in camel.)

Abomasum True stomach. Glandular. pH = 2.0. Enzymic digestion site. It is similar to fundic region of non – ruminant stomach.

TABLE : HORMONES

Secretory Organ	Hormone	Source	Tissue affected	Major function
Anterior Pituitary	Growth Hormone	Acidophils	All tissues	Body Growth
	ACTH		Adrenal cortex	Function of Adrenal Cortex is regulated.
	TSH	Small Basophils	Thyroid	Thyroxine Secretion
	LTH	Acidophils	Ovary and mammary glands	Maintain Corpus Luteum, Milk
	LH	Large Basophils	Ovary testes	Androgen secretion, Follicle Matunation, Ovulation
	FSH	Large Basophils	Ovary testes	Oogenesis, Spermatogenesis
Intermediate Lobe of Pituitary	MSH	Basophilic cells	Melanophone Cells	Cutaneous Pigmentation

Posterior Pituitary	Oxytocin	Supraptic and Paraventricular Nuclei of hypothalamus	Mammary gland Uterus	Milk release Uterine contraction
	Vasopressin (Antidiuretic hormone)	Supraptic and Paraventricular Nuclei of hypothalamus	Mammary gland uterus	Milk release Uterine contraction
	Vasopressin (Antidiuretic hormone)	Supraptic and Paraventricular Nuclei of hypothalamus	Peripheral	

TABLE : CHROMOSOME NUMBERS

Species	No. of pairs of chromosome
Man	23
Horse	32
Cattle	30
Buffalo	24
Sheep	27
Goat	30
Swine, cat	19
Dog	39

TABLE : BIOLOGICAL VALUE OF LIVESTOCK PRODUCTS

Items	Biological Value
Whole milk	80
Whole egg	94
Egg white	83
Potato	67
Wheat	67
Oat	65

TABLE : EMERGENCY DRUGS AND THEIR ANTAGONISTS

Drug	Antagonist /Antidote
Atropine	Physostigmine
Morphine	Nalloxone
Pentobarbital Sodium	Yohimbine
Organo – phosphorus compound	PAM
5 – OH Tryptamine	Methysergide, LSD, Ergot alkaloid
Kallikrien	Aprotonin
Angiotensin	Saralosin
Heparin	Toluidine, Protamine
Vit. K.	Coumarin
Alcohol	$NaHCO_3$ or Na citrate
Arecoline	Atropine sulphate
Aspirin	$NaHCO_3$, Coramine
Barbiturate	Amphetanime
Barium	$MgSO_4$
Belladona	Tannic Acid
Benzoic acid	Siquil, diuretics
Bromides	Chlorides
Camphor	Siquil, saline divretics
Castor oil	Lavage, Atropine (sulphate)
Ephedrine	Lavage, emetics
Chloroform	O_2, Coramine, Caborogluconate
Formaldehyde	Lavage, Na carbonate
Digitalis	Propranolol, Lavage, Na_2SO_4
Coumarine	Vit-K
Iron toxicosis	Deferoxamine
Inorganic Phosphorus	$CuSO_4$

VETERINARY SCIENCE THROUGH AGES

(History and Scientists' Contribution)

- A special branch of Indian medicine was devoted to the treatment of elephants and was called Hastyayurveda.
- Brothers of Yudhisthir (Pandav Emperor) namely Nakula and Sahdeva were considered as foremost practitioner of veterinary science. They had expertise in equine husbandry.
- Charaka, the great Ayurvedic physician of the 1st Century AD, had written Charaka Samhita, the first scientific medical text. Charaka's work consisted of eight chapters devoted to pharmacology, diet, treatment of major diseases like fever, diarrhoea, consumption, leprosy and tumour among others. He also wrote on such specialised subjects as pathology, embryology and anatomy.
- In third fourth century B.C., in the Asokan times, there was great advances in veterinary science. For treatment of elephants, "Palkapya samhita" and for treatment of horses, "Shalihotra samhita" were written. We find in his edicts, mention of hospitals established by him for men and animals even in far off places in south India
- In the fourth century, came Sushruta, who is considered the father of surgery. In his treatise Sushruta Samhita, he lists about 125 surgical instruments used by him in his surgeries, details of methods of operations among other subjects. In his time he is believed to have performed Caesarean sections, done plastic surgeries and set compound fractures.
- The history of domesticated elephants in India to about 6000 B.C. Seals of the Indus Valley civilization (2500-1500 B.C.) also suggest the presence of domesticated e[illegible] in India at that time. Aryans, who are believed to h[illegible] about 1500 B.C., picked up the art of dome[illegible] in the process of assimilating the culture

had adopted. Ancient literature, such as the *Rig Veda* (1500-1000 B.C.) and the *Upanishads* (900-500 B.C.), which is associated with the Aryans, contain many references to trained elephants. Vedic literature also confirms that by the sixth century B.C., the taming and catching of elephants had become quite a refined art.

❖ Knowledge about elephants was considered as a part of *'Arthasastra'*, the science of statecraft. In the Kautilya's *Arthasastra* (300 B.C. to 300 A.D.) there is a reference to the duty of the overseer of elephants to take care of the training of elephants. It prescribes the setting up of elephant sanctuaries on the periphery of the kingdom that were to be patrolled by guards. Anyone killing an elephant within the sanctuary was to be put to death. It also prohibits the capturing of elephant calves, tuskless bulls or those with small tusks, diseased elephants and cows with suckling calves. During the reign of Emperor Ashoka (273-232 B.C.) the elephant became the symbol of Buddhism. .

❖ The 'Pit Method' was popular in southern India until recently. The *Khedda* (*i.e.* Stockade Method), with many variations, has been prevalent in different parts of the country and has also been recorded by Megasthanese, the Greek envoy to the court of the Emperor Chandra Gupta Maurya (third century B.C.). It was introduced to the Mysore Plateau in southern India by Sanderson in 1874. *Mela Shikar* (*i.e.* noosing from the back of a trained elephant) is popular in the northeastern part of the country. Sanskrit literature describes two more methods of capturing elephants: the use of female elephants as decoys and the use of nooses concealed on the ground. Indian experts have also gone to other Asian countries to teach the art of capturing and training elephants.

❖ The sage Palakapya (fifth or sixth century B.C.) is reputed to be the author of *Hasti ayurveda*, a treatise on the medical treatment of elephants and *Matanglila*, which is a treatise

on the physical and mental characteristics of elephants, their capture and care. *Hastividyarnava*, the famous Assamese treatise on the medical treatment of elephants was authored in the 18th Century by Sukumar Borkayat on instructions from the then Ahom queen.

❖ First written record of veterinary medicine from ancient Egypt was provided by Kahun Papyrus (1900 B.C.)

❖ First mention of rabies was reported in Eshuna code of 2300 B.C.

❖ Ashoka (269 – 232 B.C.) made compulsory provision of Charitable animal hospitals.

❖ First Veterinary School at Lyon in France in 1761 (France).

❖ In 1776 Second Veterinary School at Alfort near Paris.

❖ Royal charter (1844) recognized the Veterinary Art as a profession.

❖ First Army Veterinary School of India was opened at Poona 1862.

❖ First Veterinary College of India was set up in 1877 at Babugarh.

❖ Imperial Bacteriological Laboratory was established in 1889 at Izatnagar (U.P.).

❖ According to Chamber's English Dictionary –

Veterinary = 1. as Adjective; concerned with diseases of animals.

2. as Noun; One skilled in disease of domestic animals.

3. Originated from Latin word *veterinarius* (–veterinae), means cattle, beasts of burden.

❖ Louis Pasteur - Coined term vaccine; Fowl cholera vaccine, Rabies vaccine, Anthrax vaccine, concept of attenuation.

❖ Paul Ehrlich - Antibody production humoral theory. Acid Fast Staining, Father of Chemotherapy.

- E. Jenner - Small Pox vaccination.
- Waksman - Streptomycin.
- Bruce - Malta fever.
- Loeffer and Shutz - Glander
- Moore - Fowl Typhoid
- Nicolaier - Tetanus
- Ricketts - Rocky spotted Mountain fever
- Bordet - Complement discovery
- R. Koch - Father of Bacteriology, Nobel Prize 1905, TB Bacteria.
- Rous - Fowl Sarcoma Virus isolation
- Burnet - Clonal Selection Theory
- Loffer - Swine erysipelas
- A. Flemming - First antibodies - Penicillin.
- J. Lister - Aseptic surgery, carbolic acid
- R. Bucchim - Father of Pharmacology
- M.J.B. Orfla - Father of Toxicology
- Otto-lewi - Neurotransmitter discovery.
- O.W. Holmes - Coined term Anaesthesia
- Rudolphi - Father of parasitology.
- Virchow - Father of Cellular pathology.
- Kohler & Milstein - Hybridoma (Monoclonal antibodies) technique.
- E. Porter - Structure of anitbodies.
- Landsteiner - Blood Group
- Celsus - Four cardinal signs of inflammation.

पुस्तक खराब करु नये।

TABLE : PREANAESTHETIC AGENTS

S.No.	Type	Example
1.	Anticholinergics	Alropine sulphate Hyoscine Glycopyrrolate
2.	Morphine & derivatives	Morphine, Pethidine, Fentanyl, Etorphine, Pentazocine, Methadone
3.	Tranquillizers	Chlorpromazine HCl (Largactie) Triflupromazine HCl (Siquil) Promethazine HCl (Phenergan) Droperidol Acetylpromazine Xylazine, Detomidine
4.	Neurolaptanalgesic	Fentanyl citrate + Droperidol Methadone + Acepromazine

TABLE : DOSES OF IMPORTANT DRUGS

	Dog	Horse	Cattle/ Buffalo
1. Atropine Sulphate	0.02 mg/kg IM	40-60 mg/kg IM	–
2. Pentazocine (mg/kg)	–	0.5-4 orally	
3. Etorphine	2 µg/kg for wild animal		
4. Meperidine HCl (mg/kg I.M.)	5-10 mg/kg	1 mg/kg upto 1 gm	1 mg/kg upto 1 gm
5. Largactil	0.5-1 mg/kg 1 M	0.4 mg/kg 1 M	1 mg/kg 1M (in pig also)
6. Xylazine (mg/kg) I.M.	01-2	01	0.05-0.2

7. Ketamine HCl (mg/kg 1M)	10-20	–	–
8. Propotol (mg/kg) I.V.	6	2	–
9. Chloral hydrate	–	6.5 g/50 kg IV	90-100 mg/kg IV

TABLE : SITE OF THORACOCENTESIS

Animal	Right (ICS)	Left (ICS)
Horse	6th	7th
Cattle & Sheep	5th	6th
Dog & Cat	6th	7th

TABLE : SITE OF PARACENTESIS

	Heart Position	
Animal	**Base (ICS)**	**Apex (ICS)**
Horse, Cattle, Sheep, Pig	2nd	6th
Dog & Cat	3rd	6th
Animal	**Site for puncture**	
Horse	4th - 5th ICS	
Cattle	4th ICS	
Dog, Cat	4th - 5th ICS	

* ICS = Intercoastal space

TABLE : LIVER BIOPSY

Animal	Site
Horse	Right Dorsal Half, 11th - 14th ICS
Cattle & Sheep	Upper third, righside, 11th ICS
Dog, Cat, Pig	Last 2 ICS close to costal arch

TABLE : TYPE OF SUTURE

Interrupted	Continuous
Halsted/ Mattress	Lock stitch (Glover's)
Quill or Button	Lembert's suture
Pin	Jobert's suture
Relax or tension	Czerny suture Cushing suture Connell suture

TABLE : SUTURE MATERIALS

Category	Example
1. Absorbable (organic)	Catgut, Fascia lata, Kangaroo, tendon, cargile membrane, Amniotic membrane, Polyglycolic acid (Dexon).
2. Non-absorbable	
(a) Organic	Cotton, Silk, Silk warm gut, Horse hair, Linen, Umbilical tape.
(b) Inorganic	Matallic, suture wire, steel wire, Tantalum wire, wound clips, Pin suture.
(c) Synthetic	Nylon, Terelene, Vetafil, Polyester, Surgilene

TABLE : ABSORBABLE SUTURE

Name	Obtained from
1. Cat gut	Submucosa of small intestine of sheep.
2. Kangaroo tendon	Tendon of tail of Kangaroo
3. Cargile membrane	Bovine caecum
4. Collagen	Bovine flexor tendon filament
5. Amniotic membrane	Foetal amnion.

TABLE : ANTIBACTERIAL AGENTS

Category	Classes	Example
1. Penicillin	a) Narrow spectrum β-lactamase sensitive (NSLS)	Pencillin G, Penicillin V
	b) Narrow Spectrum Lactamase resistant	Oxacillin, Cloxacillin, Flucloxacillin, Methicillin, Temocillin
	c) Broad Spectrum Lactamase resistant	Ampicillin, Amoxicillin
	d) Broad Spectrum Lactamase resistant	Carbenicillin, Ticarcillin, Azlocillin, Mezlocillin, Piperacillin
	e) Potentiated	Amoxicillin-clauvulanate
	f) Carbapenems	Imepenem

2. Cephalosporin	a) Ist generation	Cephalothin, Cephapirin, Cephalexin, Cefadoxil
	b) IInd generation	Cefamandole, Cefoxitin, Cefotaim, Cefuroxime, Ceforanide
	c) IIIrd generation	Ceftiofur, Ceftriaxone, Cefotaxime
3. Aminoglycocides	a) Narrow spectrum	Streptomycin Dihydro Streptomycin
	b) Broad spectrum	Neomycin, Framycetin, Kanamycin
	c) Miscellaneous	Apramycin, Spectinomycin
4. Quinolones	a) Quinolone carboxylic acid	Enrofloxacin, Narfloxacin, Ciprofloxacin, Pefloxacin, Rosoxacin Oxolinic acid.
	b) Naphthyridine carboxylic acid	Enoxine, Nalidixic acid
	c) Cinnoline C.A.	Cinoxin
	d) Pyridopyriminine C.A.	Pipemidic acid
	e) Quinolizine C.A.	Ofloxacin, Flumequine

5. Sulphonamide & combination	a) Standard use SLD	Sulfathiazole, Sulfadimidine, Sulfamerazine Sulfadimethoxine
	b) SLD for Uterine Tract Infection	Sulfisoxazole (Sulfafurazole) sulfisomidine
	c) SLD for Digestive System	Sulfaguanidine,
	d) Potentiated SLD	SLD+Diamiopyrimidine SLD+Pyrimethamine
	e) Topical SLD	Sulfacetamide, Mafenide, Silver Sulfadiazine, Sulfathiazole
6. Tetracyclines	a) Natural	Oxytetracycline, Chlortetracycline, Demethylchlortetracycline.
	b) Semisynthetic	Tetracycline, Rolitetracycline, Methacycline, Minocycline, Doxycycline
7. Chloramphenicol		Thiamphenicol, Florfenicol
8. Macrolides	a) 14-membered lactone ring group	Erythromycine, Oleandomycin, Troleandomycin
	b) 16 membered lactone ring group	Spiramycin, Josamycin Tylosin
9. Lincosamides		Lincomycin, Clindamycin.
10. Miscellaneous		Polymixin, Bacitracin, Vancomycin, Novobiocin, Tiamulin, Rifamycin, Nitrofurans, Nitroimidazoles.

TABLE : ANTI-FUNGAL AGENTS

Class	Example	Spectra
1. Polyene macrolides	Amphotericin B Nystatin, Pimaricin	Broad
2. Imidazole	Ketoconazole Thiabendazole Itraconazole Fluconazole	Systemic
3. Flucytosine		Cryptococcal Meningitis, Candidiadis, Aspergillosis
4. Griseofulvin		Trichophyton Microsporum
5. Local/ topical agent	Tr. of Iodine, Phenol, KI, $CuSO_4$, Gentian, Violet, Nystatin, Tiacetin, Polynoxylin, Olamine	

TABLE : ANTIVIRAL AGENTS

Name	Specturm	Example
1. Pyrimidine nucleosides	Herpes simplex	Trifluridine Idoxuridine
2. Purine nucleosides	Herpes encephalitis	Vidarabine, Acyclovir Deoxyacyclovir
3. Ribovirin	DNA & RNA virus Adeno, Herpes, Orthomyxo, Paramyxo, Pox, Picorna, Rhabdo, Rota, Reo virus	
4. Azidothymidine	Retro virus (AIDS)	
5. Amentadine	Pseudorebies, Influenzza C	
6. Interferon (α,β & γ)	wide specturm	

TABLE : ANTHELMINTICS

Class	Example
1. Inhibitors of tubulin Polymerization	Benzimidazoles, Probenzimidazole
2. Uncouplers of Oxidative Phosphorylation	Salicylanilides
3. Inhibitors of enzymes in glycolytic pathway	Clorsulon
4. Cholinesterase inhibitors	Organo phosphorus (Coumaphos, dichlorvos, haloxon, trichlorfon)
5. Cholinergic Agonist	Imidathiazoles (levamisole, tetramisole), Pyrimidines (morantel, oxantel, pyrantel)
6. Muscle Hyperpolarization	Piperazine
7. Potentiation of inhibitiory Transmittors	Macrocycliclactones (Ivermectin, Doramectin, Milbemycin, Moxidectin)

TABLE : QUARANTINE PERIOD

Disease	Species	Period (OIE guidelines)
Infectious Bronchitis	Fowl	28 days
Rabies	Dog, Cat	4 months
Bacterial Infection	Zebra	2 weeks
Fowl Cholera	Poultry	14 days
Fowl Typhoid	Poultry	28 days
African Swine Fever	Swine	40 days
New Castle Disease	Birds	21 days

Fowl Plaque	Wild Birds	21 days
Chlamydiosis	Pigeon	45 days
Aspergillosis	Psittacine birds	45 days
Rinder Pest	Cattle	21 days
CBPP	Bovine	180 days
Anaplasmosis	Ruminants	100 days
TB	Bovine	3 months with negative
Enzootic bovineleucosis	Bovine	4 months
H.S.	Cattle	28 days
IBR	Bovine	30 days
Swine Fever	Swine	6 weeks
Porcine Brucellosis	Swine	30 days
Swine Transmissible Gastroenteritis	Swine	28 days
Pox	Sheep Goat	30 days
Blue Tongue	Sheep	40 days
CCPP	Sheep	180 days
Dourine	Horse	28 days
Glanders	Horse	28 days
Salmonellosis	Pregnant mares	6 weeks
Equine Influenza	Equine	28 days
Japanese encephalitis	Domestic & wild pig	28 days
Contagious Equine Metritis	Equine	30 days

TABLE : MOUTH GAGS

Name	Animals
1. Varnell's gag	Horse
2. Butler's gag	Horse
3. Haussman's gag (American gag)	Horse
4. Probang (Wooden) gag	Cattle
5. Spring gag	Dog

TABLE : DENTAL FORMULA

Species	Deciduous or Temporary $2 \times \frac{ICPM}{ICPM}$	Permanent $2 \times \frac{ICPM}{ICPM}$
1. Horse	$\frac{3030}{3030} = 24$	$\frac{3133}{3133} = 40$ (male) $\frac{3033}{3033} = 36$ (female)
2. Cattle, Buffalo, Sheep, Goat	$\frac{0030}{4030} = 20$	$\frac{0033}{4033} = 32$
3. Cat	$\frac{3130}{3120} = 26$	$\frac{3131}{3121} = 30$
4. Dog	$\frac{3130}{3130} = 28$	$\frac{3142}{3143} = 42$
5. Pig	$\frac{3130}{3130} = 28$	$\frac{3143}{3143} = 44$
6. Camel	$\frac{1130}{3120} = 26$	$\frac{1133}{3123} = 34$

TABLE : CLASSES OF CARBOHYDRATES

	Class	Examples
1.	Monosaccharides	
	(a) Pentoses $C_5H_{10}O_5$	Arabinose, Xylose, Ribose
	(b) Hexoses $C_6H_{12}O_6$	Glucose, Fructose, Galactose, Mannose
2.	Disaccharides $C_{12}H_{22}O_{11}$	Sucrose, Maltose, Lactose, Cellobiose
3.	Trisaccharides $C_{18}H_{32}O_{16}$	Raffinose
4.	Polysaccharides	
	1. Pentosans $(C_5H_{10}O_{16})_x$	Araban, Xylan
	2. Hexosans $(C_6H_{10}O_5)_x$	Dextrin, Starch, Cellulose, Starch, Cellulose, Insulin, Glycosen
	3. Mixed type	Mimicellulose, Pectingums, Mucilages.

TABLE : MINERALS

Macro Minerals	Micro Minerals
Calcium	Iron
Phosphorus	Copper
Sodium	Zinc
Potassium	Cobalt
Magnesium	Iodine
Sulphur	Manganese
Chlorine	Selenium
	Molybdenum
	Fluorine, Vanadium, Chromium, Silicone

TABLE : MILK FAT % & NUTRIENT CONTENT

Fat percent in milk	DCP (kg)	Digestible nutrient (kg)
3.0	0.040	0.27
4.0	0.045	0.32
5.0	0.051	0.37
6.0	0.057	0.41
7.0	0.063	0.46

TABLE : INFLAMMATION

	Terms	Organ/structure
1.	Myelitis	Spinal Cord
2.	Pachymeningitis	Duramater
3.	Leptomeningitis	Pia mater
4.	Poliomyelitis	Greymater in brain
5.	Typhlitis	Caecum
6.	Proctitis	Rectum
7.	Oophoritis	Ovary
8.	Salpingitis	Oviduct
9.	Metritis	Uterus
10.	Orchitis	Testes
11.	Posthitis	Prepuce
12.	Balanitis	Glans penis
13.	Gonitis	Stifle joint
14.	Coxitis	Hip joint
15.	Bursitis	Bursa over joint

16.	Acne	Sebaceous gland
17.	Laminitis	Laminae of hoof
18.	Blepharitis	Eyelid
19.	Stye or Hordeolum	Eyelid hair follicle
20.	Keratitis	Cornea
21.	Iridocyclitis or Anterior uveitis	Iris and Ciliary body
22.	Phlebitis	Veins
23.	Omphalitis	Navel
24.	Adenitis	Gland
25.	Lymphangitis	Lymph vessel
26.	Rhinitis	Nose mucosa
27.	Pneumonia	Lung (also Pneumonitis)
28.	Sialadenitis	Salivary gland
29.	Cholangitis	Bile duct
30.	Cholecystitis	Gall bladder
31.	Ingluvitis	Crop (bird)
32.	Pyelonephritis	Pelvis and parenchyma of kidney
33.	Cystitis	Urinary bladder

TABLE : SPACE REQUIREMENT FOR POLUTRY

No.	Bird cage	Area (cm^2/bird)
1.	One- Bird cage	900
2.	Two- Bird cage	500
3.	Three- Bird cage	480

4.	Four- Bird cage	470
5.	Five- Bird cage	450
6.	Height of cage	375 mm back, 425 mm front
7.	Body of cage	2.80-3.15 mm size
	Deep litter system	
8.	0 - 4 weeks age	450
9.	5 - 10 weeks age	900
10.	11 - 20 weeks age	1350-1800
11.	> 20 weeks age	1800-2250

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CHAPTER -2

VETERINARY ANATOMY AND EMBRYOLOGY

ANATOMY/EMBRYOLOGY

IMPORTANT TERMS

- **Aesthesiology** = Study of sensory system like eye, ear.
- **Splanchnology** = Study of visceral organs.
- **Proximal** – Closer to given part usually vertebral column.
- **Volar** = Flexion or caudal surface of forelimb distal to the elbow.
- **Plantar** = Caudal surface of hind limb below the hocks.
- **Prone** = Position in which dorsal aspect of body is uppermost.
- **Supine**= Position in which ventral aspect of the body is uppermost.
- **Serum** = Fluid portion of blood after clotting.
- **Merocrine gland** = Pass their secretion through cell wall without any loss to architecture.
- **Holocrine gland** = Fully filled cells with secretory material is discharged.
- **Callus** is a mass of osteoid tissue.
- **Osteoclastoma** = Tumor of osteoclasts. Also known as Giant cell tumor.
- Tumor of bone itself is called **osteoma**.
- **Gomphosis** = Articulation of teeth in their sockets in mandible and maxillae.
- **Synostosis** = Joint in which uniting medium is bone.
- **Diarthroses** = Freely movable joints. They are true joints. They are also called synovial joints.

- **Cancellous bone**= Composed of plates (Spicules) arranged to form a porous network. Also known as *spongy bone.*
- **Epiphysis** = Either extremity of a bone.
- **Endosteum** = Fibrous membrane that lines marrow cavity of bone.
- **Facet** = Flat articular surface as found between adjacent carpal bones.
- **Fovea** = Small non-articular depression.
- **Sessamoid bone** = Resembles sesame seed and are developed along the course of tendons to reduce friction.

POINTS TO REMEMBER

- Spleen is largest lymphoid organ.
- Ectopic heart is most common in cattle.
- Patella is largest sesamoid bone in body.
- A rod of bone can be elongated only about 1/ 200 part of its length before breaking.
- Resistance of bone to tension is 10 kg / mm^2 and to compression is 16.86 kg / mm^2.
- Fovea capitis is found on the head of femur.
- Triscupid dysplasia is common in Labrador, Retrivers and German Shepherd dogs.
- In Ebstein's anomaly, tricuspid valve is displaced toward the cardiac apex.
- Fore stomach of ruminants consists of reticulum, rumen and Omasum.
- Cow, sheep and goat have 32 teeth

- Cat has 6 incisors.
- Anal atresia results when dorsal membrane separating the rectum and anus fails to rupture.
- Galvayne's groove is a longitudinal groove on the upper corner incisor in horses.
- Amphiarthrosis is found in spinal column.
- Flexor muscles decrease angle between bones.
- Adductor muscles move limb towards the medium plane.
- Pectineus muscle in inguinal region is an adductor muscle.
- Gluteal muscle is an abductor muscle.
- Tendons are fibrous tissue, connecting bones to muscle.
- Cardiac muscle is striated with centrally located nuclei.
- Rigor mortis is absent in smooth muscle.
- Study of visceral organs related structures is known as splanchnology.
- Bodies of Hassell are found in thymic medulla.
- Bursa of Fabriscius, lymphoid organ of poultry epithelial out growth of cloaca.
- Testicle, ovary, pancreas have both endocrine and exocrine function.
- Pituitary gland is located at base of brain is sella tursica of sphenoid bone.
- Sickle shape kidney is found in horse.
- Os penis bone is found in penis of dog & cat.
- Penis of horse is laterally compressed.
- Rumen extends from diaphragm to transverse plane of tuber coxal.

- Trachea extends from cricoid cartilage of larynx to root of lung.
- Spermatic cord consists of testicular artery + vein, lymphatics, testicular plexus of nerves, Internal cremaster muscle, tunica vaginalis, ductus deferens.
- Thyroid follicles are formed by single layer of cuboidal epithelium.
- Bull and ram have helmet shaped glans – *galea glandis.*
- Glans is spirally twisted anti-clock wise in boar.
- Sigmoid flexure is not present in stallion.
- Bony pelvis consists of sacrum, Coccygeal vertebrae and coxae..
- Neck of uterus is known as cervix.
- Fornix is the angle formed by cervical projection into vagina.
- Heart extends from 3rd to 6th ribs in Ox.
- Spines are found in Tom cat's penis.

QUESTIONS

1. Axial skeleton consists of:
   A. Rib
   B. Sternum
   C. Vertebral column
   D. All of these

2. Os penis is found in:
   A. Dog
   B. Bull
   C. Human
   D. None

3. Snout of pig consists of:
   A. Os cardis
   B. Os rostri
   C. Os penis
   D. None

4. Os cardis is present in heart of:
   A. Cow
   B. Dog
   C. Women
   D. Fish

5. Elastic cartilage is found in:
   A. External ear
   B. Internal ear
   C. Arm
   D. Leg

6. Which one is not intended to be function of skeleton:
   A. Support
   B. Locomotion
   C. Protection
   D. Reproduction

7. Parietal layer of Bowman's capsule is made up of:
   A. Simple squamous epithelium
   B. Simple cuboidal epithelium
   C. Simple columnar epithelium
   D. Stratified epithelium

8. Simple cuboidal epithelium is present in:
   A. Testes
   B. Oviduct
   C. Glands
   D. None

9. Gastrointestinal tract, excretory ducts of gland, gall bladder are made up of:
   A. Simple columnar epithelium
   B. Simple cuboidal
   C. Stratified epithelium
   D. All of above

10. Which one supports the head:
    A. Ligamentum nuchae
    B. Ligamentum flava
    C. Abdominal tunic
    D. Arteries

11. Choose yellow elastic connective tissue
    A. Ligamenta flava
    B. Tendon
    C. Collagen
    D. Areolar tissue

12. Which cartilage is located in intervertebral discs:
    A. Elastic
    B. Fibrocartilage
    C. Hyaline
    D. None

13. Choose the exocrine gland :
A. Gonads B. Adrenal
C. Thyroid D. Liver

14. Which one of the following is a ductless gland :
A. Adrenal B. Pituitary
C. Thyroid D. All of above

Choose the right answer –

Q.No.	Tissue type	Related Function
15.	Epithelial tissue	A. Circulation
16.	Muscle tissue	B. Conduction
17.	Nervous tissue	C. Contraction
18.	Blood	D. Protection

19. Choose right sequence
A. Cell – tissue – organ - body
B. Cell – organ – tissue – body
C. Cell – organ – body – tissue
D. Cell – tissue – body – organ

20. Which one is not a characteristic of a living cell:
A. Irritability B. Reproduction
C. Movement D. All of above

Match the following-

Q.	Epithelium Tissue	Location
21.	Squamous	A. Digestive tract
22.	Cuboidal	B. Blood vessel
23.	Endothelium	C. Thyroid gland
24.	Columnar	D. Kidney

25. Type of articulation present in spinal column :
A. Synarthrosis B. Diarthrosis
C. Amphiathrosis D. All of above

Match the following -

Q.	Branch of science	Area studied
26.	Arthrology	A. Muscles
27.	Myology	B. Joints
28.	Splanchnology	C. Sense organs
29.	Aesthesiology	D. Viscera

30. Striated muscle with centrally located nuclei is characteristic of muscle found in :
A. Lungs B. Heart
C. Uterus D. Mammary glands

31. Fetal median ligament of the bladder contains :
A. Urachus B. Umbilical veins
C. Umbilical arteries D. Both 1 and 3

32. In fetus, yolk sac is attached to :
A. Lungs B. Small intestine
C. Stomach D. None

33. Extrabdominal part of gubernaculum forms ligament of :
A. Tail of epididymis B. Testis
C. Fore limb D. All of above

34. Mullerian duct forms :
A. Pulmonary artery B. Cervix
C. Vagina D. Both 2 and 3

35. Occipital myotomes are the origin of muscles of :
A. Tongue B. Eye
C. Leg D. Abdomen

36. Paramesonephric duct is also known as :
A. Kuhne's duct B. Epinephric duct
C. Mullerian duct D. Darwin duct

37. Urogenital sinus gives rise to :
A. Cervix B. Vagina
C. Kidney D. Liver

38. Bones having alveoli for teeth development in ruminant are:
A. Maxilla
B. Mandible
C. Incisive bones
D. Both 1 and 2

39. Surface of teeth frequently used to determine age in ruminants is :
A. Occlusal
B. Buccal surface
C. Liquid surface
D. None

40. Blood vessel supplying teeth of lower dental arcade in ruminants is :
A. Infraorbital artery
B. Inferior alveolar artery
C. Femoral artery
D. Palatine artery

41. Nerve supplying the teeth of upper dental arcade in ruminants is :
A. Infraorbital
B. Lingual
C. Supraorbital
D. Alveolar

42. In ruminants, alveolar nerve supplies to :
A. Lower dental arcade
B. Upper dental arcade
C. Both 1 & 2
D. None

43. Which one is present in ox but absent in sheep :
A. Spheroid sinus
B. Lacrimal sinus
C. Maxillary sinus
D. Palatine

44. Major nerve supplied to bovine horn is derived from the :
A. Frontal sinus branch
B. Cornual nerve
C. Infratrochlear nerve
D. Supraorbital nerve

45. Cornual artery is a branch of :
A. Superficial temporal artery
B. Supraorbital artery
C. External carotid artery
D. None

46. In oxen, anesthetic, for Petersons's eye block, is deposited around :
A. Optic foramen
B. Ethmoid foramen
C. Maxillary foramen
D. Orbito-rotundum foramen

47. Which one is present in ox but absent in sheep and goat :
A. Facial artery
B. Caudal auricular artery
C. Transverse facial artery
D. Caudal ophthalmic artery

48. Prepared site for thoraco-centesis in oxen is :
A. 6th or 7th intercostals space
B. 4th Intercostal space
C. 5th Intercostal space
D. None

49. Widest and most accessible ribs for bone marrow aspiration are :
A. 11th to 13th ribs
B. 1st to 3rd ribs
C. 6th to 8th ribs
D. 9th to 10th ribs

50. Which one does not form a part of fore-stomach :
A. Rumen
B. Abomasum
C. Omasum
D. Reticulum

51. Which one is true or glandular stomach in ruminants :
A. Rumen
B. Reticulum
C. Omasum
D. None of above

52. Most cranial cardiac valve in ruminants is :
A. Pulmonary valve
B. Aortic valve
C. Pulmono-aortic valve
D. None

53. Longest artery that supplies the distal regions of the pelvic limb of ruminants arise from the :
A. Femoral artery
B. Popliteal artery
C. Caudal glutted artery
D. None

54. 'Hard milker' condition involves :
A. Lactiferous duct
B. Lactiferous sinus
C. Papillary duct
D. None of above

55. Choose the least accurate statement :
A. A hilus is present in all ruminants kidney
B. Renal pelvis is absent in ox, sheep and goat.
C. Renal calices are present in ox
D. External contour of kidney is smooth in all ruminants.

56. During semen ejaculation and urination, which muscle is mostly helpful :
A. Bulbo-spongiosus muscle
B. Urethralis muscle
C. Retractor penis muscle
D. None

57. For amputation of cows udder, which nerve is anesthetized:
A. L_1 and L_2 nerves
B. Pelvic nerves
C. Epigastric nerves
D. Supramammary nerve

58. Which one is absent in swine liver :
A. Gall bladder
B. Common bile duct
C. Papillary process of caudate lobe and caudate ligament
D. Lateral lobes

59. Teeth used as defensive weapons in boar are :
A. Incisors
B. Canines
C. Molars
D. Wolf teeth

60. Which one is absent in pigs :
A. Pharyngeal tonsil
B. Lingual tonsil
C. Palatine tonsil
D. All of above

61. Which hepatic ligament is absent in pigs :
A. Right triangular ligament
B. Caudate ligament
C. Coronary ligament
D. Falciform ligament

62. Which one is not a natural orifice in wall of abdomen :
A. Deep inguinal ring
B. Epiploic foramen
C. Umbilicus
D. Pelvic inlet

63. Which one does not act by binding calcium :
A. Na citrate
B. K oxalate
C. Heparin
D. None

64. Heparin accelerate the activity of :
A. Antithrombin III
B. Antithrombin X
C. Antithrombin IV
D. None

65. Dicoumarol toxicosis affects clotting factors II, VII, IX, X because of :
A. Inhibition of Vitamin K
B. Inhibition of Vitamin A
C. Inhibition of Vitamin E
D. None

66. RBC with no central pallor and much smaller than normal :
A. Schistocyte
B. Spherocyte
C. Kurloff body
D. Russell body

67. Ig producing cell is :
A. Schistocyte
B. Spherocyte
C. Plasma cell
D. Lymphocyte

68. Eosinophillic inclusion body normally present in lymphoid cells of guinea pigs :
A. Schistocyte
B. Spherocyte
C. Kurloff body
D. Plasma cell

69. Which one is RBC fragment :
A. Schistocyte
B. Russell body
C. Plasma cell
D. Lymphocyte

70. Ig filled vacuole in cytoplasm of plasma cells :
A. Schistocyte
B. Spherocyte
C. Kurloff body
D. Russell body

71. Leukocyte predominant in peripheral blood of adult cow and weanling pig:
A. Schistocyte
B. Spherocyte
C. Kurloff body
D. Lymphocyte

Choose the correct answer –

72.	Nuclear remnants of RBC A	A. Howell Jolly body
73.	Lead Poisoning B	B. Plumbism
74.	Production site of blood coagulating proteins D	C. Plasma cell
75.	Precursor of β lymphocyte C	D. Liver

Choose the correct answer –

76.	Babesiosis in cattle B	A. Minor cross match
77.	Test using donor's plasma and recipient's cells A	B. Intravascular hemolysis
78.	Marginal bodies E	C. Milk
79.	Poor source of iron D C	D. Major cross match
80.	Test using recipients plasma and donor cells C D	E. Anaplasma

Choose the right choice-

81.	Free nuclei from metarubriocytes B	A. Curschmann's spirals
82.	Mucous casts formed in small bronchioles A	B. Hematogenous
83.	Basophilic nuclear debris in macrophage C	C. Tringible bodies
84.	Elongate double pyramidal structure formed by coalescence of eosinophillic granules D	D. Chariot – legden crystals

85. Linear distribution of cells seen on pull some of fluids of high viscosity is known as :

A. Windrowing B. Rouleaux
C. Castellation D. None of above

कृपया रेषा मारुन
पुस्तक खराब करु नये.

86. Smallest erythrocytes are present in :

A. Cats B. Pigs
C. Goats D. Both I and II

87. Choose the only source of endogenous heparin :

A. Basophil B. Mast cell
C. RBC D. Both a and b

88. Plasma protein of large animals used to detect internal inflammatory lesions :

A. Kalliekrinin B. Thrombin
C. Serotonin D. Fibrinogen

89. Which of the following cannot be counted with a haemocytometer :

A. Reticulocytes B. RBC
C. Leukocytes D. None

90. Species with natural sickle celled RBCs is :

A. Rats B. Deer
C. Birds D. Elephant

91. Iron supplement is specially required by :

A. Pigs B. Birds
C. Goats D. Horses

Match the following:

92.	Scutiform cartilage D	A. Anvil shaped
93.	Aduitory ossicles C	B. Hammer shaped
94.	Malleus bone B	C. Middle ear
95.	Incus A	D. Ear muscles

Match the following:

96.	Cerebral aqueduct B A	A. Cerebral peduncles
97.	Crura cerebri C	B. Aqueduct of sylvius
98.	Corpora quadrigemina C	C. Telencephalon
99.	Olfactor bulbs D	D. Quadrigeminal bodies

Match the following:

100. Vater Pacinian corpuscles — C
101. Proprioception — D
102. Falx cerebri — B
103. Pons — A

A. Metencephalon
B. Sickle-shaped fold
C. Subcutaneous connective tissue
D. Muscle sense

Write A for True and B for false statements:

104. Fourth ventricle is located between cerebellum above and pons and medulla below. A
105. Hydrocephalus means water in heart. B
106. Dura mater is loose fibrous covering of CNS. B
107. Coverings of brains and spinal cord are called springes. B
108. Habencular nuclei is found in epithalamus. A
109. Tuber cinereum attaches pituitary gland to brain. A
110. Basal nuclei represent gray matter of corpus striatum. A
111. Sweating is parasympathetic activity of sweat gland B
112. Peristalsis is a sympathetic activity. B
113. Vasodilation of blood vessel is a sympathetic action. B
114. Parasympathetic drugs are used as laxatives or cathartics A
115. Chorda tympani is responsible for taste sensation. A
116. Chorda tympani is a branch of facial nerve. A
117. Base of tongue is sensitive to bitter taste. A
118. Lateral side of tongue is sensitive to sour and salt. A
119. Tip of tongue is sensitive to bitter taste only. B
120. Macula lutea is central area of retina in man. B
121. Central area of retina contains only cones. A
122. Lateral rectus and medial rectus muscles rotate the eyeball around a horizontal axis. B
123. Dorsal and ventral rectus muscles rotate eyeball around a vertical axis. B
124. Nictitating membrane is a cartilage. A

125. Articular cartilage is a hyaline cartilage. A
126. Diaphysis is a cylindrical shaft of long bone. A
127. Scrotum is located behind inguinal in dog. A
128. Globular scrotum is found in bull. B
129. Elliptical scrotum is found in boar. A
130. Right kidney is more cranial than left kidney. A

Answer Key

Q.	A.	Q.	A.	Q.	A.
1.	D	2	A	3	B
4	A	5	A	6	D
7	A	8	B	9	A
10	A	11	A	12	B
13	D	14	D	15	D
16	C	17	B	18	A
19	A	20	D	21	D
22	C	23	B	24	A
25	C	26	B	27	A
28	D	29	C	30	B
31.	D	32.	B	33.	A
34.	D	35.	A	36.	C
37.	B	38.	D	39.	A
40.	B	41.	A	42.	A
43.	A	44.	B	45.	A
46.	D	47.	A	48.	A
49.	C	50.	B	51.	D
52.	A	53.	A	54.	C
55.	B	56.	B	57.	A
58.	C	59.	B	60.	C
61.	B	62.	B	63.	C

Q.	A.	Q.	A.	Q.	A.
64.	A	65.	A	66.	B
67.	C	68.	C	69.	A
70.	D	71.	D	72.	A
73.	B	74.	D	75.	C
76.	B	77.	A	78.	E
79.	D	80.	C	81.	B
82.	A	83.	C	84.	D
85.	A	86.	C	87.	D
88.	D	89.	A	90.	B
91.	A	92.	D	93.	C
94.	B	95.	A	96.	BA
97.	C	98.	C	99.	D
100.	C	101.	D	102.	B
103.	A	104.	A	105.	B
106.	B	107.	B	108.	A
109.	A	110.	A	111.	B
112.	B	113.	B	114.	A
115.	A	116.	A	117.	A
118.	A	119.	B	120.	B
121.	A	122.	B	123.	B
124.	A	125.	A	126.	A
127.	A	128.	B	129.	A
130.	A				

CHAPTER -3

VETERINARY PHYSIOLOGY

VETERINARY PHYSIOLOGY

SALIENT POINTS:

- Cattle are prone to retrograde drainage from pharynx. They have relatively small lungs with low tidal volume and residual capacity.
- Tonsillitis is common in dogs but rare in cats.
- Rectal temperatures in increasing order:
  HORSE < CATTLE < DOG < SHEEP < PIG < RABBIT.
- Heart rate in decreasing order:
  MOUSE > CHICK > GUINEA PIG > RABBIT > CAT > PIG/DOG > SHEEP / GOAT > DAIRY COW.
- Increasing order of urine volume(ml/kg body wt):
  HORSE < PIG < CAT < SHEEP/GOAT < COW < DOG
- Urine of cow is more viscous than cat.
- Alanine aminotransferase is a liver specific hepatocellular enzyme in dogs, cats, primates.
- Serum amylase activity increases within 12-48 hours after pancreatitis.
- Stratum corneum is a compact layer of dead cells in order to prevent loss of fluids, electrolytes, water.
- Langerhans' cells are mononuclear dendritic cells that are intimately involved in regulating immune system of the skin.
- Except in horses, apocrine glands do not appear to be innervated.
- Hair follicles of dogs, cats, sheep, and goats are compound.
- Hair follicles of cattle and horse are simple.
- Growing stage of hair is known as anagen.
- Resting stage of hair is telogen.
- Thyroxin initiates and glucocortocoids inhibits hair growth.

- Panniculus adiposus serves many functions like insulation, reservoir for fluids and shock absorber.
- Abomasum is not a part of forestomach.
- Gizzard is known as muscular stomach.
- Proventriculus is glandular stomach of poultry.
- Bursa of fabricius is immunological organ of poultry.

QUESTIONS

1. The term physiology was introduced by –
   A. Hippocrates B. Jean Fernet
   C. Dale and Evam D. J. W. Philips

2. The functional unit of body is –
   A. Cell B. Tissue
   C. System D. Organ

3. Basement is composed of –
   A. Glucocorticoids B. Chitin
   C. Mucopolysaccharides D. Saturated fatty acids

4. Karyoplasm is contained in –
   A. Cytoplasm B. Mitochondria
   C. Endoplasmic reticulum D. Nucleus

5. Nucleus was discovered by –
   A. Brown B. Robert Hooke
   C. Jean Ferel D. Evan & Dale

6. Process of synthesis of yolk is called –
   A. Yolkgeners B. Vitellogenesis
   C. Chromogenesis D. Eugenesis

7. m RNA is synthesized in the –
   A. Cytoplasm B. Mitochondria
   C. Nucleus D. Rough endoplasmic reticulum

8. Respiratory pigment of blood is –
   A. Myoglobin B. Carboxyglobin
   C. Hemoglobin D. None

9. The process by which the more diffusible materials can be separated from non- diffusible materials is called –
   A. Osmosis B. Diffusion
   C. Dialysis D. None of the above

10. True oxide of hemoglobin is –
   A. Methemoglobin B. Carboxyglobin
   C. Oxyglobin D. None

11. Monocytes are produced from –
   A. Lymphatic tissue B. Myeloid tissue / Bone marrow
   C. Both of the above D. None of the above

12. Platelets are produced from –
   A. Myeloid tissue B. Lymphatic tissue
   C. Both of the above D. None of the above

13. The structural and functional unit of compact bone is –
   A. Osteoclast B. Osteoblast
   C. Osteocytes D. Osteon

14. Fructose is absent in Seminal plasma of –
   A. Dog B. Rabbit
   C. Bull D. Goat

15. Secretion of seminal vesicles is –
   A. Acidic B. Neutral
   C. Alkaline D. Mucoid

16. Luteinizing hormone surge is responsible for ovulation within–
   A. 12 h B. 24 h
   C. 36 h D. 6 h

17. Normal Hb concentration in chicken blood ranges (g / 100 ml)–
   A. 6.5 -9 B. 10-12
   C. 4-6.5 D. 9.8 – 11.2

18. In which animal species, corpus luteum is not maintained in pregnancy –
   A. Mare B. Cow
   C. Goat D. None

19. The fetal hormone responsible for initiating parturition in dam–
A. Adrenal corticoids B. Prostaglandins
C. Oxytocin D. Estrogen

20. The hormone preferred for estrus synchronization in doe is–
A. Progesterone B. Prostaglandins
C. Both D. None

21. Pheromones secreted in the saliva of which species attracts females and induces immobilization reflex –
A. Horse B. Bull
C. Dog D. Boar

22. Vagus nerve fibres are –
A. Motor B. Sensory
C. Mixed D. None of the above

23. Which of the following events takes place earlier in the process of parturition –
A. Oxytocin Release
B. Increase of prostaglandin level
C. Both take place simultaneously
D. None of the above

24. Pace-maker of the heart is –
A. A. V. node B. S. A. node
C. Bundle of His D. None of the above

25. The third heart sound is produced by –
A. Closure of A-V valve
B. Rush of atrial blood into ventricles
C. Opening of aortic valve
D. None of the above

26. The size of the RBC is smallest in –
A. Sheep B. Cat
C. Equine D. Chicken

27. The size of RBC is largest in –
A. Cattle B. Buffalo
C. Elephant D. Camel

28. Hypochromic RBC means –
A. Lesser concentration of Hb per RBC
B. Variation of size
C. Deviation of shape
D. Deviation of colour

29. In met-hemoglobin, Iron remain in form of –
A. Fe^{+} B. Fe^{++}
C. Fe^{+++} D. All of the above

30. Which of the following anticoagulants act by accelerating the activity of antithrombin III –
A. Sodium EDTA B. Sodium citrate
C. Potassium oxalate D. Heparin

31. Which of the following acts in association with calcium –
A. Sodium EDTA B. Sodium citrate
C. Potassium EDTA D. All of the above

32. The precursor of platelets is –
A. Megakaryocyte B. Monocytes
C. Lymphocytes D. None of the above

33. The clotting factor Vitamin K is inhibited by –
A. Heparin B. Bracken fern
C. Dicoumarin D. All of the above

34. Heinz bodies are clumps of –
A. Denatured myoglobins B. Denatured haemoglobin
C. Denatured Leucocytes D. All of the above

35. Schistocytes are –
A. R. B. C. fragments B. W. B. C. fragments
C. Heinz body D. None

36. The size of Caprine erythrocyte is –
A. 10 µm B. 4 µm
C. 20 µm D. 16 µm

37. Howell – Jolly bodies are found in –
A. Lymphocytes B. RBC
C. Granulocytes D. Monocytes

38. Erythrocytes are –
A. Motile B. Non – motile
C. Both of above D. Phagocytic

39. Which of the following is the percentage of erythrocytes in the whole blood –
A. Hematocrit
B. Mean corpuscular haemoglobin
C. Erythrocyte sedimentation rate
D. All of the above

40. Which of the following is associated with the formation of erythrocytes –
A. Red bone marrow B. Yellow bone marrow
C. All of the above D. None of the above

41. A variation in the size of erythrocytes is called –
A. Poikilocytosis B. Macrocytosis
C. Anisocytosis D. Microcytosis

42. Deviation from the normal shape of erythrocytes is called –
A. Macrocytes B. Microcytosis
C. Anisocytosis D. Poikilocytosis

43. RBC larger than the normal shape is called –
A. Macrocyte B. Microcyte
C. Anisocyte D. Poikilocyte

44. Which disease is characterized by an increased bone turnover rate (accelerated bone formation and resorption) –
A. Rickets B. Paget's disease
C. Osteoparois D. None

45. Haem is a protoporphyrin, consisting of ———— number of pyrrole groups –
A. 8 B. 4
C. 6 D. 5

46. Erythocytes of mammals lose Nucleus during maturation–
A. Nucleus B. Golgi apparatus
C. Centriols D. All of the above

47. Erythrocytes of cattle, sheep, goat and pig are –
A. Biconvex B. Biconcave
C. Discoid D. None of the above

48. A canine erythrocyte is –
A. Biconcave B. Discoid
C. Sickle-shaped D. Elliptical

49. In lymph nodes, T – lymphocytes are largely found in –
A. Medulla B. Marginal sinus
C. Cortex D. Parafolicular zone

50. Which of the following serves as a carrier of haemoglobin –
A. Bilirubin B. Steroids
C. Haptaglobin D. Fatty acids

51. Mammalian erythrocytes have average life span of –
A. 500 days B. 120 days
C. 92 days D. 320 days

52. Closure of pulmonary and aortic heart valves are associated with –
A. Heart attack
B. Caesation of blood supply to body tissues
C. 2nd heart sound
D. Ist heart second

53. Granulocytes are formed in –
A. Lime B. Kidney
C. Lymph nodes D. Bone marrow

54. Blood platelets are increased in –
A. Hodgkin's disease B. Anaemia
C. Thrombocytopenic purpura D. All of the above

55. Low platelets count is seen in –
A. Hodgkins disease B. Thrombocytopenic purpura
C. Anaemia D. All of the above

56. Death in sweet clover disease is due to –
A. Haemorrhage B. Haemolysis
C. Eosinophilia D. Lymphocytosis

57. The formula plasma volume x $\frac{100}{100 - (0.87 \times \text{Haemecoritcrit})}$ gives–
A. Erythrocyte count B. Leucocyte count
C. Blood volume D. None of the above

58. In cattle, number of blood group systems found is –
A. 13 B. 12
C. 11 D. 10

59. Which of the following helps haem to keep iron in ferrous form –
A. Globin B. Haemosiderin
C. Ferritin D. All of the above

60. Which of the following is the organ of detoxification –
A. Liver B. Gall bladder
C. Spleen D. Pancreas

61. In parasitic infections which of the following is seen –
A. Lymphopenia B. Neutropenia
C. Lymphocytosis D. Eosinophillia

62. Which is not supplied with lymphoid vessels –
A. Bone marrow. B. Brain
C. Both A and B D. None of the above.

63. The lymph flows –
A. Towards tissues B. Towards heart
C. Towards visceral organs D. None

64. Smallest size of caecum is seen in –
A. Horse B. Dog
C. Sheep D. Goat

65. Maximum size of caecum is seen in –
A. Horse B. Dog
C. Sheep D. Goat

66. Which of the following species has the minimum relative capacity of stomach in relation to the body weight –
A. Sheep B. Ox
C. Horse D. Goat

67. Hormone Villikinin is secreted from –
A. Small intestine B. Large intestine
C. Stomach D. Upper small intestine

68. The process by which the food particles are conveyed into the month cavity is called –
A. Prehension B. Mastication
C. Deglutition D. Drinking

69. Parotid glands are –
A. Mucus glands B. Serous glands
C. Mixed glands D. None of the above

70. The pH of gastric juice is –
A. > 1 B. < 1
C. Neutral D. Alkaline

71. Conversion of casein to paracasein is catalysed by –
A. Pepsin B. Gastric lipase
C. Rennin D. None of the above

72. Pepsinogen is activated to pepsin by the action of –
A. Rennin B. Mucous
C. Gastric lipase D. HCl

73. Which of the following cell is responsible for the secretion of HCl–

A. Body chief cells B. Zymogen cells
C. Liver cells D. Parietal cells

74. The centre for vomition is located at –

A. Hypothalamus B. Spinal cord
C. Medulla D. None of the above

75. The conversion of trypsinogen to active trypsin is carried out by –

A. Peptidase B. Maltase
C. Gastrin D. Enterokinase

1. MATCH THE FOLLOWING

Column -I		Column- II (Answer)
76. Sertoli cells	H	A. Filtration coefficient
77. Ketone bodies	D	B. Lymphocyte
78. Ovulation fossa	J	C. Faeces
79. Vitamin A	F	D. Beta hydroxyl butyric acid
80. Stercobilin	C	E. Synapses
81. Urobilin	I	F. Carotene
82. GFR / Filtration Pressure	A	G. Eosinophil
83. Non granular leukocyte	B	H. Testes
84. Granular leukocyte	G	I. Urine
85. Neurons	E	J. Mare

2. MATCH THE FOLLOWING ITEMS

Column -I		Column- II (Answer)
86. Zymogens	F	A. Glycoprotein
87. Honeycomb structure	E	B. Haldane and Pistlary
88. Pouch of ruminant stomach	J	C. Lecis cells
89. Rennet of ruminant stomach	I	D. Arachidonic acid
90. Juxtra glomerular apparatus	C	E. Reticulum
91. Origin of kela terminalis in cow	G	F. Pepsinogen
92. PMSG	A	G. Omasum
93. Prostaglandin	D	H. Follicunlostatin
94. Inhibin	H	I. Abomasum
95. Gas analysis	B	J. Rumen

3. MATCH THE FOLLOWING:

Column -I		Column- II (Answer)
96. Chemical digestion in birds	G	A. Pyloric stomach
97. Absorption bile slats	F	B. Lower half ileum
98. Absorption of endogenous amino acid	B	C. Methionine
99. Absorption of exogenous amino acids	I	D. Upper part of small intestine
100. Inhibitor of lucine and phenylalanine	C	E. 6-8
101. Gastric pH of birds	H	F. Lower ileum
102. Intestinal pH of birds	E	G. small intestine
103. Gastrin	A	H. 0.5 – 2.5
104. Cholecytsokinin pancreozymin	D	I. Upper half ileum

4. MATCH THE COLUMNS

Column -I		Column- II (Answer)
105. Differentiated lymphocytes producing immunologist	F	A. Major cross match
106. Eosinophilic inclusion	E	B. Minor cross match
107. Babesiosis in cattle	C	C. Russell viper venom time
108. Anaplasmosis in cattle	D	D. Extra vascular haemolysis
109. RBC with no central pallor and smaller than normal	G	E. Kurloff body
110. Fragment of RBC	H	F. Plasma cell
111. Immunoglobin filled vacuole in cytoplasm of plasma cell	I	G. Spherocyte
112. Test using recipients plasma and donor's cells	A	H. Schistolyte
113. Test using donor's plasma and recipients cells	B	I. Russel body

FILL IN THE BLANKS:

114. Hemoglobin contains 4 atom of iron and 8 atoms of sulphur.

115. The molecular weight of haemoglobin is 68,000.

116. Pig (species) has rapid growth and poor iron reserve, and has an increased iron requirement for Erythropoesis.

117. Plumbism is the poisoning of lead.

118. Anaplasma (organism name) is also referred to as marginal bodies.

119. Aplastic anemia is associated with Bracken fern poisoning.

120. Basophill and mast cells and the source of indigenous heparin.

121. In Deer (animal) sickle cell erythrocytes is a naturally occurring morphologic variation.

122. The plasma protein fibrinogen is used to detect inflammation in large animals.

123. Blood proteins are produced by Hepatocyte, leukocyte and vascular endothelia.

124. Smooth endoplasmic reticular is the major intracellular storage set for the element Calcium

125. The movement of lipid soluble substrate through the cells membrane is by the process of diffusion.

126. Spleen is also called graveyard of RBC.

127. Gall bladder is absent in Horse (animal name).

128. Bile is synthesized in River (organ).

129. The specific gravity of bile is 0.1.010.

130. Bile is Bitter in taste.

131. In carnivores, bile is Golden yellow coloured.

132. cholerectic (category of drug) increases secretion of bile.

133. During rumination, the number of rumino-reticulor cycles per minute is one.

161. Normally placenta is expelled within 4 to 8 hours of parturition in cattle.

162. Loss of 7 to 10 % of body water results in death.

163. Chloride shift is also known as Hamburger phenomenon

Answer Key

Q.	A.	Q.	A.	Q.	A.
1	B	2	A	3	C
4	D	5	A	6	B
7	C	8	C	9	C
10	A	11	B	12	A
13	C	14	A	15	A
16	D	17	A	18	A
19	B	20	B	21	D
22	C	23	B	24	B
25	A	26	A	27	D
28	A	29	C	30	D
31	A	32	A	33	C
34	B	35	A	36	D
37	B	38	B	39	A
40	A	41	A	42	C
43	A	44	B	45	B
46	A	47	C	48	A
49	D	50	C	51	B
52	C	53	D	54	B
55	B	56	A	57	C
58	B	59	A	60	A
61	D	62	C	63	B
64	B	65	A	66	C
67	A	68	C	69	B
70	A	71	C	72	D
73	D	74	A	75	D

76	H	77	D	78	J
79	F	80	C	81	I
82	A	83	B	84	G
85	E	86	F	87	E
88	J	89	I	90	C
91	G	92	A	93	D
94	H	95	B	96	G
97	F	98	B	99	I
100	C	101	H	102	E
103	A	104	D	105	F
106	E	107	C	108	D
109	G	110	H	111	I
112	A	113	B		

Answer Key (Fill in the Blanks)

114. 4, 8
115. 68,000
116. Pig
117. Lead
118. Anaplasma
119. Bracken fern
120. Basophills and mast cells
121. Deer
122. Fibrinogen
123. Hepatocytes, Leukocytes and Vascular endothelia
124. Calcium
125. Diffusion
126. Spleen
127. Horse
128. Liver
129. 1.010
130. Bitter
131. Golden yellow
132. Cholerectic
133. One
134. Sodium potassium pump
135. Secondary
136. T – lymphocytes
137. Six
138. Cuboidal
139. Squamous

140. Squamous
141. 6, 3-4.
142. Two
143. Fenestrae
144. Peripheral
145. Macula densa
146. Columnar and cuboidal.
147. Area criborsa
148. Intestinal
149. Amylase
150. Synaptic gutter
151. Diastasis
152. Placental lactogen
153. Mare
154. Trophoplastin, Prostaglandin E_2
155. Sertoli
156. Heart
157. FSH
158. Enterokinase, duodenal
159. Calcium carbonate
160. Efficiency of breathing.
161. 4, 8
162. 7, 10
163. Hamberger phenomenon

*****

CHAPTER -4

VETERINARY BIO-CHEMISTRY

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VETERINARY BIO-CHEMISTRY

SALIENT POINTS

- Urea has 262 -281 protein equivalent (%), to crude protein.
- Poultry litter contains 5% nitrogen equivalent to 31 % crude protein.
- 1 gm. starch produces 0.56 gm. metabolic water.
- Mannose, galactose, fructose are hexose monosaccharides.
- Maltose and lactose are disaccharides.
- Cephalin, lecithin and sphingomyelin are phospholipids.
- Fluorine, Iodine, Cobalt, Chromium are micro minerals.
- Arabinose, xylose, ribose are pentose monosaccharides.
- Raffinose is trisaccharide obtained from sugar beets.
- Pectin is carbohydrate and made up of Rhamnose and Galacturonic acid.
- Fructose is the only naturally occurring Ketohexose. This is also known as levulose. It is sweetest sugar.
- Sucrose is a non – reducing sugar.
- Maltose is also known as malt sugar.
- Lactose is known as milk sugar.
- Crude fiber includes lignin, gums, pectins, mucilages, cellulose, and hemi-cellulose.
- Crude fiber is digested in rumen colour nutrients.
- Lignins of woody trees do not contain nitrogen.
- Wax is saponifiable lipid.
- Steroids, terpenes are non saponifiable lipids.
- Phospholipids serve as a liaison between fat soluble and water soluble substances.

- Sphingomyelins are present in brain and in myelin sheath of nerve tissue. It is also known as 4 – sphingemine.
- Cerebroside is simplest glycolipid.
- Progesterone, oestrogen and adrenal corticoids are derived from cholesterol.
- Cholesterol exists as both free from and ester from.
- Ergosterol is a precursor of Vitamin D_2.
- Prostaglandin E inhibit cyclic AMP formation in gastric mucosal cells thus blocks gastric acid secretion.
- Fats are most concentrated form of stored energy in animals.
- Lipids protect organs from mechanical shock and maintain optimum body temperature.
- All proteins contain C, H, O, N and generally sulphur.
- In a strongly acid solution, amino acid exists largely as cation, while in alkaline solution, it exists as anion.
- pH value at which amino acid is electrically neutral is known as iso-electric point.
- All amino acids except glycine are optically active.
- Methionine is the first limiting amino acid soyabean.
- Hydrolysis of histone yields Arginine and lysine.
- Calcium and phosphorus account for three fourth of minerals is body (49%, Ca of 27% P).
- Parathyroid hormone increases serum calcium and lowers serum phosphorus.
- Out of total phosphorus in body, 43% is present as free HPO_4, 20% as $NaHPO_4$.
- Potassium maintains acid – base equilibrium, nerve transmission.
- Zinc is poorly absorbed from intestine.
- Sodium maintains body fluid pH.

- Na metabolism is primarily regulated by aldosterone hormone, which promotes reabsorption of sodium from kidney tubules.
- Only one-third of total body sodium is present in skeleton.
- Cystine and methionine are sulphur containing amino acids.
- Magnesium ion activates phosphatase enzymes and controls irritability of neuromuscular system.
- Iron is present in most of animal feed as Ferric ion. Iron is absorbed as ferrous form.
- Partial hydrolysis of cellulose yields disaccharide Cellobiose.
- Zinc is an integral part of enzyme carbonic anhydrase which is responsible for rapid combination of CO_2 with water in RBC of peripheral capillary blood and for rapid release of CO_2 from blood into alveoli of lung.
- Manganese activates arginase, thiaminase, enolase, prolinase enzyme.
- Whole rice is excellent source of Manganese (420 ppm).
- Iodine is an absorbed as iodine form, most readily from small intestine.
- In thyroid gland, iodine is bound to tyrosine molecule of thymoglobulin as 3 – monoiodthyronine, 3,5 – diiodothyronine, 3,5,3,5 – tetraiodothyronine and 3,5,3- triiodothyronine.
- 3,5,3,5 – tetraiodothyronine is also known as Thyroxine.
- Xanthine oxidase and liver aldehyde oxidase contain molybdenum.
- Teartness occurs due to molybdenum is termed as peat scours.
- Vitamin A is essential for formation of rhodopsin which is needed for vision in dim light.
- Vitamin D_4 is activated 22 – dehydroergosterol.
- Vitamin D stimulates release of calcium and incorporation phosphorus into phospholipids of intestinal mucosa.

- Vitamin K is needed for formation of specific m RNA which directs synthesis of prothrombin.
- Phylloquinone and Menaquinone are two forms of Vitamin K.

QUESTIONS

1. Which of the following fasting persistent glucose level are suggestive of diabetes mellitus in dogs –
   A. > 200 mg / dl B. 100 mg / dl
   C. 120 mg / dl D. < 200 mg / dl

2. Hyperglycenia can also be caused by hyperadrenocorticism in–
   A. Dogs B. Cats
   C. Horses D. All of above

3. Hyperglycemia refers increased glucose level in –
   A. Milk B. Blood
   C. Urine D. Saliva

4. Serum sample should be separated from RBC –
   A. 30 minutes B. 40 minutes
   C. 60 minutes D. None

5. Normal BUN values range –
   A. 10 -30 mg / dl B. 5-10 mg / dl
   C. 30 -40 mg / dl D. None

6. Increase in Blood urea Nitrogen are often associated with –
   A. Liver disease B. Cardiac disease
   C. Renal disease D. Nervous disease

7. Glomerular filtration rate can be estimated by –
   A. Blood Creatinine level B. BUN level
   C. Urine Creatinine level D. None

8. Increased BUN and creatinine in blood is known as –
   A. Createmia B. Azotemia
   C. Azoturia D. None

9. Prerenal Azotemia is usually accompanied by which type of urine –
   A. Hyperosthenuric urine
   B. Hypoosthenuric urine
   C. Normal specific gravity urine
   D. No relation with specific gravity

Match the following –

	Term		Definition
10.	Proteinuria	C	A. Increased glucose in blood
11.	Hyperglycemia	A	B. Increased lipids in blood
12.	Lipemia	B	C. Protein in urine
13.	Acetonemia	D	D. Acetone in blood

14. Rothera's test is done for diagnosis of –
   A. Mastitis B. Ketosis
   C. Brucellosis D. Milk fever

15. Urine protein to Creatinine ratio of a healthy dog should be–
   A. < 1.0 B. > 1.0
   C. 1.0 D. > 1.5

16. Which one is a sensitive indicator of cholestasis –
   A. Serum Alkaline Phosphatase
   B. Alanine Amino transferase
   C. Serum Amylase
   D. Serum lipase

17. Which test is used to distinguish between hemolytic and obstructive jaundice –
   A. Vanden Bergh test B. Rothera's test
   C. Milk Ring test D. Strip cup test

Write A for true and B for false statements:

18. Predominance of unconjugated bilirubin is suggestive of hemolytic jaundice. A

19. Predominance of conjugated bilirubin is suggestive of extra hepatic biliary obstruction. A

20. Bilirubin is relatively insensitive indicator of hepatic disease in cattle with jaundice. A

21. Increase in unconjugated bilirubin is seen with both hemolytic and hepatic disease in horses. A

22. Excreted bilirubin glucuronide is reduced to urobilinogen by intestinal bacteria. A

23. Bile acids are required for emulsification of dietary fat before its digestion and absorption. A

24. Ammonia is converted to urea in liver. A

25. Removal of sulfobromophythalein dye from the blood can be used as a measure of hepatocyte function. A

26. For mature horses the half life of BSP clearance time is –
A. 2 – 3.7 minutes B. 1 – 1.2 minutes
C. 4 – 4.7 minutes D. None

27. For healthy cattle, $t_{1/2}$ of BSP clearance time is –
A. 2.5 – 4.1 minutes B. 2 – 2.7 minutes
C. 1.7 minutes D. 2.1 minutes

28. Pancreas is primary source of –
A. Serum Amylase B. Serum lipase
C. Bile acids D. Serum phosphatase

29. In cats, whose increased activity is the earliest and most consistent indicator of acute pancreatitis
A. Serum lipase B. Serum Amylase
C. Serum Phosphatase D. None

30. Steatorhea refers to presence of –
A. Fat in blood B. Fat in faces
C. Fat in urine D. Fat in saliva

31. Whose determination is a specific test for identification of exocrine pancreatic insufficiency in dogs –
A. Trypsin like immunoreactivity
B. Alanine aminotransferase
C. Lipase
D. aminophosphatase

32. Ammonium burate crystals occur in –
A. Alkaline urine B. Acidic urine
C. Neutral urine D. Alkaline acidic urine

33. Hyaline casts are usually caused by –
A. Renal Proteinuria B. Glucosuria
C. Hypoglycemia D. Steatorhea

34. Acetone of parathyroid hormone and calcitonen on resorption is –
A. Antagonistic B. Syneyistic
C. Additive D. None

35. Concentration of Calcium in blood of mammals is –
A. 10 mg / dl B. 20 mg / dl
C. 2 mg / dl D. 25 mg / dl

36. Hypophosphatemia develops from direct action of –
A. Calcitonin B. Pancreatin
C. Parathyroid D. None

37. Which one is Thyroxine –
A. T_3 B. T_4
C. Parathyroid D. None

38. 1 mg / dl creatinine will be equal to –
A. 88.40 u mol / l B. 70 .40 u ml / l
C. 58.40 u ml / l D. 98.40 u mol / l

39. Thyroid hormones are –
A. Lipophillic B. Water soluble
C. Lipophobic D. None

Match the following –

40.	Cushing disease	B	A. Vit. D_3
41.	Cholicalciferol	A	B. Hyperadrenocorticism
42.	Ergocalciferol	D	C. 1,25 – dihydroxyvitamin D
43.	Calcitrol	C	D. Vit. D_2

Match The Following:

44.	PCV in cat (%)	D	A. 1 – 7
45.	Hemoglobin in goat (g / dl)	B	B. 5 – 7
46.	RBC in pig (x 10^6 / ul)	A	C. 30 -45
47.	Platelets in cow (x 10^5 / ul)	A	D. 8-12

True and False: Write A for true and B for false statements.

48. Heinz bodies are pieces of oxidized hemoglobin. A
49. Schistocytes are WBC fragments. B
50. Dehydration causes increase in PCV. A

Answer Key
Biochemistry

Q.	A.	Q.	A.	Q.	A.	Q.	A.	Q.	A.
1	A	11	A	21	A	31	A	41	A
2	D	12	B	22	A	32	A	42	D
3	B	13	D	23	A	33	A	43	C
4	A	14	B	24	A	34	A	44	D
5	A	15	A	25	A	35	A	45	B
6	C	16	A	26	A	36	A	46	A
7	A	17	A	27	A	37	B	47	A
8	B	18	A	28	A	38	A	48	A
9	A	19	A	29	A	39	A	49	B
10	C	20	A	30	B	40	B	50	A

CHAPTER -5

VETERINARY PARASITOLOGY

VETERINARY PARASITOLOGY

SALIENT FEATURES:

- Coenurus cerebralis is metacestode (larval) stage of Taenia multiceps.
- Trypanosoma, Leishmania are hemoflagellates of zoomastigophora class.
- *Trypanosoma evansi* is the first pathogenic trypanosome discovered in India by Veterinarian Dr. G. Evans.
- Trypanosoma is chiefly monomorphic, with slender leaf-like body. Transmission occurs mechanically by blood-sucking flies.
- *Trypanosoma theileri* causes **"turning sickness"**, an anthrax like disease.
- Trypanosoma is extracellular while Leishmania is intracullular parasite.
- Leishmania is cyclically transmitted by blood-sucking sand flies *(Phlebotomus)*.
- Trichomonads reproduce asexually by binary fission. Cysts are typically absent.
- Trichomona causes abortion in first quarter of pregnancy.
- *Histomonas meleagrides* is atypical trichomonad, found in caeca and liver of turkey and causes black head disease.
- Histomonas is transmitted by embryonated egg of Heterakis gallinarum nematode.
- Coccidia are intracellular parasites, reproduced by schizogony or endodygony. Infective stage is sporulated oocysts.
- Overcrowding and insanitary conditions are two predisposing factors for coccidiosis.
- Babesia life cycle involves two hosts : animal and hard tick.
- *Eimeria brunette* causes rectal coccidiosis.
- *Fasciola hepatica* is commonly found in hilly area.

- *Ascaridia galli* is most common nematode of poultry.
- *Ascaridia galli* also transmits through egg.
- Pig is the only natural host of kidney worm (stephanuros dentatus)
- Filaroides osleri are tracheal worms of dogs.
- Coenurus cerebralis causes gid, staggers or sturdy condition.
- Hypoderma bovis in cattle migrates through spinal cord to reach dorsum of back.
- Myiasis is development of larval dipteran flies within tissues including CNS (Hypoderma bovis larva).

QUESTIONS

1. Type of Parasitism when entire life is parasitic is called –
   A. Obligatory. B. Facultative
   C. Erratic D. Temporary

2. Which antibiotic may be indicated for Ascaris sp. –
   A. Phenothiazine B. Tetracycline
   C. Hygromycin B D. Cephalosporin

3. *Oxyuris* sp is also called as –
   A. Pin worm B. Caecal worm
   C. Hookworm D. None of above

4. Tetramisole is effective against –
   A. Lungworm B. Bunostomum
   C. Oestertagia D. All of above

5. Coumpaphos is used to control –
   A. Grub B. Ascaris
   C. Oestertagia D. None

6. Identify hardtick from following –
   A. Ixodid B. Argas
   C. Melophagus D. None of above

7. Life cycle is completed within 7 days involving egg-laying after first blood meal which result six-legged larva upon hatching followed by blood-sucking nymphs which became adults. Identify the parasitic with such life cycle –
   A. Demodex B. *Dermanyssus*
   C. Argas D. Ear tick

Match the following:

Q	Common name	Ans	Genus
8.	Soft tick B	A.	*Damalinia*
9.	Leg Mange C	B	Argas
10.	lice A	C	Chorioptes
11.	Red mite D	D	*Dermanyssus gallinae*

12. Horn fly is –
   A. *Haemotobis irritans* B. *Stomoxys calcitrans*
   C. *Habronema* D. *Cooperia*

13. Earthworm is intermediate host for –
   A. *Capillaria* B. *Strongylus*
   C. *Fasciola* D. *Argas*

14. *Chabertia ovina* affects which part of digestive system –
   A. Colon B. Crop
   C. Rumen D. None

15. Choose the parasite with direct life cycle –
   A. Heterakis B. Chabertia
   C. Ascaridia D. All of the above

16. Which one is called a Pallisade worm –
   A. Ascaridia B. Strongylus
   C. Chabertia D. None

17. Moniezia sp. is a –
   A. Coccidia B. Tapeworm
   C. Roundworm D. None

18. Redwater fever is caused by –
   A. Moniezia B. Babesia
   C. Theileria D. Anaplasma

19. Father of parasitology is –
A. F. Redi B. Pasteur
C. Rudolphi D. Lamarck

20. Bacteria and amoebic cyst on legs of housefly and beetles represents which type of symbiosis –
A. Mutation B. Phoresis
C. Predation D. None

21. Ciliates in rumen represent –
A. Innocuous parasitism B. Phoresis
C. Predation D. Mutualism

22. Which one is monoxenous parasite –
A. Haemophilus B. Fasciola
C. Trichinella D. Theileria

23. Mice is paratinic host of –
A. Ascaridia B. Toxocara canis
C. Fasciola D. Dicrocoelium

24. Strongyloides belongs to –
A. Ovoparous group B. Ovoviviparous group
C. Larvaeparous group D. None

Note : Write A for true statement and B for false statement

25. No development occurs in transport host. A
26. Trematodes are oviparous. A
27. Trichinella sp. is autoheteroxenous parasite. A
28. Snail is intermediate host of Fasciola. A
29. Armed oral sucker is peculiar characteristic to family Echinostomatidae. A
30. Metcercaria is infective stage of digenetic trematode. A
31. Ventral sucker is also known as acetabulum. A
32. Egg of digenetic trematodes is operculated except of blood flukes. A
33. Redia stage is found in life cycle of Schistosoma. B
34. Cotugnia and Moniezia are double pored tapeworms. A
35. Bothria is present in Eucestodes. B
36. Pleurocercoid is infective stage of Cotyloda. A

कृपया रेषा मारुन
पुस्तक खराब करु नये.

37. Which one arachnid is endoparasites –
A. Red mite B. Soft tick
C. Air sac mite. D. None

38. Mange mite belongs to –
A. Sarcoptiformes B. Tombidiformes
C. Ixodidae D. Mesostigmata

39. Ascaris competes with host for –
A. Carbohydrate B. protein
C. fat D. vitamin

40. Pimply gut is peculiar to infection of –
A. Oesophagostomum B. Schistosoma
C. Theileria D. Coccidia

41. Which one may cause abortion most likely –
A. Sarcocystis B. milk fever
C. Fasciola D. round worms

42. Correct sequence **of stages** in life cycle of mite is –
A. Egg-larva-nymph – adult
B. larva-egg-adult
C. egg-nymph – adult
D. egg-nymph-larva-adult

43. Correct sequence of life cycle of lice is –
A. Egg- nymph – larva-adult B. egg-nymph -adult
C. nymph-larva – adult D. None

44. Acarology is the study of –
A. mites B. ticks
C. tapeworm D. snakes

45. Only arthropod having indirect life cycle is –
A. wood lice B. tongue worm
C. insecta D. none

46. In cestodes, one egg produces how many cysticercoids –
A. one B. two
C. three D. four

47. Apolysis is seen in –
A. roundworm
B. tapeworm
C. fasciola
D. none

48. Infective stage of tapeworm is –
A. metacestode
B. oocyst
C. nymph
D. eucestode

49. No. of sets of hooks present in onchosphere is –
A. 3
B. 4
C. 6
D. 1

50. Stage of Leishmania found in Phlebotomus fly is –
A. Promastigote
B. Mastigote
C. Post mastigote
D. None

Answer Key

Q.	1	2	3	4	5	6	7	8	9	10
A.	A	C	A	D	A	A	B	B	C	A
Q.	11	12	13	14	15	16	17	18	19	20
A.	D	A	A	A	D	B	B	B	C	B
Q.	21	22	23	24	25	26	27	28	29	30
A.	A	A	B	B	A	A	A	A	A	A
Q.	31	32	33	34	35	36	37	38	39	40
A.	A	A	B	A	B	A	C	A	A	A
Q.	41	42	43	44	45	46	47	48	49	50
A.	A	A	B	C	B	A	B	A	A	A

CHAPTER -6

VETERINARY MICROBIOLOGY AND IMMUNOLOGY

MICROBIOLOGY & IMMUNOLOGY

SALIENT POINTS

- Chronic respiratory disease is a mycoplasmal disease of poultry.
- **IgA** is found in high concentration in external secretions colostrum, tear, saliva, intestinal and bronchial secretions. It is a part of Ist line of defense (DL-1)
- Milk contains greater quantity of Ig A than Ig G.
- Ig E is homocytotropic. Responsible for allergic reaction and syndromes of Asthma and Hay fever. Involved in protection against metazoan parasites – intestinal worm.
- Antigen – binding Sites are known as Paratopes.
- Allotpyes are epitopes that differ among individuals of same species. Genetically different antigenic determinants on proteins of individuals of same species.
- Antisera produced to heat denatured or chemically denatured Ig may react only to denatured Ig; not with native Ig.
- Idiotype is a set of unique antigenic determinants (Idiotopes) on V region of homologous/ monoclonal antibodies.
- Idiotope is an epitope on V region of antibody.
- Antigen is molecular species capable of inducing immune response and of being recognized by antibody.
- Interleukin is produced by T-cells.
- Mature antibody-producing cells are called plasma cells.
- Neonatal bursectomy in birds causes reduced Ig level.
- Detection of surface Ig best demonstrates that the lymphocytes in leukemic animals are B-cells.
- Neonatal thymectomy does not cause increased susceptibility to disease.
- Vit. E enhances B-cell proliferation enhances lymphocytes

response to pokeweed mitogen enhances macrophage phagocytosis of *Streptococcus pneumoniae*.

- Tuberculosis is caused by *Mycobacterium tuberculosis*.
- Rat is involved in transmission of plague.
- Leeuvenhock was first to report cell under microscope.

QUESTIONS

1. The term Immunization was coined by –
   A. J. Lister B. L. Pasteur
   C. E. Jenner D. None
2. First vaccine against fowl cholera was developed by –
   A. L. Pasteur B. E. Jenner
   C. Leeuwenhock D. None
3. Cell wall is present in –
   A. Bacteria B. Rickettsia
   C. Fungi D. All of the above
4. Which of the following is eukaryotic cell –
   A. Bacteria B. Rickettsia
   C. Fungi D. All of the above
5. Comma shaped bacteria –
   A. Spirilla B. Spirochaeta
   C. Vibrio D. None
6. *E. coli* is a –
   A. Cocci B. Bacilli
   C. Coccobacillus D. None
7. Several vertical divisions of coccus results –
   A. Staphylococci B. Streptococci
   C. Tetrad D. None
8. Membrane bound organelles are absent in –
   A. Bacteria B. Virus
   C. Virions D. All of above

9. Babes ernst granules are –
   A. Polymetaphosphate B. Reserve
   C. Both D. None
10. Fluid mosaic model is a model for –
   A. Cell wall B. Cytoplasm
   C. Cell structure D. None
11. Teichoic acid is present in –
   A. Gram + ve bacteria B. Gram – ve bacteria
   C. Both D. None
12. Gram negative bacteria contain –
   A. Teichoic acid B. Lipopolysaccharide
   C. Both D. None
13. Structural backbone of bacteria is –
   A. Carbon B. Phosphorous
   C. Sodium D. None
14. Growth rate of bacteria is zero in –
   A. Lag phase B. Log phase
   C. Stationary phase D. None
15. Catalase test is positive for –
   A. Staphylococcus B. Streptococcus
   C. Both D. None
16. Acid fast staining was developed by –
   A. Ehrlich B. Waksman
   C. Hesse D. None
17. Concept of Attenuation was given by –
   A. Pasteur B. Jenner
   C. Schutz D. None
18. Vaccines against Fowlcholera, Rabies, Anthrax were first developed by –
   A. Pasteur B. Jenner
   C. Schutz D. None

19. Father of bacteriology is –
A. Rous B. Pasteur
C. Koch D. None

20. Who isolated fowl sarcoma virus –
A. Rous B. Rickets
C. R. Koch D. None

21. Clonal selection theory was proposed by –
A. Jerne B. Burnet
C. Haeckel D. None

22. Five kingdom classification was proposed by –
A. Jerne B. Whittacker
C. Burnet D. None

23. Bacteria belong to –
A. Protista B. Monera
C. Planta D. None

24. Peptidoglycan is found in cell wall of –
A. Bacteria B. Fungi
C. Mycoplasma D. None

25. Suitable media for fungi is –
A. BGA B. SDA
C. L J media D. None

26. Agar solidifies at –
A. 45° C B. 50° C
C. 25° C D. None

27. Nucleoside consists of –
A. N_2 Base B. Pentose sugar
C. Both D. None

28. Nucleotide is made up of –
A. Nucleoside B. Phosphate
C. Both D. None

29. TCA cycle results –
A. 38 ATP B. 20 ATP
C. 8 ATP D. None

30. Blood agar contain blood –
A. 1 % B. 5-10 %
C. 20 % D. None

31. Which one is called as soluble RNA –
A. rRNA B. tRNA
C. mRNA D. None

32. Which one involves Bacteriophage –
A. Conjugation B. Transduction
C. Transformation D. None

33. F factor is
A. DNA B. tRNA
C. rRNA D. mRNA

34. Selective medium for staphylococcus is
A. Mannitol salt agar B. Urea medium
C. BOA D. None

35. Nature of staphylococcal toxin is
A. Dermonecrotoxin B. Hemolysin
C. Enterotoxin D. All

36. Streptococcal mastitis can be diagnosed by
A. Dick test B. CAMP test
C. Ascoli test D. All

37. Blood does not clot in which disease –
A. Haemophilia B. Anthrax
C. Both D. None

38. Ascoli test is a –
A. Percipitation test B. Agglutination test
C. Diffusion test D. None

39. Anthrax is also known as
A. Splenic fever B. Wool sorters disease
C. Charbon D. All

40. *B. anthracis* produces medusa head like colony on which media–
A. Nutrient Agar B. Blood Agar
C. Lactose Agar D. None

41. On nutrient Agar, which type of colony *B. anthracis* produces–
A. Strings of pearls B. Medusa head
C. Dewdrop like D. None

42. Sterne vaccine is used against –
A. Anthrax B. Scarlet fever
C. Malta fever D. All

43. Common sequelae of Brucellosis is –
A. Retention of placenta B. Metritis
C. Abortion D. All

44. Which test is used to diagnose Brucellosis –
A. Card test B. ABR test
C. Blood Agglutination test D. All

45. Brucella is –
A. Intracellular organism B. Extracellular organism
C. Acellular organism D. None

46. Koch's adenitis is caused by –
A. Mycobacteria B. Brucella
C. Clostridium D. None

47. Stockyard disease is –
A. H. S. B. FMD
C. Brucellosis D. None

48. H. S. is also known as –
A. Cornstalk disease B. Transit fever
C. Barbone D. All

49. *Pasteurella multocida* causes H. S. It is –
A. Aerobic B. Anaerobic
C. Capsular D. Only 1 & 3

50. Type of capsule antigen causing fowl cholera is –
A. A B. B
C. C D. D

51. Franscisella requires the following for growth –
A. Cystine B. Cytosine
C. Methionine D. None

52. Tularemia is caused by –
A. Pasteurella B. Brucella
C. Franscisella D. None

53. Struck is caused by *Clostridium perfringens* type –
A. Type C B. Type A
C. Type D D. Type B

54. Black quarter is caused by –
A. *Cl.nouveii* B. *Cl. chouvei*
C. *Cl. septicum* D. None

55. *Cl. septicum* causes –
A. Braxy B. Gas gangrene
C. Pulpy kidney D. None

56. Clostridium is –
A. Gram positive bacteria B. Anaerobic bacteria
C. Endospore forming bacteria D. All

57. Earliest sign in horse affected with *Cl. tetani* –
A. Bloat B. Prolapse of 3rd eyelid
C. Both D. None

58. Spore of *Cl. tetani* has shape of –
A. Drumstick B. Boomerang
C. Oval D. None

59. *Cl. botulinum* type D causes –
A. Lamziekte B. Shaker foal syndrome
C. Limberneck D. None

60. Multiplication of *Cl. nouveii* B is favored by –
A. Fasciola infection B. Brucella infection
C. Viral infection D. None

61. Red water disease is caused by *Cl. nouveii* type –
A. A B. D
C. C D. B

62. Symptomatic anthrax is caused by –
A. Bacillus B. Clostridium
C. Brucella D. None

63. Cord factor of Mycobacteria cell wall is –
A. Lipid B. Protein
C. Carbohydrate D. None

64. Mycolic acid of mycobacterium is –
A. Glycolipid B. Protein
C. Carbohydrate D. None

65. Mineral associated with severity of Johnes' disease –
A. Cu B. Fe
C. Mn D. None

66. Vallee's vaccine is used to prevent –
A. Paratuberculosis B. Tuberculosis
C. Brucellosis D. None

67. Infectious jaundice is caused by –
A. Leptospira B. Brucella
C. Virus D. None

68. Canine typhus is also known as –
A. Weil's disease B. Sttuttgart disease
C. Infectious jaundice D. All of above

69. Cold mastitis is caused by –
A. Streptococcus B. Staphylococcus
C. E. coli D. Leptospira

70. Enteric form of Salmonella is seen generally in –
A. Adult B. Young
C. Neonates D. All

71. Bacillary white diarrhea in chicks is also known as –
A. Pullorum disease B. Keel disease
C. Fowl typhoid D. None

72. Turkey egg appearance is seen in Salmonella infection in –
A. Liver B. Kidney
C. Intestine D. None

73. Surface antigen of *E. coli* causing diarrhea in calves is –
A. K_{88} B. K_{99}
C. K_{12} D. None

74. IMViC pattern for *E. coli* is –
A. ++ — B — ++
C. - + - + D. None

75. Salmonella has which of the following IMViC pattern –
A. - + - + B. ++ —
C. — ++ D. None

76. Which one is H_2S and urease positive –
A. Proteus B. E coli
C. Salmonella D. Shigella

77. Swarming phenomenon is shown by –
A. Proteus B. Salmonella
C. E coli D. Shigella

78. Bismuth sulfate is most suitable for isolation of –
A. Streptococci B. Salmonella
C. Mycobacteria D. None

79. Lumpy jaw is caused by –
A. Actinomyces B. Actinobacillus
C. Mycobacteria D. None

80. Actinobacillus causes –
A. Lumpy jaw B. Wooden tongue
C. Charbone D. Barbone

81. Summer mastitis is caused by –
A. Leptospira B. Actinomyces
C. Actinobacillus D. None

82. Glanders is caused by –
A. Actinobacillus B. Actinomyces
C. Brucella D. None

83. Mallein test is used for –
A. Strangle B. Tuberculosis
C. Paratuberculosis D. Glanders

84. Streptococcus equi causes –
A. Strangle B. Glander
C. Mastitis D. None

85. Drug of choice for Pseudomonas is –
A. Polymixin B. Erythromycin
C. Iodine D. None

86. Iodide is used preferably in –
A. Salmonellosis B. Actinomycosis
C. AIDS D. PPLO infection

87. Farcy is also known as –
A. Glanders B. Strangle
C. Distemper D. None

88. Generally bacteria fail to survive on skin because of –
A. Prescence of lactic acid in sweat
B. Absence of lactic acid in sweat
C. Low pH
D. Only 1 & 3

89. Bactericidal component of semen is –
A. Acid B. Spermin and Zn
C. Lysozyme D. None

90. Azurophilic granules of neutrophils contains –
A. Myeloperoxidase B. Lactoferin
C. Lysozyme D. None

91. Horse shoe nucleus is found in –
A. Macrophase B. Neutrophil
C. Bacteria D. Fungi

92. Macrophage present in liver is known as –
A. Kupffer cell B. Mesengial cell
C. Microglia D. None

93. Site of lymphoid differentiation in bird is –
A. Bursa B. Thymus
C. Spleen D. None

94. Antibody is –
A. Glycoprotein B. Glycolipid
C. Lipoprotein D. None

95. Isotypic forms of light chain constant regions are –
A. k, ë B. á and ë
C. k and á D. None

96. Highest concentration in serum is found for Ig –
A. G B. A
C. M D. D

97. Ig having maximum sedimentation coefficient is –
A. A B. M
C. G D. E

98. Which Ig is found in external secretions –
A. Ig A B. Ig G
C. Ig M D. Ig E

99. Which Ig is known as lupus erythematous factor –
A. Ig A B. Ig F
C. Ig M D. Ig E

100. Which Ig is very active during anaphylaxis –
A. Ig G B. Ig M
C. Ig E D. Ig D

BACTERIOLOGY AND MYCOLOGY

A. One word answer

1. Acid fast stain was discovered by _____.
2. Edward Jenner for the first time vaccinated against small pox using _____ vesicle.
3. Joseph Lister developed the _____techniques.
4. _____coined the term vaccine.
5. _____discovered defensive mechanism of phagocytosis.
6. _____discovered complement and complement fixation test.
7. R. Koch is known as the father of _____.
8. _____is known as the father of antiseptic surgery.
9. Rous isolated virus causing _____in fowls.
10. _____of microscope is the shortest distance by which two particles are separated to give distinct images.
11. India ink is a _____stain.
12. Lacto phenol cotton blue stain is used to study _____.
13. Rickettsias can be stained using _____stain.
14. Fontana stain is used to study _____.
15. The highest percentage of _____is found in Mycobacterium.
16. Dipicolinic acid is found in _____.
17. Protoplasts are prepared from Gram _____bacteria.
18. Pili are common in Gram _____bacilli.
19. Lophotrichous bacteria have cluster of flagella at _____pole.
20. Extracytoplasmic DNA in bacteria is known as _____.
21. Structure in bacteria equivalent to mitochondria is _____.
22. Site of eukaryotic cell respiration is _____.
23. Protein moiety of an enzyme is called _____.
24. ATP releases ___K cal energy per mol.

25. Uracil is a nitrogenous base of _____.
26. Chain terminating codons are also known as _____codons.
27. AUG and GUG are chain _____codons.
28. Same amino acid may be coded by _____codon.
29. Single codon codes for single _____.
30. Bacterial conjugation was first observed in _____.
31. Antibiotic resistance in bacteria is transmitted by ____plasmids.
32. In bacteria sex factor is determined by ___factor.
33. Penicillin was discovered by _____.
34. Actinomycin D inhibits the synthesis of _____.
35. Mytomicin C inhibits synthesis of _____.
36. The term antibiotic was first used by _____.
37. Fungi cell wall consists of _____.
38. Capsules can be stained by _____ink.
39. _____form of cocci is known as sarcinae
40. Staphylococcus aureus produces golden _____colony.
41. Hot – cold lysis is produced by ___haemolysin.
42. Selective medium for staphylococci is _____agar.
43. O_2 _____form of heterolysis is caused by streptolysin O.
44. ___– haemolysin produces no haemolysis.
45. Hotis test is used for *Streptococcus* _____.
46. Scarlet fever is detected by _____test.
47. Dick toxin is _____.
48. Streptococcus equi causes _____in horses.
49. _____reaction is produced by *Bacillus anthracis* capsule.
50. _____ on nutrient agar colonies is produced by *Bacillus anthracis*.
51. Black quarter in cattle is caused by *Clostridium* _____.
52. Shape of spores of *Clostridium tetani* is _____.

53. *Clostridium welchii* type b causes _____.
54. Lamziekte in cattle is caused by *Cl. botulinum* type ___.
55. _____, in chickens is caused by *Cl. botulinum* type C_a.
56. *Cl tetani* digests and turns meat colour into _____.
57. Serological types of *Cl. tetani* can be distinguished by ___ antigens.
58. Nagler's reaction with Cl. Perfringens on egg yolk agar is caused by _____.
59. *Cl. septicum* causes _____in sheep.
60. _____eye test is done for *Listeria monocytogenes.*
61. _____disease in swine disease is caused by *Erysipelothrix shusiopathiae.*
62. Schick test determines susceptibility to _____.
63. _____in sheep is caused by *Erysipelothrix rhusiopathiae.*
64. Ray fungus belongs to _____genus.
65. Wooden tongue is caused by _____.
66. *Nocardia* causes bovine _____.
67. *Corynebacterium* is now known as _____.
68. Leprosy bacillus is also known as _____bacillus.
69. Serpentine cards are produced by _____.
70. _____is caused by *M. paratuberculosis.*
71. Lowenstein – Jensen medium is used to grow pathogenic _____.
72. Timothy hay bacillus is _____.
73. Iron is essential for growth of _____.
74. Lactose fermenting bacteria are collectively known as _____.
75. _____antigens of *E. coli* are known as K antigens.
76. Bismuth sulphate agar is used for *Salmonella* _____.
77. Klebsiella pneumoniae is also known as _____bacillus.

78. _____causes white scour in calves.
79. Fowl typhoid is caused by *Salmonella* _____.
80. _____antigen is found an Salmonella surface.
81. Transduction was discovered by _____and _____in Salmonella typhi bacteria.
82. Conjugation was discovered in _____.
83. Transformation was first found in Pneumococci by _____.
84. Bacillary dysentery is known as _____.
85. _____toxin is produced by *Shigella dysenteriae.*
86. *Actinobacillus bovis* causes _____.
87. Wooden Tongue is caused by *Actinobacillus* _____.
88. *Homophiles aegyptius* is also known as _____bacillus.
89. Bang's disease is caused by *Brucella* _____.
90. *Brucella abortus* requires 5-10 % _____for growth.
91. *Brucella abortus* produces _____test.
92. Brucella causes abortion in _____trimester.
93. *Brucella abortus* has special affinity for _____present in uterus.
94. Kennel cough is caused by _____.
95. Nature of Bordetella toxin is _____.
96. Sweetish aromatic odour on ordinary media is produced by _____.
97. Whitemore's bacillus is nick name of _____.
98. *Pseudomonas mallei* causes _____in equines.
99. Mallein is a filtrate of _____extract.
100. Vibrio cholerae is facultative _____.
101. El tor is a biotype of _____.
102. Thiol medium is used for isolation of _____.
103. _____like colonies with nipple are produced by Mycoplasma on solid media.

104. Chronic respiratory disease in poultry is caused by _____.
105. _____is also known as Eaton agents.
106. Shape of spirochetes is _____.
107. Borrelia causes _____disease in man.
108. _____ disease is caused by *Leptospira interrogans* serotype icterohaemorrhagica.
109. Weil – Felix reaction is used for diagnosis of_____.
110. Brooder's pneumonia is caused by _____.
111. Aflatoxin is produced by _____.
112. *Trichophyton schoenleinii* causes _____.
113. Colonies of *A. fumigatus* are _____in colour.
114. *Histoplasma capsulatum* is found inside _____.
115. Tinea pedis is caused by _____.

ANSWER KEY (ONE WORD ANSWER)

1. Ehrlich.
2. Cow pox
3. Aseptic
4. Pasteur
5. Metchnikoff
6. J. Bordet
7. bacteriology
8. Lister
9. Sarcoma
10. Resolving power
11. negative
12. fungi.
13. Giemsa
14. spirochaetes.
15. lipids
16. spore
17. positive
18. negative
19. one
20. plasmid.
21. mesosome.
22. mitochondria.
23. apoenzyme.
24. 7.3
25. RNA.
26. Non – Sense
27. initiating
28. more than one
29. amino acid.
30. E. coli.
31. R
32. F
33. Flemming
34. RNA
35. DNA
36. Waksman
37. chitin
38. India
39. Cuboidal
40. yellow
41. α
42. Mannitol salt

43. labile
44. α
45. agalactiae
46. Dick
47. erythrogenic.
48. strangles
49. Mc. Fadyean's
50. String of Pearls
51. chauvoei.
52. drum stick.
53. lamb dysentery.
54. D.
55. Limberneck
56. black.
57. H
58. lecithinase.
59. braxy
60. Anton's
61. Diamond skin
62. diphtheria.
63. Pseudotuberculosis
64. Actinomyces
65. Actinomyces.
66. farcy.
67. Rhodococcus.
68. Hansen's
69. Mycobacterium.
70. Johne's disease
71. Mycobacteria.
72. *Mycobacterium phlei.*
73. Mycobacteria.
74. coliform.
75. Capsular
76. *typhi.*
77. fried lander's
78. *E. coli*
79. *gallinarum.*
80. Vi
81. Zinder, Lederberg
82. E. coli.
83. Griffith.
84. shigellosis.
85. Shiga
86. Lumpy jaw.
87. *lignieresii.*
88. Koch weeks
89. *abortus.*
90. CO_2
91. Straus
92. third
93. erythritol
94. *Bordetella bronchiseptica.*
95. dermonecrotising
96. *Pseudomonas aeruginosa.*
97. *Pseudomonas pseudomallei*
98. glanders
99. bacterial
100. anaerobes.
101. *Vibrio cholerae.*
102. *Campylobacter fetus.*
103. Fried egg
104. *Mycoplasma.*
105. *Mycoplasma*
106. helical.
107. lyme
108. Weil's
109. endemic typhus.
110. *Aspergillus flavus*
111. *Aspergillus flavus.*
112. favus.
113. green
114. Macrophages.
115. *Trichophyton mentagrophytes.*

Answer Key, Microbiology

Q.	A.	Q.	A.	Q.	A.	Q.	A.
1.	C	26.	A	51.	A	76.	A
2.	A	27.	C	52.	C	77.	A
3.	D	28.	C	53.	A	78.	A
4.	C	29.	A	54.	B	79.	B
5.	C	30.	B	55.	A	80.	A
6.	C	31.	A	56.	D	81.	B
7.	B	32.	B	57.	B	82.	B
8.	D	33.	A	58.	A	83.	A
9.	C	34.	A	59.	A	84.	D
10.	A	35.	D	60.	A	85.	A
11.	A	36.	B	61.	B	86.	A
12.	B	37.	C	62.	B	87.	B
13.	A	38.	A	63.	A	88.	A
14.	A	39.	D	64.	A	89.	D
15.	A	40.	B	65.	A	90.	B
16.	A	41.	A	66.	B	91.	A
17.	A	42.	A	67.	A	92.	A
18.	A	43.	D	68.	A	93.	A
19.	C	44.	D	69.	D	94.	A
20.	A	45.	A	70.	D	95.	A
21.	B	46.	A	71.	A	96.	A
22.	B	47.	A	72.	A	97.	A
23.	B	48.	D	73.	B	98.	B
24.	A	49.	D	74.	B	99.	A
25.	B	50.	A	75.	A	100.	A

CHAPTER -7

VETERINARY PATHOLOGY

VETERINARY PATHOLOGY

IMPORTANT TERMS:

- **Hyalinization** = Change from normal to variable degrees of smooth eosinophilic appearance of tissue. Eosinophilia indicates presence of protein. Thickening of basement membrane.
- **Corpora amylacea** = Circular laminated concretions found in glanduler tissue or free in secretions.
- **Calciphylaxis** = Widespread deposition of calcium in tissue treated with calcium sensitizer.
- **Necrobiosis** = Entire process of degeneration and death of cells.
- **Pyknosis** = Condensation of nuclear chromatin into a dark, round, homogeneous mass smaller than in a normal nucleus.
- **Coagulation necrosis** = Type of necrosis with recognizable gross and microscopic architectures of tissue.
- **Caseative necrosis** = Loss of tissue architecture alongwith necrosis.
- **Liquefactive necrosis** – Semisolid or fluid mass, undergoing self digestion. Ex. Abscess
- **Erosion** = Shallow area of necrosis of epidermis that heals without scarring.
- **Ulcer** = Excavation of surface produced by necrosis and sloughing of necrotic debris, involving tissue below surface layer.
- **Gangrene** = Combination of necrosis and putrefaction, involving saprophytic bacteria.
- **Steatitis** = Inflammation of fat.

- **Infarction** = Process of making infarct due to ischemia resulting nercosis.
- **Shock** = Generalized failure of peripheral circulation.
- **Diapedesis** = Flow out of blood cells through intact vessel wall.
- **Purpura** = Animal with extensive petechial and ecchymotic hemorrhages on serous and mucous surfaces.
- **Hemorrhagic diathesis** = Diseases that result in marked bleeding tendencies.
- **Cellulitis** = Acute purelent exudates in subcutaneous tissues.
- **Agenesis** = Tissue or organ did not develop and is absent.
- **Alpasia** = Organ is present but reduced in size from normal.
- **Hypoplasia** = Incomplete growth. It is an anomaly.
- **Atrophy** = Decrease in amount of tissue after full normal growth.
- **Dysplasia** = Abnormally developed tissue.
- **Retroplasia** = Decreased growth activity through injury or aging.
- **Anaplasia** = Cells and tissue that are poorly differentiated.
- **Metaplasia** – Transformation of fully differentiated normal adult tissue in a related type of adult tissue.
- **Teratology** = Study of anomalies.
- **Hamar tomas** – Improper mixtures of tissue and grossly resembles tumors ex. Moles in humans.

POINTS TO REMEMBER

- Hypertrophy is not seen in CNS.
- Metaplasia is transformation of one cell type to other type.

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- Necrobiosis is programmed cell death.
- Pycnosis is condensation of nuclear material in nucleus.
- Karyorrhexis is fragmentation of nucleus.
- Caseative necrosis is characterized by loss of both architectural and cellular details.
- Coagulative necrosis is a condition when cellular details are lost and architectural details are maintained.
- Symptom is defined as subjective evidence and thing felt by patient. ex- Pain, It cannot be recorded.
- Lesion is functional or morphological abnormality in tissue.
- Aflatoxins are produced by *Aspergillus flavus*. Aflatoxins affect liver, bile duct and kidney.
- Mesothelioma is found in thorax and abdomen.
- Myelin degeneration of nerves, Perivascular cuffing with lymphocytes, gross enlargement of feather follicles are characteristic of Marek's disease.
- Hygroma and capped elbow are examples of bursitis.
- Basal cell carcinoma is also known as rodent or Jacob's ulcer or hair matrex carcinoma.
- Basal cell carcinoma do not metastasize.
- Inflammation is characterized by 5 cardinal signs like 1. redness; 2. swelling; 3. pain; 4. heat; 5. loss of function.
- C_{567}, C_{3a5a}, Kellikrein, Lymphokines are chemoattractants for Monocytes.
- Secretion of C_{567}, C_{3a5a}, I L-1, LT-B_4, LPS by tissue attracts Neutrophils.
- T cells appear late in inflammation.
- Plasma cells are absent in blood and possess cartwheel nucleus.

- Kuffer cells are found in liver.
- Septal cells are present in lungs.
- EPITHELOID CELLS possess eccentric nucleus and involved in tuberculous lesion.
- Langhan's type giant cells have nuclei arrange in Horse Shoeshaped.Ex. Tuberculosis.
- Serous exudate is clear fluid secreted from edema. It shows first stage of inflammation.
- Cellulitis / Phlegmon is acute purulent exudate in subcutaneous tissue.
- Boil or furuncle is abscess on skin surface.
- Ulcer is oozing abscess with loss of basement membrane.
- Pus beneath epidermis is known as pustule.
- Opsonization is first stage of phagocytosis.
- SADDLE Thrombi is an arterial thrombi.
- Emboli is sequelae of thrombi.
- Emboli is mostly seen in arteries.
- Fat emboli is formed by entering fat in circulation accidently.
- Infarction refers to local area of necrosis due to ischemia.
- Inflammation of calcium is typhlitis of rectum is proctitis.

QUESTIONS

True or False: Write "A" for True and "B" for False statements.

1. Tissue should not be frozen before fixation.
2. Fixed tissues should be protected from freezing.
3. For chemical preservation, denatured alcohol should not be used.
4. Blood urea nitrogen and Creatinine are most often used to assess renal function.
5. Creatinine is produced as a waste product of muscle metabolism.
6. Blood Creatinine level is used to estimate glomerular filtration rate.
7. Howell – Jolly bodies are tiny ruminants of nuclear chromatins.
8. Heinz bodies are pieces of unoxidized hemoglobin.
9. Bilirubinuria is seen with liver disease or hemolysis
10. Picket fence posts like shaped calcium oxalate crystals are typically seen in urine in ethylene glycol toxicity.
11. Presence of ammonium burate crystals strongly suggests liver disease
12. Blood borne organisms in plasma or WBC are concentrated in the buffy coat.
13. Aegyptionella sp. appears as round signet ring or irregular oval bodies in RBC.
14. Solitary prominent basophilic inclusion bodies are seen in hepatocytic nuclei of inclusion body hepatitis cases.
15. Airsaccullitis is a classic lesion of Colibacillosis.

16. Which lesion is related to Duck viral hepatitis infection –
A. England liver with foci up to 1 cm. in diameter.
B. Mottled spleen
C. Swollen kidney
D. All of above

17. Colibacillosis in bind results.
A. Fibrinopurulent airsacculitis B. Mottled spleen
C. Hemorrhage on thigh D. None of above

18. Enlarged, friable, mottled liver and spleen along with general darkening of skin is found in
A. Colibacillosis B. Erysipelas infection
C. Mareks disease D. All of above

19. Hyperemic abdominal vasculature with swollen liver having multiple necrotic foci, are characteristic of
A. Fowl cholera B. Ascaridia galli
C. Zn deficiency D. None

20. Visceral lymphoid tumors, enlarged feather follicles, enlarge nerves, anaplastic lymphoblastosis are peculiar to
A. Marek's disease B. Fowl Cholera
C. New Castle disease D. None

21. Proventicular hemorrhages, necrotic caecal tonsils, mucoid respiratory exudates with thickened and opaque air sacs are seen in
A. Ranikhet disease B. Marek's disease
C. Fowl cholera D. Parasitic infection

22. Accumulation of bubbly sero-sanguinous fluid in the subcutis and cooked appearance of musculature in bird at necropsy indicates –
A. Gangrenous dermatitis B. Gangrenous dermatitis
C. Necrotic dermatitis D. All of above

Match the following –

	Disease	**Lesion**
23.	Reoviral infection	A. Pulmonary cream colored plaques
24.	Botulism	B. Rhinotracheitis
25.	Turkey Coryza	C. Limberneck
26.	Aspergillosis	D. Tenosynovitis

27. Zebra stripping haemorrhage in intestine is characteristic of
A. Rinder pest B. Brucellosis
C. FMD D. None

28. Conjunctivitis, stomatitis, abnormal bleeding, necrosis of lower lips are seen in
A. Ascaridia galli infection B. PPR
C. Brucellosis D. None

29. Edematous swelling of head, neck, brisket and sub serous petechial haemorrhage, bloody pericardial fluid are seen in
A. FMD B. Brucellosis
C. Haemorrhagic Septicemia D. PPR

30. Blue tongue disease is caused by
A. Orbivirus B. Filavis
C. Orthopvirus D. None

True / False (A for True and B for False statement)

31. Hyaline droplets are foci of proliferation of endoplasmic reticulum and indicates excess function or toxicity.

32. There is strong association between presence of fibrinoid and acute immunologically based reactions.

33. Xanthomatosis results from massive accumulation of lipids in macrophages.

34. Amyloid is best known in animals as a primary cause of uremia.

35. Acute anoxia usually causes coagulation necrosis.

36. Yellow fat disease or seatitis of swine occurs primarily as a result of
A. Fish diets B. Maize diets
C. Bone meal diets D. All of above

37. Steatilis usually arises as a result of deficiency of
A. Vit. E B. Vit. C
C. Vit. A D. None

38. Usual colour of wet gangrene is
A. Black B. White
C. Red D. None

39. Gradual cooling of body after death is called
A. Rigor mortis B. Livor mortis
C. Algor mortis D. None

40. Gravitational settling of blood to down side of the animal is known as
A. Algor mortis B. Livor mortis
C. Rigor mortis D. All of the above

Match the following –

41.	Tumors of melanoblasts	A. Melanosis
42.	Presence of melanin in abnormal Lactation	B. Macsophage
43.	Caroid	C. Thrombus
44.	Blood clot within vessel	D. Melanomas

Match the following –

45.	Colobome	A. Nervous system
46.	Myelitis	B. Female genital system
47.	Goiter	C. Eye
48	Salpingitis	D. Endocrine system

Match the following –

49.	Myeloma	A. Lymphocytes
50.	Lymphoma	B. Adrenal medulla
51.	Polyp	C. Plasma cells
52.	Pheochromocytoma	D. Glandular epithelium

53. Intravital intravascular clotting of blood is called
A. Empyema B. Hemorrhage
C. Thrombosis D. Phagocytosis

54. Red Thrombi are generally seen is
A. Artery B. vein
C. Muscle D. None

55. Rachicele is hernia of
A. Intestine B. Spinal Cord
C. Abomasum D. None

Answer Key

Q.	A.	Q.	A.	Q.	A.
1.	A	2	A	3	A
4.	A	5	A	6	A
7	A	8	B	9	A
10	A	11	A	12	A
13	A	14	A	15	A
16	D	17	A	18	B
19	A	20	A	21	A
22	D	23	D	24	C
25	B	26	D	27	A
28	B	29	C	30	A
31	A	32	A	33	A
34	A	35	A	36	A
37	A	38	A	39	C
40	B	41	D	42	A
43	B	44	C	45	C
46	A	47	D	48	B
49	C	50	A	51	D
52	B	53	C	54	B
55	B				

CHAPTER -8

VETERINARY PUBLIC HEALTH

VETERINARY PUBLIC HEALTH

SALIENT FEATURES:

- Cholera disease is known as Father of public health.
- Pigs act as amplifier and reservoir of zoonotic Japanese encephalitis virus.
- Veterinary Public Health is an interdisciplinary branch dealing with study of animal diseases, important for human health.
- Zoonoses are diseases transmissible from animal to human and vice – versa.
- Rabies is a direct zoonosis.
- Taeniasis belongs to cyclozoonoses group.
- Japanese encephalitis is a metazoonotic disease.
- Metazoonotic diseases require both vertebrate and invertebrate species for cycle maintenance.
- Histomoniasis is an excellent example of saprozoonosis.
- Brucellosis, Anthrax, Tuberculosis Leptospirosis are important occupational diseases.
- Kysannur forest disease is a viral (RNA) disease spread by bite of tick *Haemophysalis spinigera*. Transovarian transmission is also seen.
- Hydatidosis is a non-obligatory cyclozoonosis.
- Rota viral infection is a direct anothropozoonosis/ zooanthropososis.
- All India Institute of Hygiene and Public Health is situated at Calcutta.

- Trichinellosis spreads by ingestion of under processed contaminated pork.
- Fasciolosis is an excellent example of type III saprozoonosis, as it propagates and develops in inanimate object.
- PDADMAS (Project Directorate of Animal Disease Monitoring and Surveillance) is situated in Bangalore.
- Cohort studies design and evaluate intervention trials.
- Bacillus anthracis can tolerate – 130°C temperature.
- Salmonella can tolerate – 175°C for 3 days.
- Mycobacterium tuberculosis may survive at –10°C for 2 years.

QUESTIONS

1. Which of the following disease has recreational exposure as means of spread to man –
   A. Avian influenza
   B. Brucellosis
   C. Rabies
   D. None

2. Anthrax is a –
   A. Bacterial disease
   B. Viral Disease
   C. Mycoplasma Disease
   D. None of the above

3. Which one is spread by licks –
   A. Bartinella
   B. Anthrax
   C. Clostridium
   D. All of the above

4. Which one is caused by ingestion of undercooked ground beef –
   A. Coliform infection
   B. Rabies
   C. Plague
   D. Rat bite fever.

5. Tularemia is caused by –
   A. Vibrio
   B. Mycobacterium
   C. Rickettsia
   D. Francisella

6. Choose the rickettsial disease –
   A. Tetanus
   B. Tularemia
   C. Q-fever
   D. Rat bite fever

7. Typhus is commonly seen in –
   A. Rat
   B. Flying squirrel
   C. Bandicoots
   D. Cattle

8. Which one spreads via ingestion of raw or partially cooked infected fresh water fish –
   A. Malaria
   B. Clonorchis
   C. Anthrax
   D. None of the above

9. Which one is contact zoonosis –
   A. Actinomycosis
   B. Sarcocystosis
   C. Malaria
   D. None of the above

10. Bite of infected Phlebotomus sandflies may spread –
    A. Anthrax
    B. Clonorchis
    C. Leishmania
    D. Echinostomiasis

11. Choose fungal disease –
    A. Typhus
    B. Nocardiosis
    C. Plague
    D. Glanders

12. African sleeping sickness is spread by bite of infected –
    A. Tsetse fly
    B. Anopheles mosquito
    C. Tick
    D. Lice

13. Coenuriasis is caused by –
    A. Taenia multiceps
    B. Bartinella studeri
    C. Fasciola
    D. Diphyllobothrium

14. Which one is tapeworm of dog –
A. Dipylidium B. Hymenolepis
C. Taenia D. Capillaria

15. African hemorrhagic fever is caused by –
A. Marburg virus B. Bacillus anthracis
C. Arena virus D. Junin virus

16. Which one spreads via occupational exposure –
A. Contagious ecthyma B. Pseudo cowpox
C. Glanders D. All of these

17. Principal host of Fasciolosis is –
A. Swine B. Dog
C. Water buffalo D. Rat

18. Cattle is the principal host of –
A. Bartinella B. Borrelia
C. Anthrax D. Plague

19. All India Institute of Public health is situated at –
A. Delhi B. Calcutta
C. Chennai D. Lucknow

20. Which one of the is caused by tapeworm –
A. Bertinellosis B. Metagonimiasis
C. Billharziasis D. Paragonimiasis

21. Ingestion of raw pork may result –
A. Toxoplasmosis B. Trypanosomiasis
C. Babesiosis D. Fasciolosis

Note : Write "A" for true and "B" for false Statements (Q.22-26)

22. Hydatidosis is obligatory cyclozoonosis. B

23. Rota viral infection is indirect anothropozoonosis zooanthropososis. B

24. All India Institute of Hygiene and Public Health is situated at Calcutta. A

25. Trichinellosis spreads by ingestion of underprocessed contaminated pork. A

26. Fasciolosis is an excellent example of type I saprozoonosis, as it propogates and develops in animate object. B

27. Boutonneuse fever is zoonotic disease of dog. It is caused by–
A. Rickettsia conori B. Clostridium
C. Salmonella D. Francisella

28. Bovine encephal omyelitis is also known as –
A. Buss disease B. AIDS
C. Dumdum fever D. None

29. Botulinum cook is a heat process to reduce population of –
A. Clostridium B. Salmonella
C. Mycobacterium D. Tenella

30. Botulinum cook or 12 D value reduces population of clostridium bolulinum spores by a factor of 12 in _____ for D 121°C –
A. 2.78 minutes B. 50 minutes
C. 10 sec D. 15 minutes

Answer Key

Q.	A.	Q.	A.	Q.	A.
1	B	2	A	3	A
4	A	5	D	6	C
7	B	8	B	9	A
10	C	11	B	12	A
13	A	14	A	15	A
16	D	17	C	18	C
19	B	20	A	21	A
22	B	23	B	24	A
25	A	26	B	27	A
28	A	29	A	30	A

CHAPTER -9

VETERINARY SURGERY AND RADIOLOGY

SURGERY AND RADIOLOGY

SALIENT POINTS

- Death of tissue in absence of infection is known as Necrobiosis (Aseptic infarct)
- Acupuncture and acupressure deal with non-chemical therapeutic approach for various disorders.
- X-rays were discovered by Roentgen.
- Repeated exposure to X-rays delays healing process.
- Minimal invasive surgery aims at minimum loss of blood during operation.
- COLIC – means abdominal pain.
- Main etiology of colic includes abrupt decrease in diameter, junction between left ventral colon and pelvic flexure is most common location for impaction.
- Right dorsal colon (RDC) is closely attached to the right ventral clone (RVC) by intercolic fold and to body wall by mesentery with the base of the cecum. While neither the left ventral (LVC) nor the left dorsal colons (LDC) are attached directly to the body wall resulting these portions of colon to be displaced or twisted.
- Celiac artery supplies to stomach, pancreas, liver, spleen, first part of duodenum.
- Cranial artery goes to remaining duodenum, jejunum, ileum, caecum, large colon and transverse colon, initial part of descending colon, pelvic flexure.
- Volvulus of large colon near the junction of colon caecum impedes the flow of blood to left colon.
- Inguinal hernia is common in foals.
- The distended metatarsal vein in the horse is known as "Blood

Sppvin"

- FULGURATION is the employment of electric sparks or flashes for treatment of cancer like condition, for ex-epitheliomata.
- Epiploic foramen is site of intestinal strangulation/ incarceration (constriction).
- Natural space between dorsal side of spleen and left kidney, bounded by nephrosplenic ligament, which provides a shelf over which large colon can be displaced.
- ABSCESS - circumscribed aggregation of bacterial debris & necrotic tissues finely walled off a dense fibrotic wall.
- Aseptic surgery was introduced by J. Lister.
- Thick yellow pus indicates involvement of Staphylococci.
- Blind fistula has only one opening.
- Blunt bodies causes contused wounds.
- Paralysis of hind quarter is known as Paraplegia.
- Fibrous thickening of spersnatic cord is known as Scirrhous cord.
- Cyclopia is presence of one eye only, situated on middle line of head.
- Turning in of eyelashes is kia TRICHIASIS.
- Double row of eyelashes is termed as DISTICHIASIS.
- Drooping of upper eyelid is known as Ptosis.
- Fusobacterium necrophorum infection results in foul smell of pus and presence of gas.
- Bog Spavin / Serous tarsitis/ Puffy hock is characterized by free soft fluctuating swellings between ligaments of femorotarsal joint, without pain.
- Cataracts refers to opacity of lens or its capsule.
- Navicular disease is also known as podotrochlosis/ podotrochlitis and is defined as chronic degenerative condition of naviculor

bursa and navicular bone that involves damage to flexor surface of bone and overlying deep digital flexor tendon with osteocyte formation on lateral and proximal borders of bone. Most common cause of chronic forelimb lameness in horses.

- Sweeny, also known as Shoulder atrophy/ slipped shoulder refers to neurogenic atrophy of supraspinatus and infraspinatus muscles.
- Entropion and ectropion are surgical interventions for eyelid defects.
- Hysterectomy refers to removal of uterus.
- Gastrotomy refers to surgical intervention in stomach.
- Aspiration pneumonia is common complication of cricopharyngeal achalasia.
- Lumbo-sacral stenosis is most common in German shepherds.
- Diskospondylitis is the inflammation of intervertebral disk and adjacent vertebral bodies.
- Green stick fracture generally involve pliable bone which curves when bent and fractures on convex side.
- Evipan sodium produces deep anesthesia of short duration.
- Silkworm gut is non-absorbent suture and very useful for cutaneous sutures.
- Milliner's needles are used for suturing wound in hollow abdominal viscera.
- Quill suture is a form of relaxation suture.
- Halsted or Mattress suture is a good relaxation suture. It is also coaptative.
- Pin suture is indicated in eyelid, nostril or lip arounds.
- Button suture is a form of tension suture.
- Lembert suture is indicated for stomach, uterus, bladder and intestine.
- Ectropion is normally seen in blood hounds, St: Bernard.

TABLE : SUTURE PATTERN

Name of Structure	Common Uses	Example
1. Apposition	Wound of skin, muscle, esophagus	Lock stitch, Pin suture, simple interrupted, simple continuous
2. Inversion suture	Intestine, uterus	Lembert's, Czerny's, cushing, Connell.
3. Eversion suture	To suture cut end of vessels	
4. Purse string suture	Prolapse of rectum	
5. Relaxation suture	wound	mattress/ Halsted, Quill, Button
6. Miscellaneous	Anastomosis of intestine, Tendon suturing	Parker Kerr suture Bunnell's Mayer's technique

QUESTIONS

1. Objective of preanesthetic medication is –
   A. Minimize pain
   B. Increase reflex autonomic activity
   C. Facilitate handling
   D. Both A and C

2. Which action is not shown by phenothiazine tranquillizers on nervous system –
   A. Antiemetic
   B. Sympathomimetic
   C. Sedation
   D. All of the above

3. Choose the correct one –
   A. Atropine is longer acting than glycopyrrolate
   B. Atropine has same site of action as glycopyrrolate
   C. Atropine causes more increase in heart rate than glycopyrrolate
   D. None of the above

4. Opiate induced respiratory depression is antagonized by –
   A. Yohimbine
   B. Naloxone
   C. Ephedrine
   D. Etorphine

5. Choose most potent opioid agent –
   A. Meperidine
   B. Morphine
   C. Oxymorphone
   D. Butorphanol

6. Most potent inhalation agent is –
   A. Halothane
   B. Isoflurane
   C. Methoxy flurane
   D. Nitrous oxide

7. Choose the gas liquefied by pressure applied at room temperature –
   A. Oxygen
   B. Carbon Dioxide
   C. Nitrous oxide
   D. Both 2 and 3

8. Anatomic dead space during anesthesia –
   A. Can not change
   B. is greater than tidal volume
   C. can increase
   D. can decrease

9. Positive inotropic effect increases –
   A. Heart rate
   B. Plasma iron concentration
   C. Enzyme Inhibition
   D. None

10. Blood contains which protein in highest concentration –
    A. Hemoglobin
    B. Albumin
    C. Transferrin
    D. Fibrinogen

11. Choose the correct one –
    A. Diazepam is centrally acting muscle relaxant
    B. Ketamine is non – dissociative agent
    C. Phenothiazine causes vasoconstriction
    D. Dopamine is sympatholytic

12. Anatomic dead space is an area –
A. Involved in gas exchange
B. Not involved in gas exchange
C. Equal to tidal volume
D. None of the above

13. Anesthesia results in –
A. Increased arterial CO_2 level
B. Decreased arterial CO_2 level
C. No change in arterial CO_2 level
D. Either increased or decreased CO_2 level

14. In case of cattle, Xylazine administration results in –
A. Bradycardia B. Slow respiration
C. Diarrhea D. All of above

15. Epinephrine causes –
A. Premature ventricular contraction
B. Mature atrial contraction
C. Ventricular dilatation
D. None of the above

16. White line disease is characterized by separation of fibrous–junction between the sole and the wall on .....:
A. Abaxial border of sole. B. Adaxial border of sole
C. Lateral side D. None of the above

17. Pododermatitis circumscripta is also known as –
A. White line disease B. Sole ulcer
C. Toe ulcer D. Double sole

18. Type One vertical fissure is confined to –
A. Coronary band B. Middle of claw
C. Middle of wall D. None of the above

19. Pathophysiologic disturbance of microvasculture of the corium is known as –
A. Slipper foot B. Laminitis
C. Lameness D. Corkscrew claw

कृपया रेषा मारुन
पुस्तक खराब करु नये.

20. Serous tarsitis is also known as –
A. Bog spavin B. Puffy hock
C. Laminitis D. Both A and B

21. Condition, characterized by three soft fluctuating swellings between the ligaments of the femorotarsal joint and is often seen in related animals; is known as –
A. Serous bursitis B. Puffy hock
C. Bog spavin D. All of the above

22. Progressive unilateral or bilateral hyperextension of the hind limb is known as –
A. Spastic paresis B. Elso heel
C. Frost bite D. Both A and B

23. Tendinitis occurs generally in race horses after fast exercise. Which tendon is involved in such cases most frequently –
A. Superficial flexor B. Extensor
C. Deep flexor D. None of the above

24. Tendinitis is also known as –
A. Bog spavin B. Bowed tendon
C. Puffy hock D. Tenosynovitis

25. Fistulous withers also has infectious etiology and caused by –
A. Brucella abotus B. Staphylococcus
C. Bacillus anthracis D. None of the above

26. Nature of surgery involved in removal of a part of body –
A. extirpative surgery B. replacement surgery
C. plastic surgery D. general surgery

27. Site for liver biopsy in cattle is –
A. 11 ICS right side B. 7-8 ICS right side
C. 11-12 ICS left side D. 7-8 ICS right side

28. Nerve block used for eye examination is –
A. Infraorbital B. Mental
C. Retrobulbar D. auriculopalpebral

29. Inguinal hernia is also known as –
A. omphalocele B. bubonocele
C. oscheocele D. none of these

30. The pupil of eye under ketamine anesthesia remains –
A. dilated B. open
C. constricted D. half open

31. Oscheocoele is –
A. inguinal hernia B. nbdominal hernia
C. scratal hernia D. none of these

32. Which technique is most suitable to brain scanning –
A. NMRI B. CAT
C. DSA D. NONE

33. SIALOGRAPHY is used for –
A. Adrenal gland B. axillary gland
C. salivary gland D. lymph gland

34. In cushing suture, the needle –
A. passes parallel to the incision
B. does not enter the lumen
C. causes inversion of margins
D. all of the above

35. Spaying strictly means removal of –
A. ovary B. uterus
C. both D. oviduct

36. Best suturing material for suturing joint capsule is –
A. Kangaroo tendon B. cotton
C. catgut D. stainless steel wire

37. Suture made from bovine caecum –
A. Collagen B. Nylon
C. cargile membrane D. Catgut

38. Rupture of underlying tissue without separation of skin is known as–
A. Abrasion B. contusion
C. erosion D. all

39. Gallamine is classified under –
A. depolarizing agent B. non depolarizing agent
C. dual blocking agent D. none of the above

40. Barbiturates are derivatives of –
A. picric acid B. benzoic acid
C. barbituric acid (malonyl area) D. phenol

41. Which one is the stage of analgesia during anaesthesia –
A. I B. II
C. III D. IV

42. Xylazine should not be used for cat because it causes –
A heart block B respiratory failure
C emesis D coma

43. A technique, of using combination of two or more anaesthetic agents to anaesthetize, is known as –
A Light anaesthesia B Basal anesthesia
C Balanced anesthesia D None

44. Preanesthtic chemicals are used to –
A. Increase the effect of anesthetic drug
B. Decrease the effect of the anesthetic drug
C. Decrease the dose of anesthetic drug
D. Both A and C

45. Injury without break in skin is –
A. contusion B. erosion
C. abrasion D. none

46. Wound in which superficial layer of skin is destroyed by friction is known as
A. contusion B. abrasion
C. erosion D. Both B and C

47. Which one is first aid for acute inflammation –
A. Ice pack application B. Anodyne preparation
C. Warm application D. Rubbing and pressure

48. Reaction of living tissue to injury is –
A. Wound B. Infection
C. Bleeding D. Inflammation

49. Geiger muller counter is used to trace –
A. radioisotope in body
B. non radioactive elements in body
C. both A and B
D. useless in radioisotope search

50. Cystic swelling beneath the tongue is known as –
A. raphe B. ranula
C. canula D. none

Answer Key

Q.	A.	Q.	A.	Q.	A.
1	D	2	B	3	C
4	B	5	D	6	C
7	D	8	C	9	A
10	A	11	A	12	B
13	A	14	D	15	A
16	A	17	B	18	A
19	B	20	D	21	D
22	D	23	A	24	B
25	A	26	A	27	A
28	D	29	B	30	A
31	C	32	A	33	C
34	D	35	A	36	A
37	C	38	B	39	B
40	C	41	A	42	C
43	C	44	D	45	A
46	D	47	A	48	D
49	A	50	B		

CHAPTER -10

VETERINARY EPIDEMIOLOGY AND PREVENTIVE MEDICINE

EPIDEMIOLOGY AND PREVENTIVE MEDICINE

SALIENT POINTS :

- Australia continent, Great Britain, Iceland are free from rabies.
- Veterinary Epidemiology deals with diseases in population and factors effecting them including productivity.
- National Institute of Epidemiology is situated in Chennai.
- OIE stands for *Office International des Epizooties.*
- OIE (France) and Centre for Disease Control (USA) are international organizations to deal with epidemic.
- National Institute of Communicable Diseases, New Delhi is premier organization of India to deal with communicable diseases.
- Peat Soil is characterized by Copper deficiency and Molybdenum excess.
- Parturient paresis is generally seen in milking cows.
- Enterotoxaemia is most common in Finishing lambs and Pigs.
- Excess grain feeding results *Osteodysptrophia fibrosa* in horses.
- Age is a variable factor.
- Sex is an attribute.
- Disease occurrence is contributed by various factors like season, age, sex, species, breed.
- Climate is a permanent feature of a place.
- Weather is temporary feature of a place.
- Disease Model is mathematical simulation of a disease. May be used for disease prediction/study.
- Disease distribution in population may be according to time frame, space frame.
- Elimination, eradication are two methods for disease control.
- Climate around the body of animal is microclimate.

- Climate around the house of animal is macroclimate.
- Luoto test on milk is done for diagnoses of Q – fever.
- In decreasing order of distance covered,
  droplet nuclei > droplet > Dust.
- Rabies infection by ingestion was proved first by Soave in 1966.
- Ingestion is the route of immunization in foxes.

QUESTIONS

1. Epidemiologic triad in disease causation refers to the balance between the host, the agent and –
   A. Physical factor B. Environment
   C. Social factor D. Population

2. Test and slaughter procedure is applied for disease –
   A. With a mow prevalence and for which a sensitive and specific diagnostic test exists.
   B. Spreading rapidly through a population.
   C. With a wildlife reservoir
   D. None

3. Presumptive identification of unrecognized disease by application of tests, examinations or other procedures that can be applied rapidly is known as –
   A. Survey B. Surveillance
   C. Screening D. Presentation

4. Species or environment in which a pathogen maintained and survived is called –
   A. Cancer B. Vector
   C. Source D. Reservoir

5. Proportion of diseased animals in a population at a given time is known as the –
   A. Incidence B. Incidence density
   C. Prevalence D. Crude rate

6. During an outbreak of winter dysentery, first case was reported on December 20. Outbreak lasted for one month. All animals recovered or died within 5 days of onset of clinical signs. Index case occurred on –
   A. December 15 B. December 20
   C. December 26 D. January 20

7. Attack rate for an epidemic is the same as –
   A. Incidence B. Prevalence
   C. Mortality rate D. None

8. Relative risk is –
   A. $\frac{\text{Incidence in exposed animals}}{\text{Incidence in unexposed animals}}$
   B. $\frac{\text{Incidence in unexposed animals}}{\text{Incidence in exposed animals}}$
   C. $\frac{\text{Prevalence in exposed animals}}{\text{Incidence in unexposed animals}} \times 100$
   D. None

9. Attribute is –
   A. Qualitative character B. Quantitative character
   C. Both D. None

10. Which of the following is a variable –
    A. Sex B. Age
    C. Species D. None

11. Polioencephalomalacia is associated with deficiency of –
    A. Thiamine B. Ascorbic acid
    C. Riboflavin D. Vitamin D

12. Trichomoniasis results –
    A. Embryonic death B. Repeat breeding
    C. Prolonged calving season D. All of these

13. Dust Particle transmits –
    A. Saprophytes B. Parasitic
    C. Mycobacterium D. None

14. Vehicular mode of transmission is adopted in which case –
A. Droplet B. Dust
C. Droplet nuclei D. None

15. Epidemic contagion mode of infection is caused by –
A. Droplet nuclei B. Dust
C. Droplet D. None

16. Droplets are produced by –
A. Attrition B. Atomization
C. Evaporation D. None

17. Man acts as reservoir of –
A. Amebiasis B. Balantidiasis
C. Giardiasis D. All of these

18. Contaminated soil and water at neutral or alkaline pH favors infection of –
A. Leptospira B. Tuberculosis
C. FMD D. None

19. Which one is MetaZoonoses –
A. Malaria B. Plague
C. Loupingill D. All of these

20. Freshwater fish acts as reservoir for –
A. Taeniasis B. Capillariasis
C. Multiceps D. Linguatula

21. Which one disease occurs only in Cloven footed animals –
A. Rinder pest B. Colibacillosis
C. Salmonellosis D. Chronic respiratory disease

22. National Project on Rinderpest Eradication (NPRE) was instituted in year –
A. 1990 B. 1991
C. 1985 D. 1998

23. Rinderpest virus shares common antigen with –
A. Distemper virus B. Rota virus
C. Measles virus D. Both A and C

24. Provisional diagnosis of Rinderpest is confirmed by –
A. Counter immuno elctrophoresis
B. Mallein test
C. Johnin test
D. Virus neutralisation test

25. Weak calf syndrome is produced by –
A. Bovine viral diarrhoea virus
B. Morbilli virus
C. FMD virus
D. None of the above

26. Identity correct sequence of five stages of Pox disease –
A. Crust → Pustular → Vesicular → Roseola → Papular stage
B. Roseola→Papular→Vesicular→Pustular→Crust stage
C. Papular → Vesicular → Crust stage
D. None of the above.

27. Camel pox is caused by –
A. Orthopox virus B. Leporipox virus
C. Parapox D. None

28. Parapox virus causes –
A. Milker's nodule B. Pseudo cow pox
C. Contagious echthyma D. All of the above

29. Mad cow disease was first noticed in –
A. Great Britain in 1986
B. USA in 1986
C. Great Britain in 1989
D. Germany in 1986

30. Transmissible spongiform encephalopathy in man is also known as –
A. Creustfeld Jacob syndorme
B. Chronic Wasting disease
C. Rocky Mountain Fever
D. Pseudorabies

31. Screening for a disease is –
A. Primary prevention B. Secondary prevention
C. Tertiary prevention D. None of these.

32. The difference between disease among exposed and those not exposed denotes–
A. Relative risk B. Attributable Risk
C. Incidence D. Prevalence

33. Relative risk can be obtained from –
A. Case study B. Case control
C. Cohort study D. None of these

34. Epidemic occurring every 3 years is called –
A. Secular trend B. Annular
C. Cyclical trend D. None of these

35. Reaginic antibody is related to –
A. IgA B. IgE
C. IgG D. IgM

36. Prevalence rates are useful for–
A. Acute diseases B. Chronic diseases
C. Viral diseases D. None of these

37. Case control study is –
A. Retrospective B. Prospective
C. Any of A & B D. None of these

38. All are elements of a cohort study except –
A. Selection of Comparison group B. Matching
C. Measuring exposure D. Fallow-up

39. Specificity is ability to detect –
A. True positive B. False positive
C. True negative D. None of these

40. Case control study is used for –
A. Finding a rare cause B. Finding multiple risk factors
C. Finding incidence rate D. Finding morbidity rates

Answer Key

Q.	A.	Q.	A.	Q.	A.	Q.	A.
1	B	2	A	3	C	31	B
4	D	5	C	6	B	32	B
7	A	8	A	9	A	33	C
10	B	11	A	12	D	34	C
13	A	14	B	15	A	35	B
16	B	17	D	18	A	36	B
19	D	20	B	21	A	37	A
22.	B	23.	D	24	A	38	B
25	A	26	B	27	A	39	C
28	D	29	A	30	A	40	B

CHAPTER -11

VETERINARY MEDICINE, ETHICS AND JURISPRUDENCE

MEDICINE ETHICS, JURISPRUDENCE AND ANIMAL WELFARE

SALIENT POINTS

- First degree burn is due to instantaneous contact and there is no scar formation.
- Renatus Vegetus is father of veterinary medicine.
- Prognosis – expected outcome of disease. It is categorized as Poor / Guarded / Fair depending upon chance of survival.
- Etiology – to study cause of a disease.
- Symptom is defined as Subjective evidence of things felt by patient. It cannot be recorded. ex- Pain, Itching etc.
- Lesion – functional or morphological abnormality in tissue.
- Sign is Objective evidence of the thing observed. It can be recorded ex. Diarrhoea, Jaundice, Cardiac murmur, Anorexia.
- Adults have greater capacity for inflammation in comparison to neonates.
- Boil / furuncle is abscess on skin surface.
- Gangrenous Inflammation is seen in Degnala disease, Black Quarter, Gangrenous Myositis.
- Lymphatic Thrombus is formed due to fibrin clots and is useful in checking the spread of infection by plugging.
- Necrobiosis is programmed cell death. Done in order to recognize the organ. Ex. RBC, skin.
- Thrombocytopaenia is one of first changes seen after endotoxin infusion.
- Disseminated intravascular coagulation (DIC) in horse characterised by petechiae/ ecchymosis on mucous membrane

and sclerae with tendency to bleed.

- Fever – Syndrome with hyperthermia and toxemia by substances in blood circulation.
- SEPTICEMIA is compounded toxemia, hyperthermia and microbes in blood.
- BUBO is abscess in a lymph node.
- Keratitis is inflammation of comea.
- Accumulation of septic pus in eyeball is known as Panophthalmia.
- Frauds in livestock sale are punishable under section 420 IPC.
- Prevention of cruelty to Animals Act was enacted in 1960.
- In acute form of PPR, body temperature rises suddenly up to 104 – 106 °F.
- ALLERGY is state of hypersensitivity clinically recognizable. It can be detrimental to host.
- Tenting of skin is first seen at 6-8% dehydration body weight loss.
- Dehydration is characterized by an increase in packed cell volume and total serum proteins.
- Parallel loss of water and hypertonic dehydration results *isotoinc dehydration.*
- Prolonged administration of mineralocorticoids may result hypokalemia.
- Hyperorexia – increased appetite.
- Polyphagia – increased food intake.
- Inappetance – Partial absence of appetite.
- Anorexia – complete absence of appetite.
- Anophagia – decreased food intake.

- Allotriophagia – abnormal appetite (Pica).
- Osteophagia – chewing of bone.
- Infantophagia – eating of young.
- Coprophagia – eating of feces.
- Material regurgitated from esophagus is slightly alkaline while vomitus is acidic.
- Hypocuprosis or Molybdenum excess causes diarrhea.
- Total amount of feces passed per day is increased during diarrhea.
- State of functional obstruction of intestine or failure of peristalsis is known as Paralytic ileus or Adynamic ileus.
- Xylazine depresses mechanism of reverse peristalsis.
- Vomiting is protective mechanism of reverse peristalsis.
- Maximum stability of foam in rumen occurs at pH of 6.
- Watery and brownish with fine mealy flakes are indicative of coliform/ Mycoplasmal mastitis.
- Biot's breathing is alternating periods of hyperpnea and apnea, of unequal length. Commonly seen in meningitis.
- Transportation of Animals Rules was passed in 1978.
- Prevention of cruelty to draught and pack animals rules was enacted in 1965.
- Glanders and Farcy Act was enacted in 1899.
- Dourine Act was enacted in 1910.
- Section 429 deals with cases of making an animal worth Rs. 50 or more, useless, poisoning, killing, mischieveous.
- Swamp fever, also known as Equine Infections Anemia; is contagious, Retro viral disease of horse and is characterized by long relapsing illness, acute anemia (due to periodic

replication of virus in macrophages).

- Heavy Carbohydrate diet during rest results Azoturia.
- Littoral sands are deficient in Cobalt and Copper.
- **Difference between Small Intestine diarrhoea from Large Intestine diarrhoea**

Sl	Parameters/ Clinical signs	Small Intestine	Large Intestine
1.	Frequency of defecation	No change	Increased
2.	Fecal volume	Increased	Decreased
3.	Urgency	Absent	Present
4.	Tenesmus	Absent	Present
5.	Mucus in feces	Absent	Present
6.	Blood in feces	Dark black (Melena)	Red (Fresh)
7.	Weight loss	May be	Rare

- Phooka or doomdev includes any process of introducing air in to female organ of a milch animal with object of drawing off from animal any secretion of milk.
- Section 377 deals with cases of voluntary carnal intercourse with animal.
- Section 371 deals with cases where any one knowingly does not follow Quarantine regulation.
- Section 269 deals with cases where any one is involved in spreading life threatening diseases.

QUESTIONS

1. Causative agent of cowpox is –
   A. Poxvirus variola B. Poxvirus bovis
   C. Herpes virus D. Rhabdovirus

2. Moniliasis is caused by –
   A. Bacteria B. Virus
   C. Molds D. Yeasts

3. Most common strain of FMD is –
   A. O B. A
   C. C D. Asia -1

4. The virus of rabies comes in saliva along with –
   A. Olfactory Nerve B. Salivary duct
   C. Optic nerve D. Respiratory mucosa

5. Milk fever can be prevented by feeding the animal pre partum –
   A. High calcium diet
   B. High protein diet
   C. High P and low Ca diet
   D. None of the above

6. Polioencephalomalacia in animals occurs due to deficiency of–
   A. Thiamin B. Vitamin – E
   C. Vitamin – D D. All of above

7. In the complete metabolic profile test, the blood is analysed – for
   A. Calcium B. Inorganic Phosphorus
   C. Blood urea Nitrogen D. Total serum protein

8. Enteritis is accompanied by –
   A. Dehydration and loss of chloride ions
   B. Dehydration and loss of alkali radicals
   C. Dehydration and loss of acid radicals
   D. Dehydration only

9. Projectile vomiting is most common form of vomiting in –
   A. Horses only B. Pigs and dogs
   C. Horses and ruminants D. Horses and dogs

10. Pharyngitis in cow is clinically characterized by –
A. Regurgitation through nostrils, inappetance with inability to swallow
B. Coughing and inability to swallow
C. Inability to swallow, vomiting and inappetance
D. Coughing, painful swallowing and lack of appetite.

11. Jugular pulse is an important feature of the –
A. Milk fever
B. Congestive heart failure
C. Acute heart failure
D. Traumatic reticulo-peritonitis

12. In vomition, due to metabolic acidosis the fluid therapy proposed is –
A. Ringers lactate
B. Normal saline
C. Dextrose saline
D. 10 % dextrose

13. In gastritis, dehydration is caused by –
A. Sodium retention
B. Acid base abnormality
C. Potassium expulsion
D. Chloride ions depletion

14. In a horse weighing 500 kg with 10 % dehydration, the fluid deficit is –
A. 5 litres
B. 100 litres
C. 50 litres
D. 20 litres

15. Hepatic abscesses are common cause of liver disease in –
A. Horse, dog, cat and sheep
B. Pig and cattle
C. Cattle
D. Sheep and goat

16. Tenesmus is a common sign in –
A. Coccidiosis in calves
B. Acute gastritis in canines
C. Cystitis
D. All

17. Urine of horse suffering from Azoturia contains –
A. Hemoglobin
B. Methaemoglobin
C. Myoglobin
D. Uric acid

18. Pregnancy Toxemia occurs in ewes during –
A. Early pregnancy
B. Mid – pregnancy
C. After parturition
D. Last month of pregnancy

19. The common constituents of uroliths in cattle are –
A. $CaCO_3$, $MgCO_3$ or $(NH_4)_2 CO_3$
B. Oxalates
C. Uric acid
D. Xanthine

20. In acute cystitis urine's odour is which of the following –
A. Sweet
B. Sour
C. Strong ammoniacal
D. Normal

21. Blood in cough is termed as –
A. Haematemesis
B. Epistaxis
C. Haemorrhage
D. Haemoptysis

22. Diaphragmatic hernia is common in –
A. Goats
B. Dogs
C. Horses
D. Buffalo

23. The antibiotic of choice in cases of meningitis is –
A. Penicillin
B. Chloramphenicol
C. Oxytetracycline
D. Erythromycin

24. Azoturia in horses is popularly known as –
A. Sunday sickness
B. Monday morning sickness
C. Myoglobinuria
D. B & C both

25. pH of urine in horse –
A. Acidic
B. Basic
C. Neutral
D. Depend on exercise

26. pH of urine in dogs –
A. Acidic
B. Basic
C. Neutral
D. Depend on feed nature

27. pH of urine in horse –
A. Acidic B. Basic
C. Neutral D. Depend on exercise

28. Rothra's test is used to detect ..... in urine –
A. Glucose B. Albumin
C. Ketone bodies D. Haemoglobin

29. Benzidine test is used to detect in urine –
A. Glucose B. Albumin
C. Ketone bodies D. Haemoglobin

30. Fouchet's test is used to detect in urine –
A. Globulins B. Bile salts
C. Bile pigments D. Calcium

31. Hay's sulphur test is used to detect in urine –
A. Globulins B. Bile salts
C. Bile pigments D. Calcium

32. Sulkowitch test is used to detect in urine –
A. Globulins B. Bile salts
C. Bile pigments D. Calcium

33. Roberts test in used to detect in urine –
A. Glucose B. Albumin
C. Ketone bodies D. Haemoglobin

34. Haematinic mixture contain ..... minerals.
A. Fe, Cu, Co B. Fe, Cu, Zn
C. Ca, Fe, Mg D. Cu, Zn, Ca

35. Which solution is commonly known as Laal dawa –
A. Lugol's iodine B. $KMnO_4$
C. Merbromin solution D. Acriflavin aq.

36. .....used for the prevention of tetanus.
A. Antitetanus serum (ATS) B. Tetanus toxoid (TT)
C. Oil adjuvant tetanus vaccine D. Oxytetacyline in high dose

37. For blood transfusion anticoagulant used –
A. EDTA B. Sodium fluoride
C. Sodium citrate D. Heparin

38. Difficulty in swallowing is termed as –
A. Polyphagia B. Dysphagia
C. Dystrophia D. Polydipsia

39. Ketosis is biochemically characterized by –
A. Hypoglycaemia B. Hyperglycaemia
C. Ketonuria D. Both a and c

40. Rumen overload is caused by which of the following successive feeding of –
A. Urea B. Grains like wheat
C. Dry grasses D. Berseem

41. Gangrene of extremities and signs of CNS stimulation are caused by the ingestion of –
A. Ergot B. Snapdragon
C. Reserpine D. Nux vomica

42. pH of abomasal contents is –
A. 2 B. 6 to 7
C. 4 D. None

43. Skin scrapings are treated with the following for better demonstration of manage mites –
A. 10% H_2SO_4 B. 10% HNO_3
C. 10% KOH D. 10 % KH_2PO_4

44. In acute intestinal obstruction death is usually due to –
A. Severe internal haemorrhage
B. Anoxia
C. Respiratory failure
D. Dehydration

45. In Cobalt deficiency, which type of anemia is present –
A. Microcytic hypochromic anaemia
B. Normocytic normochromic anaemia
C. Macrocytic
D. Macrocytic

46. Liptek test is used for diagnosis of –
A. Ruminal tympany
B. Abomasal displacement
C. Traumatic reticuloperitonitis
D. Diaphragmatic hernia

47. Drug of choice for anaplasmosis is –
A. Diaminazine aceturate
B. Oxytetracycline
C. Quinapyramine sulphate
D. Quinapyramine chloride

48. Heinz body formation in horse is associated with poisoning of –
A. Selenium B. Lead
C. Phenothiazine D. Mercury

49. Causative organisms of anthrax is –
A. Bacillus anthracis B. Salmonella
C. Mycobacterium D. Brucella abortus

Match –

50.	Brucellosis	A	Clostridium perfringens type C
51.	Braxy	B	Clostridium chauvoei
52.	Lamb dysentery	C	Clostridium perfringens type D
53.	Struck	D	Clostridium septicum
54.	B. Q.	E	Brucella abortus
55.	Enterotoxaemia	F	Clostridium perfringens type B

56. Ascoli test and Macfadyean reaction is diagnostic test for –
A. Strangle B. Anthrax
C. H. S. D. B. Q.

57. Synonym of actinobacillosis is –
A. Wooden tongue B. Big head disease
C. Lumpy jaw D. Tuberculosis

58. Synonym of actinomycosis is –
A. Wooden tongue B. Big head disease
C. Lumpy jaw D. Tuberculosis

59. In which disease tarry colour blood oozes from natural orifice–
A. Strangle B. Anthrax
C. H. S. D. T. B.

60. Pasturella species produce which type of toxin –
A. Endotoxin B. Exotoxin
C. Both a and b D. None

61. Drumstick spore / sub terminal spore is feature of –
A. Tetanus B. Braxy
C. B. Q. D. Salmonella

62. The cause of summer mastitis is –
A. Staphylococcus aureus
B. Corynebacterium pyogenes
C. E. coli
D. Mycoplasma mastitis

63. Silage disease is –
A. Leptospirosis B. Listeriosis
C. Circling disease D. Both b and c

64.	Tenosynovitis	A	Enterotxaemia Type D
65.	Lyme disease	B	Botulism
66.	Lam zielte	C	Borrelioses
67.	Pulpy kidney disease	D	Viral Arthritis

68. Farcy Act was constructed for which of the following –
A. H. S. B. Glander
C. Listeriosis D. Leptospirosis

69. Bitch sitting posture of male dog during urination in –
A. Strangle B. H.S.
C. Listeriosis D. Leptospirosis

70. Foot rot is known as –
A. Swine erysipelas
B. Exudative epidermitis
C. Infections keratoconjunctivitis
D. Infections pododermatitis

71. Infections crazy in poultry is caused by –
A. Mycoplasma gallisepticum
B. Haemophilus paragalinarum
C. Avian premix virus
D. Borellia anserina

Match organism and drug of choice –

	Organism		**Drug of choice**
72.	Clostridia	A.	Sulphadimidine
73.	Salmonella	B.	Diaminazine aceturate
74.	Listeria	C.	Penicillin
75.	Babesia	D.	Quinapyramine

76. Drug of choice for trypanosoma infection is –
A. Sulphadimidine B. Quinapyramine sulphate
C. Penicillin D. None of the above

77. Loss of heat tolerance in cattle is seen as sequelae of which disease –
A. Parasitic disease B. FMD
C. Anthrax D. None of the above

78. Negri bodies are characteristic of –
A. Canine distemper B. Rabies
C. Infection canine hepatitis D. Parvovirus infection

79. Saddle curve temperature is characteristic of –
A. C. D. B. Rabies
C. ICH D. Parvovirus

80. Pericarditis is clinically characteristic of which disease –
A. Muffling of heart sound
B. Frictional sound
C. Inflammatory leukogram
D. Tachycardia

81. Haemorrhage leads to which of the following –
A. Toxic shock B. Cardiogenic shock
C. Vasogenic shock D. Hypovolumic shock

82. Preservative used for ruminal fluid is –
A. $Ca(OH)_2$ B. NaCl
C. K_2SO_4 D. $Hg Cl_2$

83. Tibersa is the term used for surra in –
A. Cattle B. Buffalo
C. Camel D. Goat

84. Caecal Coccidiosis is caused by –
A. E. necatrix B. E. tenella
C. E. maxima D. All

85. Acaricides are the drugs act on –
A. Mites B. Ticks
C. Fleas D. Protozoa

86. Cotton strain 19 vaccine is used against –
A. Mycoplasmosis B. Brucellosis
C. Mycobacterium D. Corynebacterium

87. For favourable prognosis of equine colic, the pulse rate should be–
A. 60 -70 B. 75-80
C. 85-90 D. 95-100

88. Most cases of TRP occurs during –
A. Early pregnancy B. Late pregnancy
C. Just after parturition D. Mid pregnancy

89. In TRP blood picture is –
A. Leukocytosis with neutrophilia
B. Leukocytosis with lymphocytosis
C. Leukopenia with neutropenia
D. Leukopenia with lymphopenia

90. Digitalization is indicated by which of the following –
A. Reduction in heart rate pulse rate
B. Polyuria and increased coughing
C. Severity of oedema is reduced
D. All of the above

91. Congestive heart failure in dogs can occur in –
A. Toxocara infection B. Dirofilariasis
C. Ancylostomiasis D. Trypanosomiasis

92. First antibiotics discovered is –
A. Penicillin B. Sulfonamides
C. Cephalosporin D. None

93. Most wasteful use of antimicrobial drugs for systemic infections is –
A. Oral B. I/M
C. I/V D. None

94. Fastest achievement of maximum blood plasma level of drug observed in –
A. I/M route B. I/ V route
C. Topical route D. Oral route

95. What will be the effect of acidification of urine on Sulfonamide level in plasma –
A. Increased B. Decreased
C. No effect D. First increase than decrease

96. Which is most common mechanism of drug resistance –
A. Mutation B. Transduction
C. Conjugation D. All of above

97. Shotgun approach is used for –
A. Acute infection B. Chronic infections
C. Both A & B D. Non infection disease

Choose the best answer

Q.	Antibiotics	Type
98.	Penicillin	A. Bacteriostatic
99.	Tetracycline	B. Bactericidal
100.	Sulfonamides	C. Fungus infection
101.	Griseofulvin	D. Analogue of PABA

Q. 102. Rate of absorption of Sulfonamides in sick animal is, as compared to healthy animal –
A. Slower B. Higher
C. No charge D. Variable

103. Prolong administration of Sulfonamides may produce –
A. Vitamin K deficiency
B. Vitamin A deficiency
C. Vitamin B complex deficiency
D. None

104. Which one neutralizes sulfonamide action –
A. Blood B. Pus
C. Tissue waste D. All of above

Write 'A' for true and 'B' for false statement

105. All sulfonamides form crystal in urinary tract

106. Rapidly excreted sulfonamides do not produce crystalluria

107. Tissues low in portion has minimum bound sulfonamides

108. Sulfonamides readily pass though placenta.

109. Sulfonamides are more soluble in blood plasma than water or saline.

110. Kindly is primary organ of excretion sulfonamides.

111. Sulfamethazine is rapidly absorbed rapidly excreted (RARE) sulfonamides.

112. Sulfa pyridine is a rapidly absorbed slowly excreted sulfonamide.

113. One unit is comparable to 0.16 microgram of penicillin.

114. Food interferes with absorbed of penicillin.

115. Procaine penicillin is absorbed more rapidly than potassium penicillin.

116. Highest concentration of penicillin is found in kidneys.

117. Penicillin are effective against gram the microbes only.

118. Blood dyscrasias is principal toxicity feature of Chloramphenical.

119. Most potential route of infection in neonatal calf is –
A. Naval B. Mouth
C. Nostrils D. None

120. Mastitis is also known as –
A. Garget B. Marmites
C. Caked udder D. All of above

121. White side test is used for –
A. Mastitis B. Brucellosis
C. Salmonellosis D. None

122. In white side test, milk drops are stirred with –
A. NaOH B. $NaHCO_3$
C. HCl D. None

123. Incubation period is 18 – 48 hr. 100 % morbidity. Coughing, sneezing, tracheal rales for 14 days wet eyes dyspnea, Facial

swelling, 5 – 50 % loss in egg products, thin shelled, watery albumen eggs, identify the disease of poultry –
A. Fowl Pox B. Riboflavin deficiency
C. Infectious Bronchitis D. Reovirus infection

124. Swelling of face, snuffling, foul smelling nosal discharge, facial deformity. Identify the disease of pig –
A. Bullnose B. Swine Fever
C. Pasteurellosis D. Erysipelas infection

125 Which one is also called as Fog fever –
A. Acute Bovine Pulmonary Emphyaema & Edema
B. Foot & Mouth Disease
C. Posteurellosis
D. Farmer's lung disease.

Answer Key

Q.	A.	Q.	A.	Q.	A.	Q.	A.	Q.	A.
1.	B	31.	B	61.	C	91.	B	121	A
2.	D	32.	D	62.	B	92.	A	122	C
3.	A	33.	B	63.	D	93.	A	123	C
4.	A	34.	A	64.	D	94.	B	124	A
5.	C	35.	C	65.	C	95.	B	125	A
6.	A	36.	B	66.	B	96.	A		
7.	D	37.	C	67.	A	97.	A		
8.	B	38.	B	68.	B	98.	B		
9.	C	39.	D	69.	D	99.	A		
10.	D	40.	B	70.	D	100.	D		
11.	D	41.	A	71.	B	101.	C		
12.	A	42.	A	72.	C	102.	A		
13.	B	43.	C	73.	A	103.	A		
14.	C	44.	D	74.	C	104.	D		
15.	C	45.	D	75.	B	105.	A		
16.	A	46.	D	76.	B	106.	B		
17.	C	47.	B	77.	B	107.	A		
18.	D	48.	C	78.	B	108.	A		
19.	A	49.	A	79.	C	109.	A		
20.	C	50.	E	80.	B	110.	A		
21.	D	51.	D	81.	D	111.	A		
22.	D	52.	F	82.	D	112.	A		
23.	B	53.	A	83.	C	113	A		
24.	D	54.	B	84.	B	114	A		
25.	B	55.	C	85.	B	115	B		
26.	A	56.	B	86.	B	116	A		
27.	B	57.	A	87.	A	117	A		
28.	C	58.	C	88.	C	118	A		
29.	D	59.	B	89.	A	119	A		
30.	C	60.	A	90.	D	120.	D		

CHAPTER -12

VETERINARY GYNAECOLOGY AND OBSTETRICS

ANIMAL REPRODUCTION

SALIENT POINTS

- Testis consists of several crypts, enclosed in a serous layer called tunica vaginalis.
- Wall of seminiferous tubules has two types of cells namely germ cells and sertoli cells.
- Leydig cells produce male hormone.
- Many seminiferous tubules join to form rete testis.
- Vas efferentia emerge from rete testis.
- Epididymis is 115 feet long in bull.
- Spermatic cord consists of vas deferens, spermatic arteries, veins, nerves and cremaster muscle.
- Vas deferens is involved in ejaculation.
- Scrotum provides for testes an environment that is 1-8 ^{0}F cooler than the body cavity.
- Infundibulum receives ova, discharged from ovary.
- Caruncles develop into cotyledons during pregnancy.
- Cervix is also known as neck of womb.
- Spermiogenesis is also known as spermateliosis.
- Period of start of heat in animal is known as proestrum.
- Period of desire is called as oestrum. It lasts for 12-24 hours in cow; 1-2 days in ewe; 4-5 days in mare; 2-3 days in sow.
- Diestrum is longest phase of estrus cycle and is characterized by fully developed corpus luteum.
- Movement of spermatozoa from sertoli cells is known as spermeation.
- In cow, implantation actually begins from 11 to 40th day post coitum.

- Uterine milk is composed of protein, fat, and glycogen.
- Between 21st and 22nd day, heart begins to beat in cattle.
- Rosette inhibition test is used for diagnosis of pregnancy (Early pregnancy factor). It has 72 % sensitivity.
- Free martin is a sterile female with underdeveloped reproductive organs having male characteristics, occurs when female is born alongwith male as a twin.
- **Types of placentation in animals**:

Sl No.	Placenta	Gross shape	Example
1	Epitheliochorial	Diffuse	Pig, horse, donkey
2	Syndesmochorial	Cotyledonary	Sheep, goat, cow.
3	Endotheliochorial	Zonary or discoid	Cat, dog, ferret
4	Hemochorial	Zonary or discoid	Primates
5	Hemoendothelial	Spheroidal or discoid	Rat, rabbit

QUESTIONS

1. Which of the following is considered as Gonadotrophin –
   A. FSH B. LH
   C. Prolactin D. All

2. Which hormone is responsible for ovulation –
   A. FSH B. LH
   C. Prolactin D. All

3. Which hormone is mainly responsible for development of female secondary sexual characters –
   A. Progesterone B. Estrogen
   C. FSH D. All

4. Which hormone is mainly responsible for maintenance of pregnancy –
   A. Progesterone B. Estrogen
   C. LH D. Oxytocin

5. Which of the following steroid hormone has widest range of physiologic function –
   A. Progesterone B. Estrogen
   C. Testosterone D. None

6. Steroids are thought to pass through cell membrane by –
   A. Simple diffusion B. Blood mediated transport
   C. Osmosis D. None

7. Ferguson's reflex at the time of parturition is related with release of hormones –
   A. PGF_2 B. Estrogen
   C. Oxytocin D. Cortisol

8. Syncro-Mate B used for induction and synchronization of estrus contains –
   A. Prostaglandin B. MCG
   C. Norgestomet and estradiol D. Norgestomet and PMSG

9. PMSG is less preferred for superovulation in comparison to FSH due to –
   A. Large half life B. Higher LH content
   C. Premature ovulation D. All

10. Sexual behaviour and ovulatory surge depend on –
    A. Hypothalamic Hormone B. Gonadotrophin
    C. Steroids D. All

11. In animals secretion of Gonadotrophin and their releasing factors begins –
    A. Before fetal life B. During fetal life
    C. After fetal life D. None

12. Female reproductive organs undergoes a rapid growth under the influence of –
    A. Progesterone B. Estrogen
    C. Oxytocin D. GnRH

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13. First embryo transfer in Buffalo was done by –
A. Nicholas B. Warwick - Berry
C. Drost D. None

14. In cattle, blastocyst develops –
A. 3-4 days after ovulation B. 2-6 days after ovulation
C. 6-8 days after ovulation D. None of the above

15. Best results by non surgical technique is obtained when embryo-transfer is done at –
A. Morula stage B. Early blastocyst stage
C. Hatched blastocyst stage D. None

16. Dose of PMSG required for follicular growth in a cow weighing 400 kg is –
A. 1000 – 1200 IU B. 1500 – 3000 IU
C. 750 – 1000 IU D. 2000 – 3000 IU

17. Dose of LH for ovulation in cattle is –
A. 10 -20 mg B. 15-25 mg
C. 25-50 mg D. 75-100 mg

18. $PGF_2\alpha$, the luteolytic hormone, is secrted from –
A. Perimetrium B. Myometrium
C. Endometrium D. None

19. Nymphomaniac condition is associated with –
A. Luteal cyst B. Paraovarian cyst
C. Follicular cyst D. All

20. Ovulation in cow occurs –
A. Within the heat period B. After termination of heat
C. Both a and b D. None

21. For behavioral sign of heat, the hormonal profile of the cow should be –
A. Low progesterone and low estrogen
B. High progesterone and light estrogen
C. Low progesterone and high estrogen
D. None

22. Interval between two successive heat is –
A. Calving interval B. Mean inter-service interval
C. Interoestus interval D. Submission rate

23. "Days open" or "Open interval" is –
A. Calving interval
B. Mean calving to conception interval
C. Submission rate
D. None

24. Which of the following can be the best remedial measure in 180 degree right uterine torsion in buffalo –
A. Ceasarian section B. Oxytocin
C. Velosin D. Rolling of the dam

25. Early pregnancy factor can be determined by –
A. Cuboni test B. Rosette inhibition test
C. Vaginal biopsy D. None

26. Rise in cortisol level at the time of parturition is related to –
A. Manual removal B. Placental origin
C. Prostaglandin $F_2\alpha$ D. Oestradiol

27. Tapping of the cyst is done per –
A. Rectum B. Vagina
C. Left flank D. Right flank

28. Treatment of choice for persistent corpus luteum is –
A. Manual removal B. Removal of fluid with needle
C. Prostaglandin $F_2\alpha$ D. Oestradiol

29. Trichomonad abortion is commonly noticed at –
A. Early pregnancy B. Late pregnancy
C. 6-9 month pregnancy D. None

30. Mostly embryonic mortality is noticed during –
A. 16 – 34 days of gestation
B. 34-60 days of gestation
C. 60-85 days of gestation
D. 85-120 days of gestation

31. In true Anestrous condition, the ovarian examination may reveal–
    A. Multiple small ovarian cyst
    B. Single large ovarian cyst
    C. Cyclic corpus luteum
    D. Small round smooth ovaries

32. Greatest incidence of abortion associated with Vibriosis is observed during –
    A. 1-2 month of gestation B. 2-4 month of gestation
    C. 4-7 month of gestation D. 7-9 month of gestation

33. Potato soup like pus from uterus is characterized of –
    A. Brucellosis B. Vibriosis
    C. Trichomoniasis D. IBR – IVP

34. Which of the following is most effective in treatment of luteal cyst –
    A. $PGF_2 \alpha$ B. Estrogen
    C. Prolactin D. LH

35. The length of estrous cycle in cow is –
    A. 16-17 day B. 10-15 day
    C. 20-21 day D. 25-27 day

36. Pre-ovulatory endocrine surge in cows occurs at –
    A. Onset of oestrous B. At mid estrus
    C. At the end of estrus D. At proestrus

37. Endocrine basis of post partum anestrous is –
    A. Failure of resumption of episodic pattern of FSH release
    B. Failure of resumption of episodic pattern of LH release
    C. Failure of resumption of episodic pattern of FSH and LH surge.
    D. None

38. Fish look vulva condition of female is –
    A. Inter-sex B. Free martin
    C. White heifer disease D. None

39. Three common organisms associated with bovine pyometra are–
    A. Trichomonas, Pseudomonas and vibrio
    B. Trichomonas, vibrio and staphylococcus
    C. Trichomonas, vibrio and corynebacterium
    D. Trichomonas, vibrio and streptococci

40. In Trichomoniasis –
    A. Fetus gests macerated
    B. Fetus gets mummified
    C. There is retention of placenta
    D. None

41. Breach presentation is –
    A. Bilateral hock flexion
    B. Bilateral shoulder flexor
    C. Complete retention of rear limbs beneath body
    D. None

42. Best method for pregnancy diagnosis in cow at 3 months of gestation is –
    A. RIA B. ELISA
    C. Per Rectal examination D. All

43. Enucleation of corpus luteum will result in termination of pregnancy in cow –
    A. Before day 200 of pregnancy
    B. After day 250 of pregnancy
    C. Both
    D. None

44. Corpus luteum of pregnancy is also known as –
    A. Corpus luteum spurium B. Corpus luteum verum
    C. Corpus haemorhagicum D. Corpus albicans

45. Corpus luteum of estrous cycle i.e. also known as –
    A. Corpus luteum spurium B. Corpus luteum verum
    C. Corpus haemorrhagicum D. Corpus albicans

46. Sex differentiation in embryonic development occurs at –
A. 45 day of gestation B. 60 day of gestation
C. 75 day of gestation D. 90 day of gestation

47. Ovaries arise from –
A. Mullerian duct B. Wolffian duct
C. Germinal ridge D. Phallus

48. Best time to breed a cow is –
A. Early oestrous B. Mid oestrous
C. Late oestrous D. 2nd day of oestrous

49. Average time of ovulation in cattle is –
A. Mid oestrous
B. Late oestrous
C. 4-10 hours after end of oestrous
D. 20 hours after end of oestrous

50. In dairy cattle, the ovulation from right ovary are about –
A. 20 % B. 40 %
C. 60% D. 80%

51. Maternal recognition of pregnancy in cows occurs on –
A. 12th day B. 14-16th day
C. 16-17 day D. None

52. Physiological expulsion time limit for fetal membrane is –
A. Within 6 hr. after delivery of foetus.
B. Within 18 hr after delivery of foetus
C. Within 24 hr. after delivery of foetus
D. Within 12 hr after delivery of foetus

53. Bovine pyometra occurs most commonly during –
A. Early post parturient period
B. Mid lactation period
C. Dry period
D. Mid pregnancy

54. In camel, the copulation takes place while –
A. Standing B. Sitting
C. Lying D. None

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55. Maternal behaviour of licking is characteristic of –
A. Sheep B. Goat
C. Horse D. Cattle

56. Retention of placenta is most common in –
A. Cattle B. Horse
C. Sheep D. Goat

57. In cow the placenta is considered to be retained if it does not fall–
A. Within 1 hour B. Within 2-3 hour
C. Within 8-12 hour D. In 20-24 hour

58. If the hanging placenta in cow is to be cut, it should be cut –
A. Close to cervix B. At the level of hock
C. Close to vulva D. Close to ground

59. In replacing prolapsed uterus in cattle, it should be held –
A. Hanging position as such
B. Lifted as up as possible
C. Above the level of floor of the pelvis
D. None

60. After replacement of prolapsed uterus in cows, the —— units of Oxytocin should be given –
A. 1-2 unit B. 20-40 unit
C. 75-100 unit D. 500 unit

61. Uterine caruncles in case of cow are –
A. Convex in shape B. Concave in shape
C. Both in shape D. None

62. Follicular cyst is clinically characterized by –
A. Large interval of oestrous cycle
B. Frequent irregular oestrous
C. Oestrous at regular interval but of short development
D. None

63. The important herd diagnosis of Brucellosis cattle is –
A. Milk ring test B. Serum Agglutination test
C. Mucus Agglutination test D. None

64. In Foetal mummification, fetal membrane is –
A. Unaffected B. Shriveled and dried
C. Separated from fetus D. None

65. The most important Vitamin deficiency which results in infertility is –
A. Vitamin A B. Vitamin B complex
C. Vitamin D D. None

66. In Trichomoniasis, death of fetus occurs in –
A. First trimester B. 2nd trimester
C. 3rd trimester D. None

67. In vibriosis, abortion occurs in –
A. First trimester B. 2nd trimester
C. 3rd trimester D. None

68. In brucellosis, abortion occur in –
A. Ist trimester B. 2nd trimester
C. 3rd trimester D. None

69. Enzymes which help sperms to penetrate ovum –
A. Hyaluronidase B. Acrocin
C. Both D. None

70. Part of Pelvis that forms the angle of Lourch –
A. Tuber coxas B. Tuber socrale
C. Tuberisclii D. None

71. Part of Pelvic girdle form angle of croup –
A. Tuber coxas B. Tuber socrale
C. Tuberishlii D. None

72. Tuber coxes is trifed in –
A. Cow B. Mare
C. Bitch D. Sheep

73. Puberty in female is characterized by –
A. Development of vulva B. Development of uterus
C. Ability of gonads to start steroidogenic and gametogenic function
D. None

74. Oestrus period is characterized by –
A. Secretion of progesterone from C. L.
B. Secretion of LH from Ant pituitary
C. High estrogen secretion from preovulatory graffian follicle
D. None

75. Uterus of cow is –
A. Bipartite type B. Bicornuate type
C. Both D. None

76. Increased frequency of urination is most important characteristic of estrus in –
A. Cow B. Buffalo
C. Horse D. Goat

77. Interval from first insemination to conception depend on –
A. Correct timing of insemination
B. Uterine involution
C. Post partum infection
D. All of the above

78. Reasons for failure of normal behavioral sign of oestrus may be–
A. Insufficient production of Gonadotropin
B. Insufficient release of Gonadotropin
C. Failure of gonads to response to Gonadotrpins
D. All of above

79. Uterine torsion is a complication of –
A. Late 1st stage of labour
B. Early second stage of labour
C. 3rd stage of labour
D. None

80. Retained placenta is a complication of –
A. Ist stage of labour B. IInd stage of labour
C. 3rd stage of labour D. None

81. Expulsion of fetus occur in –

A. Ist stage of labour B. 2nd stage of labour
C. 3rd stage of labour D. None

82. Polyspermy is checked by –
A. Zona reaction B. Vitelline block
C. Both D. None

83. Cervix of the cow is –
A. 1-2 cm long B. 5-10 cm long
C. 15-20 cm long D. 25-30 cm long

84. Gestation period of male calves is –
A. Longer than female calves
B. Shorter than female calves
C. Same as female calves.
D. None

85. Genital system is formed by –
A. Ectodermal tissue B. Mesodermal tissue
C. Endeodermal tissue D. All

86. Female reproductive organs are developed from –
A. Mesonephric duct B. Paramesonephric duct
C. Both D. None

87. Ovaries of cows are –
A. Oval shaped B. Almond shape
C. Both D. None

88. Ovaries are drawn forward in abdominal cavity and out of reach of hand on rectal palpation in –
A. Ist / 2nd month of gestation
B. 2nd – 3rd month of gestation
C. 4th and 5th month of gestation
D. 7th and 8th month of gestation

89. Fertilization of ova occurs in –
A. Ovary B. Oviduct
C. Uterus D. Vagina

90. Implantation of embryo occurs in –
A. Ovary B. Oviduct
C. Uterus D. Vulva

91. Functions of uterus are –
A. Reception of fertilized ovum
B. Site of implementation
C. Provide nutrition and protection to fetus.
D. All of above

92. The structure that form sufficient placental attachment to result in normal development of embryo is –
A. Perimetrium of uterus B. Myometriun of uterus
C. Endometrium D. All

93. Fetus can usually be balloted after –
A. 2 months of gestation B. 4 months of gestation
C. 6 months of gestation D. None

94. Site of fertilization in oviduct is –
A. Fimbrae B. Isthmus
C. Infundibulum D. Ampullary Isthmus junction

95. In which period of gestation, major tissue organs and systems of body are formed –
A. Period of ovum B. Period of embryo
C. Period of fetus D. All

96. Period of embryo in cow extends for –
A. Fertilization to 10-12 days B. 12 days to 45 days
C. 45 days to term D. None

97. Branch of science dealing with abnormal development and malformation of prenatal individual is –
A. Gynecology B. Obstetrics
C. Teratology D. Theriogenology

98. Principal carbohydrate in bovine fetal blood is –
A. Glucose B. Fructose
C. Galactose D. None

99. Animals in which normally one ovum is released at ovulation and one fetus develops in uterus are known as –
A. Primipara B. Nullipara
C. Unipara D. Pleuripara

100. Females that have never conceived or carried young are called–
A. Primipara B. Nullipara
C. Unipara D. Pleuripara

101. The relation of the spinal axis of the fetus to that of the dam is–
A. Presentation B. Position
C. Posture D. None

102. The normal presentation in uniparous animal is –
A. Anterior longitudinal B. Posterior longitudinal
C. Transverse presentation D. All

103. Natural and physiological parturition is –
A. Dystocia B. Eutocia
C. Paratocia D. None

104. Which type pf mummification is found in cattle –
A. Hematinic B. Papyraceous
C. Both A & B D. None

105. Mummification of fetus is most common in –
A. Bovine B. Swine
C. Equine D. Ovine

106. Uterine torsion is most common in –
A. Bovine B. Equine
C. Swine D. Canine

107. Uterine torsion is observed most commonly in –
A. Advanced pregnancy B. At time of parturition
C. After parturition D. None

108. Uterine torsion is most common in –
A. Primipara B. Pleuripara
C. Both A & B D. None

109. Dystocia is more common in –
A. Primipara B. Pleuripara
C. Both A & B D. None

110. Trichomonad pyometra is always –
A. Post service B. Post partum
C. Both A & B D. None

111. Retained placenta is most commonly observed in –
A. Trichomonas abortion B. Vibrio abortion
C. Brucella abortion D. All

112. Which is not a venereal disease –
A. Brucellosis B. Campylobacteriosis
C. IBR – IPV D. None

113. Frequent irregular estrous / nymphomania is found in –
A. Follicular cyst B. Luteal cyst
C. Both A & B D. None

114. Which is the most common cystic condition affecting bovine ovary –
A. Follicular cyst B. Cystic corpora lutea
C. Luteal cyst D. All

115. Cystic ovary is principally a disease of –
A. Dairy cattle B. Beef cattle
C. Both A & B D. None

116. Which is an abnormality of ovulation –
A. Cystic ovary B. Twinning
C. Both A & B D. None

117. In nymphomania, which hormone is present at peak level –
A. Progesterone B. Estrogen
C. $PGF_2\alpha$ D. None

118. Swiss cheese appearance of uterus and advanced virilism are associated with –
A. Cervico vaginal prolapse B. Uterine inertia
C. Retained placenta D. Cystic ovary

119. Progesterone in milk is higher in –
A. Follicular cyst B. Luteal cyst
C. Both A & B D. None

120. Which of the following statements for buffalo is true –
A. Estrus behavior is more pronounced
B. Ovaries are more developed.
C. Uterine horn are smaller + more coiled in buffalo than cow.
D. All

121. Number of follicles in buffalo ovaries are about –
A. 10,000 – 20,000 B. 25,000 – 50,000
C. 50,000 – 1,00000 D. None

122. Average age of puberty in riverine buffalo is –
A. 9-12 month B. 15 -18 month
C. 20-24 month D. None

123. Average age of puberty in swamp buffalo is –
A. 9-12 month B. 15 -18 month
C. 20-24 month D. None

124. Most reliable sign of oestrus in HF cow is –
A. Standing to be mounted by bull
B. Clear mucoid vulvar discharge
C. Bellowing
D. Frequent urination

125. Gestation period of buffalo is –
A. 284 days –290 days B. 305 -320 days
C. 335 -340 days D. None

126. Type of placenta of buffalo is –
A. Zonary B. Diffused
C. Cotyledonary D. None

127. Fertile life of cattle sperm is –
A. 30-48 hrs. B. 72-120 hrs.
C. 30-35 hrs. D. 24-72 hrs.

128. Fertile life of cattle ovum is –
A. 20-24 hrs. B. 6-8 hrs.
C. 6-10 hrs. D. 16-18 hrs.

129. Maternal recognition of pregnancy occurs in cattle at –
A. 12 days B. 16-17 days
C. 20 days D. None

130. Corpus luteum is somewhat embedded in –
A. Cow B. Buffalo
C. Mare D. None

131. Molecular weight of equine LH is –
A. 13,000 B. 23,500
C. 33,500 D. 40,000

132. Molecular weight of equine FSH is –
A. 12,000 B. 28,000
C. 33,200 D. 40,000

133. Normal expulsion of fetal membrane in mare takes about –
A. 180 min. B. 60 min.
C. 120 min. D. 30 min.

134. Which of the following animals do not eat their after birth –
A. Cow B. Sow
C. Bitch D. Mare

135. The main oestrogen in mare during pregnancy is –
A. Estradiol – 17 β B. Estradiol – 17 α
C. Equine D. Oestrane and equiline

136. eCG is also a synonym for –
A. hCG B. hMG
C. Progesterone D. None

137. Accessory corpus luteum is formed in mare during –
A. Pregnancy B. Prolonged diestrus
C. Uterine pathology D. None

138. PMSG/ eCG is detected is the blood of pregnant mare during–
A. 20-30 days B. 40 -150 days
C. 160 -200 days D. 200 -340 days

139. First Coccygeal vertebrae is fused to last sacral vertebrae in –
A. Cow B. Mare
C. Sheep D. None

140. Young one of this species is not susceptible to chilling –
A. Sheep B. Goat
C. Horse D. Cattle

141. Ovaries of mare are –
A. Oval shaped B. Rounded
C. Bean shaped D. Almond shaped

142. Duration of estrous period of estrous cycle in mare is –
A. 16-17 days B. 19-24 days
C. 18-20 days D. None

143. Duration of estrus period in mare is –
A. 1-2 days B. 2-4 days
C. 5 days D. 4-9 days

144. Type of placenta in mare –
A. Diffused B. Cotyledonary
C. Oval D. Discoid

145. Waxing of teat, before parturition is a characteristic symptom in–
A. Cow B. Sheep
C. Goat D. Mare

146. Foot nape posture is quite common in –
A. Cow B. Sheep
C. Goat D. Mare

147. Ovulation takes place from a specific part of ovary called "Ovulation fossa" in –
A. Cow B. Sheep
C. Mare D. Swine

148. Uterus is cruciform or T – shaped having horn perpendicular to body of uterus in –
A. Cow B. Mare
C. Sheep D. Dog

149. Vagina of cow is –
A. 5-10 cm long B. 10-20 cm long
C. 25-30 cm. long D. 35-40 cm. long

150. Most practical and accurate method of pregnancy diagnosis in cow is –
A. Rectal examination B. Ultrasonography
C. Radiography D. Vaginal biopsy

151. Males at birth are larger and heavier than females in all animals except –
A. Cattle B. Horse
C. Sheep D. Goat

152. Wry neck is most common in –
A. Bovine B. Equine
C. Ovine D. Canine

153. Largest corpora haemorrhagica is found in –
A. Cow B. Swine
C. Mare D. Sheep

154. Split heat is most common in –
A. Bovine B. Equine
C. Canine D. d. Feline

155. Which species is most sensitive to $PGF_2\alpha$ –
A. Bovine B. Equines
C. Canine D. Feline

156. Which of the following is associated with Dolly –
A. Wilkins B. Wilmut
C. Watson D. Drost

157. Repture of prepubic tendon or prepubic desmorrhexis of pregnancy is most common in –
A. Bovine B. Canine
C. Equine D. Ovine

158. Barium Chloride test for pregnancy diagnosis not reliable in animals –
A. Fed primarily on pasture B. Fed mainly on concentrates
C. Fed pelleted feeds D. None

159. Cuboni test is a chemical method for pregnancy diagnosis in–
A. Cattle B. Mare
C. Sheep D. None

160. A hormone detected in the blood of pregnant mare which can be used for Pregnancy Diagnosis by injection into immature rates is –
A. Oxytocin B. Relaxin
C. eCG D. None

161. Age of puberty in mare is –
A. 5-15 months B. 15-25 months
C. 20-30 months

162. In which species, unfertilized ova is retained in the oviduct for several months –
A. Bovine B. Equine
C. Swine D. Ovine

163. In which species, $PGF_2\alpha$ secreted from uterus reaches ovary via general circulation –
A. Bovine B. Equine
C. Both D. None

164. Ovulation in mare occurs –
A. 12-24 hrs before end of oestrus.
B. 24-48 hrs before end of oestrus.
C. 24-48 hrs after end of oestrus.
D. None

165. Enucleation of C. L. will not cause abortion in mare after –
A. 2 months B. 3 months
C. 4 months D. 6 months

166. Fetus of equine can be balloted at –
A. 100 days B. 200 days
C. 300 days D. None

167. Which of the following ultrasonographic method is used extensively in mare for Pregnancy Diagnosis –
A. Doppler method B. A mode ultrasonography
C. β mode ultrasonography D. None

168. Endometrial cups are temporary endocrine organs during pregnancy in –
A. Cow B. Mare
C. Sheep D. Sow

169. At birth the average number of primary or primordial follicles in the ovary of a heifer calf is –
A. 50,000 B. 50,0000
C. 1,50,000 D. 20,0000

170. Age of puberty of mare is –
A. 24 – 36 months B. 12 -24 months
C. 7-18 months D. 28-32 months

171. Age of puberty of queen cat is –
A. 7-12 months B. 10-24 months
C. 2-6 months D. 16-24 months

172. In heifer, around ———— number of growing follicles are present on the ovary at puberty.
A. 1000 B. 50
C. 5000 D. 200

173. The hormone primarily responsible for onset of ovarian activity, and hence puberty is –
A. LH B. FSH
C. Oestradiol D. GnRH

174. A fully functional corpus luteum is present during –
A. Metoestrus B. Dioestrus
C. Proestrus

175. Which animal species do not ovulate spontaneously –
A. Cow B. Mare
C. Camel D. None of the above

176. In dairy breeds the average body weight at puberty should be–
A. 35 % of mature body wt.
B. 50 % of the mature body wt.
C. 350 kg
D. None of the above

177. In beef breeds of cattle the average body weight at puberty should be –
A. 50% of the mature body weight B. 400 kg
C. 30 of mature body weight D. All of the above

178. Oocytes are capable of fertilization upto –
A. 8-12 hrs after ovulation B. 6 hours after ovulation
C. 20 hrs after ovulation D. None of the above

179. The diameter of mature Graffian follicle is –
A. 5-6 cm. B. 1.5 – 2.2 cm.
C. 2-2.5 cm. D. 2.35 to 4.2 cm.

180. Corona radiata in the ruminants of cell of –
A. Cumulus Oophorus B. Granulosa cells
C. Theca externa D. Vitelline membrane

181. At ovulation the follicle ruptures through a breach in –
A. Tunica albuginea B. Zona pellucida
C. Cumulus Oophorus D. All of the above

182. In a mature Graffian follicle the Oocyte is surrounded by –
A. Granulosa cells B. Theca interna
C. Cumulus Oophorus D. None of the above

183. The time of ovulation in cows is –
A. 12 -18 h after the end of oestrus
B. 24 h after the end of oestrus
C. 24-36 h after the end of oestrus
D. 6-8 h after the end of oestrus

184. The degenerating, avascular, nonfunctional corpus luteum is called –
A. Corpus haemorrhagicum B. Corpus luteum verum
C. Corpus luteum spurium D. Corpus luteum albicans

185. Corpus luteum of pregnancy is called –
A. Corpus luteum albicans B. Corpus haemorrhagicum
C. Corpus luteum verum D. Corpus luteum spurium

186. Corpus luteum in cycling non pregnant animals is called –
A. Corpus luteum verum B. Corpus luteum spurium
C. Corpus haemorrhagicum D. Corpus luteum albicans

187. The opening of the infundibulum is called –
A. Fimbriae B. Ostium abdominalis
C. Ostium infundibulum D. None of the above

188. In swine, the uterus is –
A. Bicornuate B. Bipartite
C. Both (A) & (B) D. None of the above

189. The transport time of ova in the oviduct is ———— hours after ovulation in cattle.
A. 10-12 h B. 5 -10 h
C. 20-36 h D. 72-90 h

190. The ovum reaches ampulla of the domestic animals in about–
A.5-8 h B. 9-12 h
C.12-16 h D. 16-24 h

191. The ova remain viable for 12 to 24 hours in domestic animals except ———— where it remains viable for about four days.
A. Sow B. Mare
C. Bitch D. Queen cat

192. LH stimulates –
A. Theca cells B. Granulosa cells
C. None of the above D. All of the above

193. Determination of live % by eosin nigrosin staining is based on–
A. Penetration of eosin into dead sperm membrane
B. Penetration of eosin into live sperm membrane
C. Binding of sperm to zona pellucida
D. None of the above

194. Organogenesis in bovine fetus is completed in –
A. 30 days B. 90 days
C. 120 days D. 45 days

195. The placenta in cow is –
A. Syndesmochorial B. Cotyledonary
C. Haemochorial D. None of the above

196. After _____ days of gestation, the corpus luteum is not necessary for the maintenance of pregnancy in cow–
A. 120 days B. 240 days
C. 150 days D. 190 days

197. Gestation period of camel is –
A. 406 days B. 442 days
C. 360 days D. 306 days

198. The normal time taken for shedding of placenta in cattle is –
A. 10 h B. 14 h
C. 6 h 4. 10 h

199. The embryo of dogs and cats reaches uterus after –
A. 2- 4 days B. 1-2 days
C. 8-10 days D. 5-8 days

200. Embryonic attachment to uterus occurs in cow at –
A. 12th day B. 21st day
C. 18th day D. 30th day

201. Which of the following hormones inhibits FSH release –
A. LH B. Estrogen
C. Inhibin D. All of the above

202. Which of the following hormones, directly or indirectly, do not affect reproduction –
A. TRH B. Prolactin
C. Oxytocin D. None of the above

203. Which of the following species have Kidney shaped ovary –
A. Cow B. Ewe
C. Sow D. Mare

204. Almond shaped ovary is found in –
A. Cow B. Ewe
C. Both (a) and (b) D. None of the above

205. Pear shaped corpus luteum is common in –
A. Mare B. Sow
C. Cow D. Goat

206. The longer half life of PMSG is due to the presence of –
A. Higher amount of organic carbon B. Sialic acid
C. Greater LN activity D. None of the above

207. Mean of calving to next conception interval is called –
A. Calving interval B. Days open
C. Submission rate D. None of the above

208. Nymphomania is a condition associated with –
A. Follicular cyst B. Luteal cyst
C. Increased FSH concentration D. None of the above

209. BA strain 19 is –
A. Line attenuated B. Live
C. Killed D. None of the above

210. Transuterine migration of Zygotes is common in –
A. Multiparous B. Uniparous
C. Primiparous D. Pluriparous

211. The superstitious belief that offspring from one sire may derive characteristics from a sire to which the same dam has previous borne offspring is called –
A. Superfetation B. Superfecundation
C. Telegony D. None of the above

212. When a female ovulate two or more ova during one estrum and copulate with two or more males during that estrum with ova being fertilized by spermatozoa from each male, the condition is called –
A. Superfetation B. Super fecundation
C. Telegony D. None of the above

213. When a second conception occurs in uterus already containing atleast one live fetus, the condition is called –
A. Telegony B. Superfecundation
C. Multiple pregnancy D. Superfetation

214. The following is / are comparatively more common in multiparous animals –
A. Superfetation and super fecundation
B. Superfetation, superfecudnation and telegrony
C. Twins and super fecundation
D. All of the above

215. Cyesiognosis is the term used for –
A. Diagnosis by per rectal examination
B. Pregnancy diagnosis by per rectal examination
C. Pregnancy diagnosis
D. Pregnancy diagnosis by ultrasonography

216. In pregnant cow amniotic vesicles can be palpated as early as–
A. 30 days B. 20 days
C. 60 days D. 65 -70 days

217. Middle uterine artery is a branch of –
A. Utero – ovarian artery B. Internal iliac artery
C. Caudal uterine artery D. None of the above

218. Fremitus can be felt in –
A. Middle uterine artery B. Iliac artery
C. Utero – ovarian artery D. None of the above

219. The gravid uterus descends to abdomen in cows at –
A. 5-6 months B. 2-3 months
C. 3-5 months D. None of the above

220. Which of the following is not a confirmatory sign of pregnancy–
A. Fetal membrane slip
B. Palpation of placentomes
C. Palpation of amniotic vesicles
D. Enlargement of uterine horn

221. Which of the following methods can be used for pregnancy diagnosis in Ewe –
A. Rectal palpation B. Recto – abdominal method
C. Abdominal palpation D. Both (B) and (C)

222. Which of the following is not a method of pregnancy diagnosis–
A. Vaginal biopsy examination
B. Uterine biopsy examination
C. Progesterone assay
D. Rossette inhibition test

223. Cuboni's test relies upon the estimation of which of the following hormones –
A. Progesterone B. Estrogen
C. eCG D. ECG

224. Endometrial cups, formed due to invasion of fetal trophoblast cells into Endometrium, appears in mare during –
A. Third month of pregnancy
B. Seventh month of pregnancy
C. Earlier part of second month of pregnancy
D. Late part of fifth month of pregnancy

225. The following hormone is produced by the endometrial cups –
A. HCG B. HMG
C. Progesterone D. eCG

226. Aschein – zondek test and friedmoat test for pregnancy diagnosis in mare are based on –
A. Identification of PMSG in blood/Serum
B. Identification of progesterone in blood
C. Both of the above
D. None of the above

227. Females that have never conceived or carried young are called–
A. Primiparous B. Pluriparous
C. Monotoccous D. Nullipara

228. Unipara is synonyms to –
A. Primipara B. Pluripara
C. Monotocous D. Polytocous

229. In contrast to uniparaous animal the multiparous animals usually have –
A. Well developed cervix
B. Poorly developed cervix
C. Well developed uterine horns
D. Poorly developed uterine horns

230. The weight of foetus at birth in unipara should be ..... % of the weight of post partum dam –
A. 20 B. 10
C. 5 D. 3

231. The weight of foetus in multipara at the time of birth should be ..... % of weight of post partum dam.
A. 1-3 B. 3-6
C. 6-9 D. 9-10

232. A sow normally bears –
A. 3-4 foetuses B. 20 -22 foetus
C. 3-8 foetuses D. 6-12 foetus

233. A queen cat normally bear –
A. 4-8 foetus B. 3-5 foetus
C. 1-3 foetus D. 2-8 foetus

234. In cows, the Vaginocervical prolapse is more common in which of the following stages –
A. Last 2-3 months of gestation
B. First two months of pregnancy
C. Diestrus
D. Proestrus

235. The duration of gestation period in Tiger is –
A. 60-80 days B. 90-100 days
C. 105 -113 days D. 123 – 141 days

236. The gestation of Rhinoceros is –
A. 213 – 315 days B. 530 – 548 days
C. 312 – 390 days D. 630 – 651 days

237. The gestation period of Indian Elephant is –
A. 615 – 650 days B. 420 -436 days
C. 510 -523 days D. 496 -513 days

238. The occurrence in an individual of two or more cell populations or tissues each with a different chromosome complement derived from a single Zygote is called –
A. Chimerism B. Mosaicism
C. All of the above D. None of the above

239. The relation of the dorsum of the fetus in longitudinal presentation, or the head in transverse presentation, to the quadrants (Sacrum, right ileum, lift ileum and pubis) of the maternal pelvis is called –
A. Presentation B. Posture
C. Position D. None of the above

240. The relation of the extremities, on the head, neck and limbs to the body of the fetus is called –
A. Presentation B. Posture
C. Position D. None of the above

241. The normal position of fetus in uniparous animals is –
A. Dorsoilial B. Dorsopubic
C. Left celphaloilial D. Dorso sacral

242. Transverse presentation is comparatively more common in which of the following spc_ies –
A. Cattle B. Buffalo
C. Mare D. Goat

243. The posterior longitudinal presentation, dorso-sacral position, with the hind limbs retained or extended beneath the body is called –
A. Breech presentation
B. Dog sitting posture
C. Hip lock in posterior presentation
D. None of the above

244. The average pH of bull semen is –
A. 7.4 B. 5.6
C. 6.8 D. 8.2

245. The volume of oxygen used by 10^8 spermatozoa in 1 hour at 37°C is called –
A Fructolysis index B. Respiratory Coefficient
C. O_2 index D. None of the above

246. IVT diluent is used for preservation of semen at –
A. Cryopreserved state B. Refrigeration temperature
C. Room temperature D. All of the above

247. The temperature of liquid nitrogen is –
A. -79° C B. -129° C
C. -146° C D. -196° C

248. The site of insemination in Goat is –
A. Body of the uterus B. Deep cervix
C. Internal os cervix D. external os cervix

249. Which of the following has the highest ejaculate volume –
A. Buffalo bull B. Bull
C. Boar D. Stallion

250. The best method of semen collection in bull is –
A. Artificial vagina method
B. Massage method
C. Electroejaculation method
D. Vaginal aspiration method

251. The pH of semen in cock is –
A. 6.0 -6.8 B. 6.2 – 6.8
C. 6.7 – 6.8 D. 7.0 – 7.4

252. The ideal number of sperm per insemination in Indian condition should be –
A. 5-10 lakh B. 1 lakh
C. 15 lakh D. 1.5 lakh

253. If discoloration of dye, in methylene blue reduction test, takes 30 minutes the semen sample will be of –
A. Poor quality B. Excellent quality
C. Good quality D. Fair

254. Respiratory coefficient is lowest in semen of which of the following species –
A. Ram B. Cock
C. Rabbit D. Bull

255. The ideal intercalving period in cross bred cows should be –
A. 28 months B. 21 months
C. 12 months D. 26 months

256. Hypo-osmotic swelling test is based on which of the following principle –
A. Intact sperm membrane will respond to hypo-osmotic stress
B. Intact sperm membrane will resist hypo-osmotic stress
C. Live spermatozoa will not allow the entry of the solvent through the membrane
D. Greater response to hypo-osmotic response to hypo osmotic response significance decreased fertility

257. Spermateliosis is the process in which –
A. Spermatogonium developes into primary spermatocyte
B. Primary spermatocyte divides into two secondary spermatocytes
C. Segregation of x and y takes place
D. Secondary spermatocytes are transformed into spermatids

258. The bull semen should be thawed at –
A. 37 °C for 30 seconds B. 28 °C for 30 seconds
C. 40 °C for 1 minute D. 04 °C for 1 minute

259. Giemsa staining is used for –
A. Acrosome reaction test B. Hypo osmotic swelling test
C. Live dead count D. All of the above

260. Which of the following antibiotics are used in routine used TRIS diluter –
A. Gentamicin B. Chloramphenicol
C. Ampicillin D. Streptomycin sulphate

261. Cytoplasm of the sperm cells is located at –
A. Head B. Mid piece
C. Tail D. All of the above

262. Optimum time to inseminate an ewe is –
A. Mid estrus or end of estrus B. Third day of estrus
C. Towards the end of estrus D. Start of estrus

263. Optimum time to inseminate swine is –
A. First or second day of estrus
B. Met estrus
C. Late estrus
D. End of the estrus

264. Site of semen deposition in mare –
A. Vagina B. Cervix
C. External os cervix D. Uterus

265. Approximate number of females which can be bred / ejaculate of bull is –
A. 700 B. 100
C. 30 D. 12

266. Liquid semen of bull can be stored for –
A. 1 day B. 12 hours
C. 2 days D. 4 days

267. Number of semen collections per week in a bull should ideally be –
A. Two to three B. Five times
C. Seven D. None of the above

268. In goats AI is done at which of the following sites –
A. Oviduct B. Body of uterus
C. Internal os cervix D. External os cervix

269. Proestral bleeding is seen in –
A. Mare B. Ewe
C. Sow D. Bitch

270. Post estral bleeding is seen in –
A. Mare B. Cow
C. Sow D. Bitch

271. During ——— uterine glands undergo atrophy –
A. Proestrus B. Estrus
C. Diestrus D. Met estrus

272. The casual organism of EBA is –
A. Psittacosia lymphogranuloma
B. Trichomonas
C. Herpes virus
D. None of the above

273. The vector of EBA is –
A. Mite B. Tick
C. Flea D. Fly

274. Major symptom of bovine trichomoniasis is –
A. Short estrus cycle B. Prolonged estrus cycle
C. Pyometra D. All of the above

275. Long estrus cycles (27 -53 days) in bovine can be caused by–
A. Trichomonas fetus B. Streptococci
C. Brucella abortus D. Pseudomonas aeruginosa

276. Which of the following is an anomaly of trunk –
A. Spastic paresis B. Schistosomus reflexus
C. Hydrocephalus D. Syndactylion

277. Condition characterized by the birth of dummy or bawler's calves is known as –
A. Epitheliogenesis imperfecta
B. Ichthyosis congenita
C. Hypotrichosis
D. None of the above

278. Recessive defects characterized by degree of hair less ness is known as –
A. Hydrocephalus
B. Ichthyosis congenita
C. Hypotrichosis congenital
D. Epitheliogensis Imperfecta

279. Epizootic bovine abortion is transmitted through which of the following vectors –
A. *Argus persicus* B. *Ornithodoros spp.*
C. *Glossina morsitaus* D. *Diaemus youngi*

280. The normal progesterone concentration in the midluteal phase of cow is –
A. 4 – 20 n g / ml B. 4 – 20 µ g / ml
C. 4 – 20 mg / ml D. 4 – 20 pg / ml

281. The active form of testosterone in the accessory sex glands is–
A. Androgen B. Dihydrotestosterone
C. Estradiol D. None of the above

282. Which of the following is used as flushing medium for embryo collection –
A. Dulbucco's phosphate buffer saline B. TALP
C. Hank's medium D. Normal saline solution

283. The first successful embryo transfer was performed by –
A. Wilmut and Rowson B. Walter Heape
C. Drost D. Casida

284. Which of the following hormones are used for super ovulation–
A. Equine chorionic gonadotropin
B. Luteinising hormone
C. Estradiol valerate
D. None of the above

285. The dose of PMSG for super ovulation in cattle is –
A. 3000 – 4000 IU B. 1000 – 2000 IU
C. 500 – 1000 IU D. 2000 – 3000 IU

286. The following is the disadvantage of use of PMSG –
A. Short biological half life
B. Continuous production of prostaglandins
C. Long biological half life
D. None of the above

287. The total dose of FSH for super-ovulation in large animals varies from –
A. 200–400 mg B. 400 – 600 mg
C. 600 –800 mg D. 800–1000 mg

288. The pH of the flushing medium for embryo flushing should be–
A. 7.2 – 7.6 B. 7.8 – 8.2
C. 6.5 – 6.8 D. 6.7 – 7.1

289. The holding medium for embryo contains –
A. 1 % BSA B. 4 % BSA
C. 0.1 % BSA D. 0.4% BSA

290. The flushing medium for embryo flushing contains –
A. 0.1 % BSA B. 0.2 % BSA
C. 0.4 % BSA D. 1 % BSA

291. Embryo collection is done on ——— days after the onset of super-ovulatory heat in buffaloes –
A. 6 – 7 B. 6.5 –7.5
C. 5.5 – 6.5 D. 7.5 – 8

292. What is the approximate number of cells in morula –
A. 43 B. 32
C. 48 D. 64

293. The hatching of blastocyst in bovines normally occurs at –
A. day 5–6 B. day 6–7
C. day 4–8 D. day 8–10

294. The embryonic cells are called –
A. Blastocyst B. Germ cells
C. Blastomeres D. Blastocoele

295. Blastomere is surrounded by –
A. Blastomere B. Trophoblast
C. Inner cell mass D. None of the above

296. Prostaglandins are derivatives of –
A. Melonic acid B. Arachidonic acid
C. Benzoic acid D. None of the above

297. Early abortion is evident in which of the following –
A. Tuberculosis B. Brucellosis
C. Vibriosis D. None of the above

298. Which of the following conditions are not associated with infection –
A. Abortion B. Repeat breeding
C. Maceration D. Mummification

299. Estrumate is an analogue of –
A. Prostaglandin F_2 Alfa B. FSH
C. PMSG D. Estrogen

300. Palace dairy farms, Mysore is associated with –
A. First embryo transfer in dairy cattle in India
B. First artificial insemination performed in India
C. First progeny testing programme launched in India.
D. None of the above

301. Which of the following is used in estrus synchronization –
A. folligon
B. Norgestomate and Estradiol valerate
C. Stilbesterol
D. Follitropin

302. Which of the following can he used for super ovulation –
A. PMSG B. HCG
C. Estrogen D. All of the above

303. Progesterone therapy is used in which once of the following conditions –
A. Cystic ovary B. Increasing conception rate
C. Estrus synchronization D. All of the above

304. In cats and dogs which type of placenta is formed
A. Haemochorial B. Endotheliochorial
C. Epitheliochorial D. Syndesmochorial

305. Average time taken for methylene blue reduction by superior quality semen is –
A. 3–6 min. B. 7–9 min.
C. 10 min. D. None

306. "Citric acid whey" semen dilution was developed by –
A. Thecker B. IVRI
C. NDRI D. NBRI

307. Citric acid whey dilutor is most suitable for –
A. Buffalo B. Bull
D. Buck D. Ram

308. F_2 dilutor contains –
A. 25% egg yolk B. 5 % egg yolk
C. 50 % egg yolk D. 10 % egg yolk

309. Amount of fructose solution (5%) present in E_5 dilution is –
A. 5 % B. 10 %
C. 20 % D. 30 %

310. Dilutor used for storing semen at room temperature is –
A. IVT dilutor B. EYC dilutor
C. D_2 dilutor D. Tris dilutor

311. IVT dilutor was developed by –
A. U. D. Sharma B. Thecker
C. Marshall D. Wilmut

312. Amount of Penicillin (I. U.) used in IVT dilutor is –
A. 10^5 B. 10^{10}
C. 10^1 D. 10^9

313. Ovisinch is a –
A. Estrus synchronization protocol
B. Repeat breeding treatment
C. Drug used to treat cystic ovary
D. None

314. Which one is used to induce fertile estrus in bitches
A. FSH B. GnRH
C. ECG D. All of the above

315. Ovaries can be directly palpated through rectum in
A. Cow B. Mare
C. Both a & b D. Bitch

316. Which type of semen is best in terms of colour and concentration–
A. Thick creamy B. Thick milky
C. Watery D. Thin creamy

317. Yellow colour of bovine semen indicates presence of–
A. Pus B. Blood
C. Bile D. None

318. Optimum fructolysis index in bull semen is –
A. 1–2 B. 3–4
C. 0–1 D. 5–6

319. Cystic ovary in cows causes –
A. Nymphomania B. Anoestrus
C. Mucous discharge D. All of the above

320. A dairy cow should ideally be bred –
A. 45–60 days after parturition
B. 30 days after parturition
C. 25 days after parturition
D. None

321. Average normal heart rate for calf is –
A. 200 / minute B. 120 / minute
C. 20 / minute D. 40 / minute

Answer Key

Q.	A.	Q.	A.	Q.	A.	Q.	A.
1	D	42	C	83	B	124	A
2	B	43	A	84	A	125	B
3	B	44	B	85	B	126	C
4	A	45	A	86	B	127	A
5	B	46	A	87	A	128	A
6	A	47	C	88	C	129	B
7	C	48	C	89	B	130	B
8	C	49	C	90	C	131	C
9	D	50	C	91	D	132	C
10	D	51	C	92	C	133	D

200	A	244	C	288	A
201	C	245	B	289	D
202	D	246	C	290	A
203	D	247	D	291	C
204	C	248	D	292	B
205	A	249	C	293	B
206	B	250	A	294	C
207	B	251	D	295	B
208	A	252	A	296	B

FILL IN THE BLANKS

1. The two types of cells of epithelium of the Seminiferous tubules are _____ and _____.
2. The least potent estrogen hormone is _____.
3. The undetached protoplasmic droplet of spermatozoa contains the ruminants of _____.
4. The _____ is a fetal part, the _____ is the maternal part and the combined name is placenta.
5. In cattle the diameter of ova without zona pellucida is _____ and with zona pellucid is _____.
6. By the time the fertilized ovum reaches the uterus, the Endometrium is under the influence of hormone_____.
7. The duration of the ova transport the oviduct in cattle is _____ of which nearly _____ part of time is spent in the isthmus.
8. The spermatozoa in all the domestic species take about _____ minute to pass through the uterus. This movement of spermatozoa in the uterine lumen is due to _____ and _____ hormones.
9. The testicular degeneration along with obesity is called _____.
10. The length of Seminiferous tubules in bulls is _____.

11. The colour of testicular Parenchyma in bull is _____.
12. The growth of follicle before cell stage in under _____ control.
13. The second and third stage of labour is interspersed in _____.
14. Ovary of sow is _____.
15. Best result is obtained when embryo transfer is done by non surgical techniques at _____stage.
16. Specific gravity of the cryoprotectant glycerol is _____.
17. For optimum result the recipients should be in estrus in the _____ hours of donors estrus.
18. Mean calving to conception interval is called _____.
19. For use in semen diluter, the milk must be heated at _____ temperature for _____ time to destroy spermicidal factor present in it.
20. Semen volume is contributed by the secretions from _____.
21. Site of semen deposition in AI of mare with frozen semen is _____.
22. _____ and _____ present in egg yolk protects the sperm cells during semen dilution.
23. In massage method of semen collection, the semen may contain more of _____ secretion.
24. Cellular theory of freemartins refers to the transfer of _____ from male fetus to female fetus in early pregnancy.
25. The yellow colour of Guernsey bull semen is due to the present of _____.
26. The dog defect is grouped as _____ sperm abnormalities.
27. Annular folds are found in the cervix of _____
28. Female reproductive system develops from _____.

29. Screw shaped cervix is found in ————————.
30. Ewe has ———————— shaped ovary.
31. ———————— is not found in isthmus but is found in Ampulla of oviduct.
32. The yellowish colour in the CL of cow and mare is due to the presence of ————.
33. Wolfian duct gives rise to ———————— reproductive system.
34. ———————— is the functional unit of the testes.
35. Collecting tubules located in mediastinum in testes are called ————————.
36. ———————— Accessory genital gland is absent in Ram .
37. Highly developed Cowsper's gland is found in ————.
38. Ram has ———————— type of penis.
39. Stallion has ———————— type of penis.
40. Swiss cheese appearance is seen in endometrial glands in ———————.
41. Expulsion of fetus occurs in ———————— stage of labour
42. Cuboni test is used for ———————— in mare.
43. Various physiological processes involved in the birth of young one are combinally known as ————————.
44. Oozing of colostrums from teats before two days of foaling in mare is called ————————.
45. Expulsion of foetal membranes takes place in ———————— stage.
46. Potato Soup like pus is seen in ————————.
47. Abortion due to ———————— is also know as foot hill abortion.

48. If patechial heart, placentitis and hepatitis is seen in abortion occurring at all the trimesters of pregnancy, ———————— infection should be suspected.
49. Wry neck is lonely seen in ————————.
50. The range of temperature in bull AV should be ————————.

Answer Key (Fill in the blanks)

1. Normal cells,
2. 2- Estriole,
3. Golgi apparatus,
4. Cotyledon
5. 185 – 188 um, 200 um
6. Progesterone
7. 90 hrs., 2/3rd
8. 15 min., Oxytocin & prostaglandin
9. Dystrophia adipogenitalis
10. 5000 m
11. Yellow
12. Intraovarian
13. Bitch
14. Mulberry shaped
15. Early blastocyst stage
16. 1.25
17. 12
18. Days open
19. 92–95° C, 10 min.
20. Seminal vesicles
21. Intrauterine
22. Phosphotidyl choline and Phosphotidyl serine

23. Seminal vesicle
24. Primordial germ cells
25. Riboflavin
26. Primary
27. Ewe
28. Mullerian duct
29. Sow
30. Spheroid
31. Secondary folds
32. Lutein
33. Male
34. Seminiferous tubules
35. Rete testes
36. Prostate
37. Boar
38. Fibro – elastic
39. Vasculo muscular
40. Nymphomaniac cows
41. Second
42. Pregnancy diagnosis
43. Parturition
44. Waxing
45. Third
46. Trichomoniasis
47. EBA
48. IBR – IPV
49. Mare
50. 42 – 46° C

CHOOSE THE CORRECT STATEMENT
(Write 'A' for True and 'B' for False Statement)

1. In boar the testicles are located in-between thighs.
2. For optimum semen production the temperature of the testes should be 101.4° F in bull.
3. Both seminal vesicles and Bulbourethral glands are absent in dogs.
4. The sigmoid flexure is prescrotal in boar.
5. Acidophils of Neurohypophysis produce STH.
6. The structural integrity of Adrenal medulla is maintained by A.C.T.H.
7. Estrogen can be used successfully in anoestrus cows to induce estrus and ovulation.
8. Estradiol – 17 alfa is more potent than Estradiol–17 B.
9. Met-estrum is the building–up phase of the estrus cycle.
10. Indian cattle breeds have short estrous periods.
11. In bulls, the storage period of sperm in the epididymis is 60 days.
12. Flehman reaction is particular to bulls only.
13. Implantation in cows occurs at about day 35 following service and before implantation the embryo draws nutrition only by uterine secretions.
14. Umbilical arteries carry oxygenated blood from placenta to the fetus.
15. The testis is both mesodermal and endodermal in origin.
16. Accessory glands are mesodermal in origin.
17. Sustentacular cells are responsible for the production of testosterone hormone.

18. Maturation of spermatozoa takes place in female genital tract.
19. Acquaintance of horse and mare is necessary for mating.
20. Vesicular glands are paired in dog.
21. In bull the relationship of pituitary gonadotropin and testes is cyclic.
22. Thiouracil would cause increase in sperm production.
23. Vocalization of bull during courtship is frequently observed.
24. Stretching of head and neck is a general post-coital reaction in bull and ram.
25. Penis develops from the genital ridge.

Answer (True or False Statement)

1	2	3	4	5	6	7	8	9
B	B	B	A	B	B	B	B	B
10	11	12	13	14	15	16	17	18
A	B	B	B	B	A	B	B	B
19	20	21	22	23	24	25		
B	B	B	B	B	B	A		

CHAPTER -13

ANIMAL NUTRITION

ANIMAL NUTRITION

POINTS TO REMEMBER

- 100 gm protein produces 42 gm metabolic water.
- Roughages contain more than 18 % crude fibre and 60 % total digestible nutrients. (TDN)
- Concentrates have less than 18 % crude fibre and more than 60 % TDN.
- Succulent feed contain 60–90 % moisture.
- Dry roughages contain 10–15 % moisture.
- Cow pea cluster bean are most common Kharif leguminous crops. They contain 2.3 % digestible crude protein (DCP) of about 10 % TDN.
- Berseem is annual crop of Rabi season.
- Lucerne and Berseem contain 2–3 % DCP and 12 % TDN. They have wide Ca : P ratio.
- Jowar, Maize, Sudan grass are major Kharif non – leguminous fodder.
- Oats and barley are important Rabi non – leguminous crops.
- TDN estimates the energy value of feed.
- Tapioca (*Manihot utilissma*) is an important root crop of South India. It has 80–90 % moisture and 5–11 % crude fibre.
- Hay making is a method to conserve green crops by reducing moisture content up to 15 %.
- Lucerne is also known as alfalfa.
- Lucerne hay contains 14–15 % DCP and 50 % TDN.
- Straws are poor in phosphorus but rich in silica with 40 % TDN.
- Energy rich concentrates have less than 18 % C.F. ex. Grains, seeds, molasses, roots.

preserved forage with characteristic is between those of hay and silage.

- Guar is a drought resistant legume.
- 1 gram glucose yields 0.60 gm. Metabolic water, as compared to 0.42 gm. Water from 1 gm. Protein.
- Deficiency of phosphorous leads to pica.
- Nerves and muscle cells are rich in potassium.
- Wool is rich in cysteine and contains about 4 % sulphur.
- Hemosiderin is extremely insoluble form of iron.
- Zinc is poorly absorbed from intestine. It tends to accumulate in bone rather than liver.
- Leg abnormality in poultry and parakeratosis are major deficiency symptoms of Zinc.
- Cerebrocuprin is a form of copper protein isolated from human brain.
- Gingin rickets / Enzootic neonatal ataxia / sway back is seen as a result of copper deficiency.
- Proximate analysis is also known as Weende system.
- Viva technique is used for study of nutrient utilization by rumen microbes under controlled conditions in rumen.
- Balanced ration provides essential nutrients to animal in such proportion amounts that are required for proper nourishment of particular animal for 24 hours.
- For 3.0 % fat content of milk, 0.040 kg DCP is required.
- 13 % crude protein is required for lactating cow of 400 kg body weight and yielding less than 8 kg milk per day.
- Van soechst system divides dry matter into cellular and cell wall constituents.
- Weende system conceptualizes that crude fibre is indigestible portion and N_2-Free extract is digestible portion.

- 1 kg additional concentrate is needed for every 2.5 kg of milk for Zebu cattle, while same amount is needed for every 2.0 kg milk yield by cross bred / Indian cattle / buffalo.
- Layers require 18 % crude protein.
- Broiler finisher requires 19 % crude protein.
- Chicks require more (1.0 %) amount of lysine as compared to layer (0.5 %).
- Deficiency of choline results slipped tendon.
- Broiler starter feed have 2900 k cal / kg feed.
- During last three months of gestation, additional allowance of 0.14 kg DCP and 0.7 kg TDN must be provided. It can be easily met by 1kg good quality concentrate mixture.

QUESTIONS

1. As per BIS (1992), broiler starter phase refers to age group–
   A. 0–5 weeks B. 0—2 weeks
   C. 0–8 weeks D. 2–6 weeks

2. As BIS (1992), broiler finisher phase refers to age group –
   A. 8–12 weeks B. 5–8 weeks
   C. 0–7 weeks D. 7–8 weeks

3. As per BIS (1992), crude protein of layer chick feed is –
   A. 20 % B. 23 %
   C. 15 % D. 16 %

4. Acid insoluble ash of layer feed should not exceed beyond (As per BIS 1992) –
   A. 4 % B. 2 %
   C. 6 % D. 8 %

Match the following

	Parameter		Broiler starter feed
5.	Moisture	C	A 23 %
6.	Crude protein	A	B. 6 %
7.	Crude fibre	B	C. 11 %
8.	Acid insoluble ash	D	D. 3 %

Write A for true and B for false statements.

9. Metabolizable energy (ME) of an ingredient is independent of other dietary components. A
10. ME value remains constants regardless of age, type or usefulness off bird. A
11. ME is determined by measuring feed intake and excreta output over a 2–5 day test period. A
12. Glycine is required by poultry. A
13. Lysine and methionine are the limiting amino acids. A
14. Methionine is second limiting amino acid. B
15. Calorie protein ratio for broiler starter feed is 122 as per BIS 1992. A
16. Glysine is not needed for biosynthesis of Uric acid. B
17. Which one is right calorie protein ratio for broiler finisher feed (BIS 1992) – B

A. 144 B. 145
C. 122 D. 156

18. Threonine alleviates the toxic effects of excess of B

A. Lysine B. Tryptophan
C. Methionine D. None

19. Toxicity of methionine can be reduced by use of –

A. Glycine B. Lysine
C. Tryptophan D. None

20. Isoleucine is used to alleviate toxicity of –

A. Lysine B. Valine
C. Methionine D. Glycine

21. If hen eats 120 gms diet per day, TDN content of diet should be –

A. 13.6 % B. 10.6 %
C. 16.4 % D. 11.0 %

Match the following

	Symptoms		Causative nutrient
22.	Perosis	B	A. Niacin deficiency
23.	Bowed legs	A	B. Vit. B_{12} deficiency
24.	Curled toe paralysis	D	C. Selenium deficiency
25.	Exudative diathesis	C	D. Riboflavin deficiency

Match the following

	Deficiency		Symptoms
26.	Cu	B	A. Polyneuritis in chicks
27.	Iron	C	B. Enlarged heart
28.	Niacin	D	C. Microcytic, hypochromic anemia
29.	Thiamin	A	D. Enlarged tibio-tarsal joint

30. Dermatitis, scabs and crust around eyes, beaks and vents are indication of –

A. Pantothenic acid deficiency B. Biotin deficiency
C. Niacin deficiency D. None

31. How much ME (k cal / kg) can be obtained from yellow maize –

A. 3340 B. 2800
C. 3080 D. 3600

32. Maximum level of inclusion of maize is –

A. 60 % B. 30 %
C. 10 % D. 80 %

33. What is maximum level of inclusion of rice bran –
A. 20 %
B. 40 %
C. 5 %
D. 70 %

34. Scaliness on feet in chicks indicates deficiency of –
A. Zinc
B. Selenium
C. Vit. A
D. None

35. Recommended level of inclusion of calcium –
A. 3 %
B. 6 %
C. 8 %
D. 10 %

36. What is the appropriate ratio of Ca and nonphytate Phosphorus for layers is –
A. 12 : 1
B. 2 : 1
C. 3: 1
D. 5 : 1

37. Excess of dietary Ca interferes with availability of –
A. Phosphorus
B. Mg
C. Mn
D. All of above

38. Egg size is largely dependent upon the level of –
A. Protein
B. Linoleic acid
C. A + B both
D. Vitamin A

39. Level of linoleic acid in diet recommended for maximum egg size is –
A. 1 %
B. 3 %
C. 5 %
D. 6 %

40. Which level of NaCl in water is toxic for layer –
A. 1.5 %
B. 2.5 %
C. 0.5 %
D. 3.5 %

Match the following **(Question 41 – 44)**

	Vit		Deficiency symptom
41.	A	B	A. Scurvy
42.	C	A	B. Night Blindness
43.	D	D	C. Beri-Beri
44.	B_1	C	D. Rickets

Match the following **(Question 45 – 48)**

	Carbohydrate		Example
45.	Monosaccharide	D	A. Xylan
46.	Trisaccharide	B	B. Raffinose
47.	Pentosans	A	C. Cellobiose
48.	Disaccharide	C	D. Mannose

49. Which one is synthesized in rumen –
A. Vit B-complex
B. Vit K
C. Vit C
D. Both A & B

50. DCP value of maize is –
A. 6.0 %
B. 8.0 %
C. 10 %
D. 1.0 %

51. Dry matter requirement for wool production in sheep weighing 50 kg b.wt is –
A. 1470 gm
B. 720 gm
C. 1780 gm
D. 2090 gm

52. DCP requirement of adult sheep for maintenance of 50 kg body weight is –
A. 56 gm/day
B. 38 gm
C. 70 gm/day
D. 20 gm

53. Dairy heifer weighing 200 kg would consume 5 kg of dry matter and need.....DCP and.....TDN.
A. 0.42 kg DCP and 3.2 kg TDN
B. 0.22 kg DCP and 1.2 kg TDN
C. 0.42 kg DCP and 6.2 kg TDN
D. 0.22 kg DCP and 3.2 kg TDN

54. For cow with 400 kg b.wt. producing 5 kg milk (5 % fat). How much green legume is needed in feed with 20 kg green cereal and 4 kg cereal straw –
A. 10 kg
B. 20 kg
C. 5 kg
D. 30 kg

55. For maintenance of animal weighing 250 kg, how much DCP and TDN is required –
A. 0.17 kg and 0.77 kg
B. 0.11 kg and 0.99 kg
C. 0.22 kg and 0.20 kg
D. 0.17 kg and 2.05 kg

56. For healthy normal animals, dry matter intake is –
A. 2.5 % of body weight
B. 1.0 % of body weight
C. 10 % of body weight
D. 6.5 % of body weight

57. DCP needed for maintenance of 25 kg calves is –
A. 80 gm
B. 150 gm
C. 20 gm
D. 200 gm

58. Daily requirement of sulfur by sheep for wool production at 50 kg body weight is –
A. 3.5 gm
B. 1.7g m
C. 2.4 gm
D. None

59. How much crude protein is required by growing finishing swine of 60 kg body weight –
A. 13 %
B. 10 %
C. 12 %
D. 18 %

60. Finisher swine group with highest body weight gain per day average is –
A. 35 – 60 kg
B. 10 – 20 kg
C. 20 – 30 kg
D. None

Write A for true and B for false statement.

61. Bomb calorimeter is used to estimate total energy content of feed. A

62. In India, Starch equivalent system was replaced by Net Energy system. A

63. Urea is least common source of non-protein nitrogen. B

64. Cauliflower is source of vitamin K. A

65. Fats supply energy in most concentrated form. A

66. Vitamin A is water-soluble. B

67. Vitamin A is primarily concerned with maintenance of epithelial tissue of all organs A

68. Pyridoxine is also known as Vita B-6. A

69. Pellagra is caused by deficiency of Biotin. A

70. Folic acid efficiency causes macrocytic hyperchromic anaemia in non- ruminants. A

Answer Key

Q.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
A.	A	B	A	A	C	A	B	D	A	A
Q.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
A.	A	A	A	B	A	B	B	B	A	B
Q.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.
A.	A	B	A	D	C	B	C	D	A	A
Q.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.
A.	A	A	A	A	A	A	D	C	A	A
Q.	41.	42.	43.	44.	45.	46.	47.	48.	49.	50.
A.	B	C	D	C	D	B	A	C	D	A
Q.	51.	52.	53.	54.	55.	56.	57.	58.	59.	60.
A.	A	A	A	A	D	A	A	A	A	A
Q.	61.	62.	63.	64.	65.	66.	67.	68.	69.	70.
A.	A	A	B	A	A	B	A	A	A	A

CHAPTER -14

VETERINARY PHARMACOLOGY

VETERINARY PHARMACOLOGY

SALIENT POINTS

- Father of toxicology is M. J. B. Orfla
- O. W. Holmes coined the term Anaesthesia.
- Neurotransmitter was discovered by Otto – 2 ewi.
- Posology is the study of dosage.
- Asafetida is a gum resin.
- Camphor is an essential oil.
- Polar ionized water soluble drugs are excreted through kidney.
- Receptor is a complement of tissue to which a drug interacts to produce its effect.
- Piperidine nucleus is responsible for activity of morphine.
- Affinity is a character of drug to combine with a particular type of receptor.
- Naloxone is antagonist of morphine.
- Agonist must possess intensive activity and affinity.
- Antagonist lacks intrinsic activity.
- Phenoxy benzamine produces irreversible antagonism.
- Potency of a drug depends on affinity and efficacy of drug.
- Salbutamol is B adrenergic agonist.
- Atropine is antagonist of organo-phosphorus compound.
- Lead poisoning can be antidoted by $CaNa_2EDTA$.
- Dimercaprol Arsenic, Mercury poisoning.
- Drug passes across membranes mainly by passive diffusion.
- In ruminants, most of drugs are absorbed in rumen.

- Catalepsy refers to waxy rigidity of muscles so that animal remains in position of placement.
- Anesthesia is characterized by loss of consciousness, loss of sensation and state of amnesia.
- Dissociative anesthesia is characterized by catalepsy and amnesia
- Aspirin is a non-narcotic analgesic.
- Neurolepsia is also known as Ataraxia.
- Anaesthetic triad consists of muscular relaxant and anaesthetics.
- Atropine blocks muscarinic receptor only not block nicotinic receptor.
- Adrenergic receptors are two types : alpha and beta.
- Propranolol is competitive and non-selective blocking both beta-1 and beta-2 receptors.
- Quinidine, class-1 antiarrythmics, is effective in supraventricular and ventricular arrythmias.
- Nitroglycerine relaxes vascular smooth muscle.
- Hydralazine is arterial vasodilator.
- Positive inotrops increase the strength of cardiac muscle contraction by increasing the quantity of intracellular calcium available for binding by muscle protein.
- Dopamine is an endogenous catecholamine precursor with sensitive beta-1 activity. It also stimulates the release of nor-epinephrine.
- Astringents act locally by precipitating proteins. They do not penetrate tissues.
- Epoetin alfa is the synthetic form of human glycoprotein and indicated in anemia with chronic renal failure in dogs and cats.
- Folic acid is needed for DNA and RNA synthesis.

QUESTIONS

1. Sweat glands in horses receive which type of autonomic fibres–
   A. Adrenergic fibers B. Cholinergic fibres
   C. Both of the above D. None of the above
2. Post ganglionic autonomic fibres innervate –
   A. Heat B. Smooth muscles
   C. Both 'a' and 'b' D. Hair follicles
3. Adrenergic against are also know as –
   A. Sympathomimetic agents
   B. Parasympathomimetic agents
   C. Sympatholytic agents
   D. None
4. Adrenaline increases blood pressure due to –
   A. Alfa effect B. Beta 2 effect
   C. Alfa and Beta both D. None
5. Adrenaline is readily deaminated by –
   A. MAO B. COMT
   C. Protease D. None
6. MAO is –
   A. Monoamine oxidase
   B. Methylated ammonium oxide
   C. Morphine anhydrous oxide
   D. None
7. Nor adrenaline exerts same effects of Adrenaline except –
   A. Relaxation of smooth muscles
   B. Glycogenolysis
   C. Respiratory secretions
   D. All of the above

8. Clonidine is a –
   A. Centrally acting antihypertensive agents
   B. Locally acting antihypertensive agents
   C. Beta – Adrenergic agonist
   D. None

9. Dobutamine stimulates heart without –
   A. Lowering blood pressure
   B. Increasing blood pressure
   C. Producing diseases
   D. None

10. Which one of the following is a sympatholytic agent –
   A. Phenoxybenzamine B. Amphetamine
   C. Adrenaline D. None

11. Ketanserin is a –
   A. 5 – HT antagonist B. 5 – HT agonist
   C. Beta 2 – antagonist D. None

12. Ephedrine is –
   A. Alkaloid B. Beta – adrenergic agonist
   C. Bronchodilator D. All of the above

13. Cholinesterase inhibitors are used for the treatment of –
   A. Glaucoma B. Paralytic ileus
   C. Rumen atony D. All of the above

14. Diacetyl monoxime is a cholinesterase –
   A. Reactivator B. Inhibitor
   C. Both D. d. None

15. Belladonna alkaloids are –
   A. Antimuscarinic drugs B. Cholinesterase Inhibitors
   C. Cholinergic agonist D. None

16. Half life of Atropine in man is –
   A. 4 hours B. 1 hour
   C. 10 hours D. 15 hours

17. Atropine produces –
   A. Complete cycloplegia B. Incomplete cycloplegia
   C. Mydriasis D. Only 1 & 3

18. Tubocurorine is obtained from –
   A. Strychnos plant B. Atropa belladonna
   C. Hyoscimus plant D. None

19. Atropine in used for treatment of –
   A. Spasmodic colic B. Organophosphate poisoning
   C. Carbamate poisoning D. All of the above

20. Antagonist of Benzodiazepines is –
   A. Flumazenil B. Yohimbine
   C. Xylazine D. None

21. Xylazine is an –
   A. $Alfa_2$ agonist B. $Alfa_1$ agonist
   C. $Alfa_2$ antagonist D. None

22. Xylazine is an –
   A. Emetic in cat B. $Alpha_1$ agonist
   C. $Alfa_2$ antagonist D. None

23. Acepromazine prevents –
   A. Arrhythmia by adrenaline B. Bradycardia
   C. Vagal stimulation D. None

24. Neuroleptanalgesia is produced by –
   A. Droperidiol + opiates B. Azaperone + opiate
   C. Diazepam + Droperidol D. None

25. Phenobarbital Na causes –
   A. Sedation B. Hypnotism
   C. Anticonvulsation D. All of the above

26. Morphine is obtained from –
   A. Papaver somniferum B. Atropa belladonna
   C. Scindapsus sp. D. None

27. Morphine has affinity for –
A. μ receptor B. Alfa receptor
C. Beta receptor D. None

28. Morphine is not used in –
A. Strychnine poisoning B. Tetanus
C. Epilepsy D. All of the above

29. Specific antagonist of etorphine is –
A. Morphine B. Diprenorphrine HCl
C. Acepromazine D. None

30. Ketamine causes –
A. Salivation B. Analgesia
C. Anaesthesia D. All

31. CNS depressant effect of Chloral hydrate or due to –
A. Trichloroethanol B. Methanol
C. Tetraethylalcohol D. None

32. Procaine is metabolized by –
A. Hepatic cholinesterase B. Kidney enzymes
C. Both D. None

33. Which of the following is a common local anaesthetic –
A. Lidocaine B. Bupivacaine
C. Cocaine D. None

34. Histamine is –
A. Store in mast cells B. Anaesthetic compound
C. Antibiotic D. None

35. Histamine is –
A. A biogenic amine B. Alcoholic compound
C. Enzyme D. None

36. Triple response is produced by intradermal injection of –
A. Histamine B. Lidocaine
C. Ethyl chloride D. None

37. Frostbite pain in skin or produced by spray –
A. Ethyl chloride B. Halothane
C. Tetracaine D. None

38. Cimetidine is –
A. H_2 antagonist B. H_1 antagonist
C. Alfa agonist D. All of the above

39. Which of the following is an ergot derivative –
A. Membrane lipids B. Membrane protein
C. Methysergide D. None

40. Eicosanoids are derived from –
A. Membrane lipids B. Membrane protein
C. Cytoplasm D. None

41. Glucocorticoids induce synthesis of –
A. Eicosanoids B. Lipocortin
C. Histamine D. None

42. Prostaglandins are –
A. Hypotensive in general B. Hypotensive in general
C. Analgesic D. None

43. $PGF_{2\ alpha}$ is a hormone which causes –
A. Glycolysis B. Luteolysis
C. Thrombolyser D. All of the above

44. $PGF_{2\ alfa}$ is used for –
A. Synchronisation of estrous
B. Induction of parturition
C. Luteolysis
D. All of the above

45. Aspirin relieve pain inflammation by –
A. Inhibiting cyclooxygenase
B. Inhibiting leukotrienes
C. Both
D. All of the above

46. Gastric Prostaglandins inhibit –
A. Secretion of acid B. Mucus secretion
C. Both D. None

47. Cats are especially susceptible to NSAIDs toxicity because –
A. Lack of glucuronyl transferase B. lack of MAO
C. Both D. None

48. Salicylates increase –
A. O_2 consumption B. CO_2 consumption
C. Both D. None

49. Fenamates are –
A. PG_s antagonists B. PGs agonist
C. 5 – HT antagonist D. None

50. Meclofenamic acid antagonizes effect of –
A. Bradykinin B. Histamine
C. Kallikrein D. None

51. Overdosing of Phenylbutazone produces –
A. Mucosal petechiae B. Mouth ulcers
C. Colic D. All of the above

52. Which of the following is not a NSAID ?
A. Aspirin B. Naproxen
C. Meclofenamic acid D. Cimetidine

53. Which of the following may be used even in case of peptic ulcers ?
A. Acetaminophen B. Aspirin
C. Acetylsalicylic acid D. Naproxen

54. GnRH is used for –
A. Induction of orulatory estrus
B. To treat cystic ovaries
C. Both
D. None

55. Somatostatin is produced in –
A. Hypothalamus B. D cells of pancreas
C. GI mucosa D. All of the above

56. Adrenocorticosteroids have negative feed-back control over–
A. Corticotropin release hormone
B. Thyrotropin release hormone
C. Prostaglandins
D. None

57. Luteinizing hormone causes –
A. Maturation of follicles B. Production of estrogen
C. Release of progesterone D. All of the above

58. Ovarian cysts may be treated by –
A. FSH B. LH
C. CRH D. None

59. PMSG in produced by –
A. Hypothalamus B. Endometrium
C. Pituitary Gland D. None

60. Human chorionic gonadotropin is produced by –
A. Human placenta B. Human ovary
C. Human hypothalamus D. None

61. hCG is a –
A. Glycoprotein B. Glycolipid
C. Protein D. None

62. hCG causes –
A. Ovulation B. Luteinization
C. Both D. None

63. Ergot alkaloids inhibit release of –
A. ACTH B. Prolactin
C. GnRH D. None

64. Oxytocin and vasopressin are –
A. Nanopeptides B. Decapeptides
C. Octapeptides D. None

65. Hypertonicity of plasma promotes release of –
A. Oxytocin B. Vasopressin
C. Both D. None

66. ADH deficiency produces –
A. Diabetes mellitus B. Diabetes insipidus
C. Abortion D. None

67. Oxytocin is stored in –
A. Hypothalamus B. Posterior pituitary
C. Anterior pituitary D. None

68. Uterine inertia may be treated by –
A. Oxytocin B. Vasopressin
C. Prostaglandin D. Histamine

69. Testosterone causes feed-back inhibition of release of –
A. Hypothalamic GnRH B. ACTH
C. ADH D. None

70. Reduced form of Testosterone is –
A. Dihydrotestosterone B. Dinitrotestosterone
C. Dialkyl testosterone D. None

71. Testosterone is used to treat –
A. Mammary carcinoma B. Male infertility
C. Aloepecia in castrated dog D. All of the above

72. Toxic effects of testosterone are –
A. Edema B. Jaundice
C. Disturbed estrous cycle D. All of above

73. Competitive antagonist of androgens is –
A. Zeranol B. Estrogen
C. Cyproterone D. None

74. Estradiol is oxidized to –
A. Estrone B. Estriol
C. Both D. None

75. Estrogens are –
A. Luteolytic in cow B. Luteotropic in sow
C. Epitheliotropic D. All of the above

76. Misalliance in dogs can be nullified by use of –
A. Estrogen B. Testosterone
C. Histamine D. None

77. Nonsteroidal estrogen is –
A. Diethylstilbestrol B. Clomiphene
C. Flutamide D. None

78. Clomiphene is competitive antagonist of –
A. Estrogen B. Testosterone
C. Histamine D. None

79. Progesterone suppresses –
A. Uterine milk secretion B. Ovulation
C. Both D. None

80. Progestins on prolong use may produce –
A. Cystic hyperplasia of uterine
B. Mammary carcinomas
C. Abortion
D. None

81. Competitive antagonist of progesterone is –
A. Mifepistfrone B. Proligestone
C. Clomiphene D. None

82. Glucocorticoids promote –
A. Gluconeogenesis B. Lipolysis
C. Growth D. All of above

83. Corticosteroids are synthesized mainly in –
A. Adrenal cortex B. Pituitary gland
C. Hypothalamus D. All of the above

84. Glucocorticoids are used in –
A. Addison's disease B. Bovine ketosis
C. Hay fever D. All of the above

85. What is best for Glucocorticoid administration ?
A. Smallest dose for long period
B. Large dose for long period
C. Small dose for long period
D. None

86. Glucocorticoids should not be used in –
A. Late pregnancy B. Corneal ulcers
C. Diabetes mellitus D. All of the above

87. Which drug competes for thyroxine binding sites?
A. Aspirin B. Flucinolone
C. Progestin D. None

88. $T_3 + T_4$ act by binding to –
A. Nuclear chromatin B. Mitochondria
C. Cell wall D. None

89. $T_3 + T_4$ are –
A. Thyroxine and Triiodothyronine
B. Thyronin and Triidothyronin
C. Thyroglobins
D. None

90. T_4 is reduced to T_3 by –
A. 5 – deiodinase B. 5 – HT
C. Oxidase D. None

91. $T_3 + T_4$ are used for –
A. Cretinism B. Hairless calf
C. Myxedems D. All of the above

92. Early signs of thyroid toxicity is / are –
A. Arrhythmia B. Osteoporosis
C. Restlessness D. All of the above

93. Hormone secreted in response to hypocalcemia is –
A. Calcitonin B. Parathyroid hormone
C. Glucagon D. None

94. Calcitonin produces –
A. Hypocalcemia B. Hypercalcemia
C. Hypophosphatmia D. Both 1 and 3

95. Hypoparathyroidism in dog is treated by –
A. Calcium borogluconate B. Dexamethasone
C. Lugol's solution D. None

96. Distal tubular reabsorption of Ca^{++} is enhanced by –
A. Calcitonin B. Parathyroid hormone
C. Glucagon D. None

97. Somatostatin inhibits –
A. Glucagon secretion B. Insulin secretion
C. Both D. None

98. Glucagon and insulin is produced in pancreas by –
A. Alfa cells and beta islets respectively
B. Beta islets and alpha cells respectively
C. Delta cells and beta islets respectively
D. None

99. Growth promoting effects of insulation is based on its –
A. IGF – 1 agonist action B. IGF agonist action
C. IGF – 1 antagonist action D. None of above

100. Calcitriol is synthesized in –
A. Renal mitochondria B. Hypothalamus
C. Liver D. None

101. FSH release is inhibited by –
A. Gastrin B. Calcitriol
C. Inhibin D. None

KEY

Q.	A.	Q.	A.	Q.	A.	Q.	A.
1.	A	31.	A	61.	A	91.	D
2.	C	32.	A	62.	C	92.	D
3.	A	33.	A	63.	B	93.	B
4.	A	34.	A	64.	A	94.	D
5.	A	35.	A	65.	C	95.	A
6.	A	36.	A	66.	B	96.	B
7.	D	37.	A	67.	B	97.	C
8.	A	38.	A	68.	A	98.	A
9.	B	39.	C	69.	A	99.	A
10.	A	40.	A	70.	A	100.	A
11.	A	41.	B	71.	D	101	C
12.	D	42.	A	72.	D		
13.	D	43.	B	73.	C		
14.	A	44.	D	74.	C		
15.	A	45.	A	75.	D		
16.	A	46.	A	76.	A		
17.	D	47.	A	77.	A		
18.	A	48.	C	78.	A		
19.	D	49.	A	79.	B		
20.	A	50.	A	80.	A		
21.	A	51.	D	81.	A		
22.	C	52.	D	82.	D		
23.	A	53.	A	83.	A		
24.	A	54.	C	84.	D		
25.	D	55.	D	85.	A		
26.	A	56.	A	86.	D		
27.	A	57.	D	87.	A		
28.	D	58.	B	88.	A		
29.	B	59.	B	89.	A		
30.	D	60.	A	90.	A		

CHAPTER -15

ANIMAL GENETICS AND BREEDING

कृपया रेषा मारुन
पुस्तक खराब करु नये.

ANIMAL GENETICS AND BREEDING

SALIENT POINTS

- Heritability of litter size at weaning is 7% in pigs.
- Alleles are alternative forms of genes.
- Aneuploidy is a condition where one more or less than normal chromosome number is present.
- Anaphase is third stage of cell division (or mitosis) in which doubled chromosome separates into identical chromatids.
- Atavism is the reappearance of a character after it has not appeared for one or more generations.
- Breed is group of animals having common origin characteristics which distinguish them from other groups of animals within same species.
- Breeding value is genetic ability of animal to secrete milk, lay eggs etc. it is one half of genetic ability a sire or dam transmits to its off-spring.
- Calf crop refers to number of calves produced within a herd in a given year.
- Catalo is a crossbreed animal by mating American bison with domestic cattle.
- Hinney is offspring of a jennet (female ass) and a stallion. It is reciprocal to the mule.
- Dihybrid is an individual that is heterozygous for two pairs of genes such as individual with AaBb.
- Epistasis is interaction of two or more pairs of genes that are not alleles to produce a phenotype that they do not produce when they occur separately.
- Genome refers to haploid set of chromosomes with the genes they carry.
- Half sib refers to half brothers or half sisters.

- Grade is an animal that is not a purebred but commonly showing characteristics of a particular breed.
- Non-Dysjunction is the failure of a pair of sister chromosomes to separate in the reduction division of meiosis.
- Piebald is a black and white spotted horse.
- Pleiotropy refers to condition where one gene affects two or more traits.
- Milk is a sex limited trait.
- Environmental factors affects quantitative trait only.
- Ridgling is a male whose testicles fail to descend into scrotum. It is also known as cryptorchid.
- Selection is allowing certain individuals to produce the next generation.
- Skewbald is a spotted horse whose dark spots are other than black.
- Sib is brother or sister of an individual animal.
- Wrytail is a malformation resulting in distortion of tail head, with base of tail being set at an angle to the backbone instead of in line with it.
- Doddler cattle refers to genetic defect characterized by extreme muscle spasm, convulsions, nystagmation, dilation of eyes; This is a lethal recessive defect in calves.
- Repeatability estimates refers to the expression of same trait, such as milk production, fleece weight etc. at different times in life of an animal.
- Heritability estimates are used to indicate proportion of that individual's phenotypic superiority or inferiority that an individual is likely to transmit to its offspring.

QUESTIONS

1. A typical example of sex-linked gene is –
   A. Haemophilia in man B. Baldness in man
   C. Hen feathering D. None of the above

2. Milk production in cattle is controlled by –
   A. Multiple allele B. Additive gene
   C. Dominant gene D. Both A and B

3. Best estimate of genetic makeup of an animal is made by
   A. Progeny test B. Performance analysis
   C. Phenotypic study D. Ancestral study

4. functional unit of heredity is
   A. ovum B. gene
   C. sperm D. all of these

5. inheritance of blood group is –
   A. Qualitative in nature B. Quantitative in nature
   C. Both A & B D. None of these

6. Frizzle fowls are excellent example of –
   A. Incomplete dominance B. Complete dominance
   C. Independent assortment D. None of the above

7. Epistasis describes the effects of which type of genes –
   A. Allelic B. Non-Allelic
   C. Mutated D. None of the above

8. Which one is related with sex linked recessive gene–
   A. Hemophilia B. Frizzle fowl
   C. AIDS D. None of the above

9. Most of the genetic defects are –
   A. Recessive inheritance B. dominant inheritance
   C. sex linked inheritance D. sex limited inheritance

10. Genetic abnormality in a herd is eliminated by –
    A. Proper environment control
    B. treating the pregnant cow
    C. culling the dam
    D. culling the responsible bull

Note : Write A for true and B for false statement.

11. Johansen developed pure line concept with his experiment on peas.
12. Hugo de vries was the first person to note the importance of mutations.
13. Morgan was first to use fruit fly Drosophila melanogaster.
14. Mendel conducted experiments with garden peas and developed principles of linked genes.
15. Number of chromosomes in sheep are 58.
16. $I^B I^B$ is a genotype for blood group B.
17. Erythroblastosis foetalis does not occur in second child when Rh women marries Rh+ man.
18. Quantitative traits are not influenced by environment.

Match the following

	Column A	Column B
19.	Cow	A. Mohair
20.	Angora	B. Milk
21.	Milk	C. Albumin
22.	Egg	D. Fat percentage

Match the following

	Column A	Column B
23.	Inbreeding	A. Colour blindness in man
24.	Coat colour in rabbit	B. Homozygosity
25.	Sex linkage	C. Dual purpose breed
26.	Rhode Island Red	D. Multiple alleles

27. Appearance and /or performance of individual is called –
A. Phenotype B. Genotype
C. Type D. Grade

28. Coefficient of correlation between records made by the same individual is called –
A. Heredity B. Repeatability
C. Genetic correlation D. Phenotypic correlation.

29. Correlation between additive breeding values of two traits is called–
A. Genetic correlation B. Variance
C. Heritability D. Phenotypic correlation

30. Choose the correct ascending order of their suitability for achieving maximum homozygosity in a given population –
1. Outbreeding 2. Species hybridization
3. Crossbreeding 4. Line breeding
A. 2 3 1 4 B. 4 1 3 2
C. 4 2 3 1 D. 3 2 4 1

31. Mating of cattle with yak results
A. Mule B. Piennieu
C. Catallo D. Zebroid

32. Select the correct matching pair
A. Grading —Heterosis
B. Outcrossing——Prepotency
C. Line breeding——Heterozygosity
D. Inbreeding——Homozygosity

Match the following

	Column A	Column B
33.	Mitosis	A. Resting stage
34.	Chromosome	B. Sex cells
35.	Meiosis	C. Extended chromosome
36.	Interphase	D. Body cells

Match the following

	List A Chromosome	List B pairs
37.	Swine	A. 32
38.	Horse	B. 19
39.	Cattle	C. 24
40.	Buffalo	D. 30

41. Inbreeding increases –
A. Homozygosity B. heterozygosity
C. vigour D. prepotency

Note : Write A for true and B for false statement.

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Match the following

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38. Horse	B. 19
39. Cattle	C. 24
40. Buffalo	D. 30

41. Inbreeding increases –
A. Homozygosity B. heterozygosity
C. vigour D. prepotency

Write A against the correct sentence and B against wrong sentence (For Quesion 42 – 46)

42. Fertility is the ability of animal to produce large number of living young.

43. Prolificacy is the potential capacity to produce functional ova.

44. Fecundity is used to denote whether many or few offspring result from a given mating.

45. Sterile male is often called a barren.

46. Repeatability of milk yield is 0.66.

47. Heritability of milk yield is –
A. 0.20 **B.** 0.10
C. 0.50 **D.** 0.60

48. Heritability of fat percentage in milk is –
A. 0.5 **B.** 0.3
C. 0.2 **D.** 0.1

49. Correlation between milk yield and fat percentage is –
A. Positive **B.** Negative
C. No correlation **D.** Highly correlated

50. Heritability of litter size in swine is –
A. 0.20 **B.** 0.39
C. 0.16 **D.** 0.36

Answer Key

Ques	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Ans	A	B	A	B	A	A	B	A	A	D
Ques	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Ans	A	A	A	B	A	A	A	B	B	A
Ques	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Ans	D	C	B	D	A	C	A	B	A	A
Ques	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
Ans	B	A	D	C	B	A	B	A	D	C
Ques	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
Ans	A	A	B	B	B	A	A	A	B	C

CHAPTER -16

LIVESTOCK PRODUCT TECHNOLOGY

LIVESTOCK PRODUCT TECHNOLOGY

IMPORTANT TERMS:

- Beef Bung = Casing prepared from caecum.
- Bundles = Set of beef casings usually 18 meter long.
- Cap = Casing that is prepared from blind end of caecum of sheep and has been salted and dried.
- Cellulose casing = Casings prepared from cotton.
- Chitterlings = (Black gut) casing prepared from a part of large intestine of pig.
- Dry pack = Casing that was drained overnight before packing.
- Goat casings = Casing prepared from small intestine of goat.
- Hank = Set of sheep / goat / hog casings.
- Holes = Opening of 3 mm or more in diameter.
- Middle cap = Casings prepared from calcium / pig.
- Middles = Casing from large intestine of cattle or pig.
- Reconstituted collagen casings = Edible casings prepared from reconstituted collagen obtained from fresh side of cattle hide.
- Split = Damage to casing caused by cleaning machine.
- Stump casing = Casing having length of 6 feet or less.
- Wea casing = Casing from oesophagus of cattle.
- Windows= Indicates damage to casing which is caused by over crushing.
- Tender wool = Wool weak throughout the length.
- Wool with a break = Wool having a particular weak place in all its fibres.
- Staple = Unmanufactured wool.
- Fleece = Wool shorn from a sheep at one time.

- Colted wool = Condition when fibres felt together and fleece becomes colted. It has to be torn apart in the process of carding.
- Frizzy wool = Short wool found under the forelegs of sheep.
- Greasy wool = Raw wool as shorn from sheep.
- Mushy wool = Wool is any regularity or individuality of staple.
- Noil = Consists of short and broken fibres removed from wool during the process of combing.
- Thaw shortening = Phenomenon which occurs in muscles that have been frozen at any stage upto almost full rigor mortis and subsequently thawed.
- Lard = Rendered fat of hog.
- Greaves – impurities of melted tallow.

POINTS TO REMEMBER

- 150–280 gm. serving of pork will meet total protein requirement of human.
- In hunted animals, onset of rigor mortis is rapid and may pass off as rapidly.
- Lactic acid content of living muscle is 0. 05%.
- In fevered animals, pH of flesh will always remain alkaline.
- Pork is the least in firmness, of all food animals.
- Pork becomes nearly white in colour when cooked, while in other animals, meat grows darker on cooking.
- On standing, horse flesh develops a rusty colour.
- Veal is calf flesh.
- Calves are slaughtered at 3–4 weeks of age. Dressing percentage is 60 %.
- Spoilage is a point at which meat becomes unfit for consumption.
- Chalky flavour is resulted by action microbial lipase on fat.

- Greening of sausages is aerobic spoilage caused by bacteria like Leuconostoc and Micrococci.
- Sticky surface of meat, whisker formation are resulted by action of mold.
- Anaerobic spoilage occurs in deeper part of meat stored in sealed container.
- Souring occurs due to accumulation of organic acid.
- Fresh meat is more susceptible to anaerobic spoilage.
- Anaerobic bacteria normally residues in lymph nodes.
- SKIPPER LARVA = common insect in meat / meat product.
- Freezer burn refers to grayish area on meat surface due to improper temperature maintenance.
- In pork, bone percentage ranges 12 – 20%.
- Pelvic bones are also known as Aitch bone.
- Cutting room temperature should be 50^0 F with 70-80% relative humidity.
- Pork is excellent source of phosphorus, potassium and iron.
- Most desirable thickness of bacon is 3.8 cm.
- Most desirable colour of pork is grayish pink.
- Steaks are cooked by Broiling method.
- To increase tenderness of muscle, papain, bromelin, ficin, Aspergillus proteases are used as tenderizer.
- Lairage provides rest for 12-24 hours.
- New Cattle disease is a notifiable disease.
- Sarcoplasmic protein includes myoglobin, hemoglobin and enzymes. These are easily extractable in water / mild buffer.
- Myofibrillar protein consists of actin, myosin, tropomyosin, troponin, c – protein.
- Stromal protein refers to collagen, reticulin and other connective

tissue. This is comparatively insoluble.

- Meat is poor source of Ca but rich in Fe.
- 100 gm. of meat along with liver supplies 100 % Fe, 60 % Vitamins B – complex requirement of adult person.
- Psychrophillic organisms are capable of growing under refrigeration temperature.
- Sweating refers to condensation of moisture on product.
- Non comminuted meat product is prepared from whole cuts of meat with / without bone.
- Comminuted meat product is prepared by slicing of meat cuts eg. Sausages. Kebab, Hamburger, Keema are also communicated meat products.
- Sausages are also known as emulsified meat products.
- Meat curing refers to addition of salt to the meat for preservation and value addition.
- Dry curing refers to rubbing of curing agents on surface of meat without adding water.
- In case of Pickle curing, ingredients are dissolved in water and then meat cuts are immersed in solution.
- Drum stick consists of tibia fibula and related musculature.
- Feather meal should have 10 % moisture, 5 % fibre and 85 % crude protein.
- Feather meal is rich in cysteine, threonine, Arginine while deficient in lysine, histidine, methionine and tryptophan.
- Retorting is penetration of heat at centre of can. Acidic food is subjected to 93° F temperature.
- Jerkey beef refers to dried strips of beef.
- Pemmican refers to smoking and drying of meat followed by pulverization.
- Papain is most active at 70°C. It is most preferred. It is relatively safe.

- Enzymatic tenderization reduces holding time and cooking time.
- 4.53 kg bacon needs 15 days for curing.
- Lard has high shortening value.
- Cutting fat of pig has greater connective tissue content than leaf fat.
- Flash – 18 is process of filling of food in can under pressure (18 lb / 255°F).
- High fat content of pork makes it suitable for curing.
- Killing fat is intestinal fat of pig.

QUESTIONS

PART-A

1. Babcock method of testing milk helps in finding –
   A. Sickness in cow B. Fat in milk
   C. SNF in milk D. Protein in milk
2. A milliliter of milk at 60° F weighs –
   A. 1.032 gm. B. 0.5 gm.
   C. 1 gm. D. 1.5 gm.
3. For condensing milk is boiled at –
   A. Slightly above 212° F B. 180° F
   C. 160° F D. 130 – 140° F
4. Para casein is formed when casein is precipitated with –
   A. Milk fat B. Minerals
   C. Rennin D. Acids
5. Sandy ice cream is due to –
   A. Deposit of milk protein
   B. Deposit of minerals
   C. Presence of acidity in icecream
   D. Crystallization of alpha lactose

6. Lassi is good for quenching thirst because of its –
   A. Lactic acid B. Sweetened taste
   C. Good flavour D. Good beverage

7. Term total solids in milk refers to –
   A. Fat and Protein B. Fat and Sugar
   C. Total dry matter D. Fat, Protein and Sugar

8. Casein can be removed from fresh milk by –
   A. Heating B. Freezing
   C. Filtering through D. Vigorous shaking

9. Roquefort, Gorgonzola and stilton are types of –
   A. Butter B. Cheese
   C. Ghee D. Milk

10. For removal of milk stones on vessels dairymen use –
    A. Teepol B. Soap
    C. Mild acids D. Hot water

Write "A" for true and B for wrong sentence

11. Butterfat refers to fat present in milk.
12. The water portion of milk is different from ordinary water.
13. Milk solids not fat refers to protein, sugar, ash and salts of milk.
14. Dry matter of milk is designated as total solids
15. Milk is deficient in its iron content.
16. Lactose is in colloidal form in milk.
17. Fat content of skim milk is taken as a guide to find out efficiency of a cream separator.
18. Milk must be close to 90^0 F for ensuring greatest efficiency in the removal of fat during separation.
19. A positive phosphatase test is used for detecting inadequate pasteurization.
20. Methylene Blue Reduction test in a poor sample of milk is half an hour.

Match the following: (Q. 21 – 24)

21.	Brownian movement	A. Ropiness in milk
22.	Garget	B. Peptonisation
23.	Bacillus subtilis	C. Bacterial motion in milk
24.	Capsulated organism	D. Mastitis

25. Percentage of over-run should be
    A. 90 B. 50
    C. 40 D. 70 -80

Part- B

Match the following:

1.	Pig	A. Mutton
2.	Goat	B. Veal
3.	Calf	C. Pork
4.	Deer	D. Venison

Match the following: Quality score and marbling

	Character of pork	**Marbling score**
5.	Pale, soft, watery	A. Small
6.	Greyish Pink	B. Trace
7.	Dark and firm	C. Abundant
8.	Slightly dark & firm	D. Moderate

Match the following: Composition of Pork (fresh)

	Item	**Amount (%)**
9.	Protein	A. 20 %
10.	Fat	B. 17 %
11.	Moisture	C. 1 %
12.	Ash	D. 62 %

13. HACCP is abbreviation of
    A. Hazard and Critical Control Point
    B. Hazard Analysis Critical Control Point
    C. Health Analysis Critical Control Point
    D. Hazard Analysis Common Control Point

14. Which type of muscles must be inspected for cysticercus bovis –
A. Mastication muscle
B. Heart Muscle
C. Testes
D. Both A & B

15. Ageing takes place at 4°C with 85% R.H. in –
A. 2-4 days for pork
B. 1 day for pork
C. 2 weeks for beef
D. both A and C

16. Optimum voltage and time in low voltage stunning is –
A. 100 V x 10 sec. B. 80V x 10 sec.
C. 50 V x 30 sec. D. 40 V x 30 sec.

17. DFD meat occurs because –
A. Excessive fatigue
B. Starvation
C. Both A & B
D. Rest for 3 days

18. A product is considered frozen when its centre has a temperature –
A. – 12°C or less B. 12°C
C. – 12°C or more D. None

19. Carcass should be thawed in a hanging position at –
A. 4 – 6°C B. 1 – 20°C
C. 10 – 12°C D. None

20. Average per cent of carcass yield of pigs on slaughter is –
A. 75 B. 50
C. 90 D. 95

21. Average Rest period before slaughter is –
A. 2 hours B. 10 hours
C. 20 hours D. 5 hours

22. Lairage space requirement for cattle is –
A. 2.3 m^2 per animal
B. 1.2 m^2 per animal
C. 10 m^2 per animal
D. 8 m^2 per animal

23. Dressing percentage in buffalo is –
A. 43 – 54 % B. 25 %
C. 30 – 36 % D. 90 %

24. Which one yields highest dressing percentage –
A. Buffalo B. Pig
C. Goat D. Sheep

25. Highest bone percentage in carcass is seen in –
A. Buffalo B. Duck
C. Pig D. Goat

Answer Key

PART-A

Q.	1	2	3	4	5	6	7	8	9	10
A.	B	A	D	C	D	A	C	C	B	C
Q.	11	12	13	14	15	16	17	18	19	20
A.	A	B	A	A	A	B	A	A	A	A
Q.	21	22	23	24	25					
A.	C	D	B	A	D					

PART – B

Q.	1	2	3	4	5	6	7	8	9	10
A.	C	A	B	D	B	A	C	D	B	A
Q.	11	12	13	14	15	16	17	18	18	20
A.	D	C	B	D	D	B	C	A	A	A
Q.	21	22	23	24	25					
A.	B	A	A	B	B					

CHAPTER -17

LIVESTOCK PRODUCTION AND MANAGEMENT
(Including Camel, Mithun, Rabbit, Dog)

LIVESTOCK PRODUCTION AND MANAGEMENT

SALIENT FEATURES

- Feeding of colostrum within first hour of life is essential.
- Calf needs 3-4 liters of colostrum daily in 3 equal feeds.
- Disbudding is done in 3 – 10 days of age in calves.
- Body weight of heifers at first service should be 200 – 250 kg for crossbreds.
- One kg body weight gain per 1.39 kg dry matter in milk is considered as true growth.
- Milking should be completed within 7 minutes.
- A loss of 7 – 10% of body water results in death.
- 1 litre of water is needed for each 0.5 kg of milk production.
- A horse under stable feeding requires 35 – 40 liters of water.
- Poultry may drink 250 ml. water / day.
- Bulls require 12 m^2 / animal as covered area.
- Farrowing sows need 9 m^2 / animal as covered area.
- In large cattle units, tail to tail arrangement is recommended.
- Air in animal houses should not contain more than 3.3 % of the air once breathed.
- For winter, 16 hours of light (including sunlight) is optimum for egg production.
- Trench silos will be more practicable and convenient in Indian condition.
- Buffalo produce 32.50 kg dung per day.

- **Sty** is house for pig.
- Group of goats is called **band**.
- Act of mating in horse is termed as **covering**.
- **Jennet** is a hybrid whose sine is a stallion and dam is female donkey.
- Group of pigs is called as **Drove**.
- Smallest piglet in a litter termed as **card** or **crypt** or **Runt**.
- Castrated male sheep after service is known as **seggy**.
- Female sheep between first and second shearing is known as **Gummer**.
- Navel cord of calf is tied 2.5 cm away from its body and cut about one cm below ligature.
- Within two hours of first suckling, meconium is passed.
- Ear notching is commonly used in pigs for identification.
- Dehorning is done by applying caustic potash on horn button.
- Feeding in preparation to calving is called "**steaming up**".
- All lambs should be weaned when 3 to 3 ½ months old to enable the ewes to recoup their health before next tupping season.
- Normally placenta is expelled within 8 hours of parturition.
- Wool chiefly contains keratin, the primary constituent of hair, feather, nails, horns and hooves. Keratin is a mixture of N and S compounds.
- The true wool fibre must have following features :
  - Elastic (stretches upto 30 % of its normal length),
  - Durable,
  - Hygroscopic (absorbs water readily and much more than any other textile fibre (18 – 50 % of its weight),

  - Non–inflammable,
  - Insulator (retains warmth) and generates heat in itself (when wetted),
  - Water proof,
  - Lighter,
  - Transmits UV rays,
  - Strong (stronger than steel for the given diameter)
  - Can be felted or matted easily - the special feature of wool.
  - They are thin, shrink when subjected to wash in warm water containing mild soap in solution.
  - Garments retain crease and can be cleaned largely by brushing.
  - It does not contain stiff medulla i.e. central core of hard cells is absent. They are more or less cylindrical or oblong, consist mainly of cuticle forming scales; like that of fish or leg of fowl. As such the serrated fibres tend to interlock and cling together imparting felting qualities. Cortical cells form more than 90 % of fibre substances in the true wool fibre. During growth find wool fibre may acquire curliness or crimpiness. Diameter of fibre varies from 12-80 u (Merino 15-25u)
- Fleece obtained from sheep is called **Greasy Wool** or **Raw Wool**. All the extraneous material adhered to wool as impurities is called **Wool Yolk**. It includes both grease and suint. Yolk tends to preserve the wool fibre from the action of weather.
- WOOL GREASE OR FAT CONTENT OF FLEECE is waxy and greasy substance secreted by fatty glands around fibre follicle of skin. In crude form it is known as DEGRAS. It is a part of yolk, which is soluble in fat solvents and is different from suint.
- Wool from shoulder has more grease, followed by fleece from back, belly, sides and legs.

- ☞ Grease content increases with age up to 6 years and then gradually declines.
- ☞ Rams have more grease than ewes.
- ☞ Well-fed, cared and housed sheep have relatively more grease content.
- ☞ Fine wool has more grease than coarse
  (Very fine – 61 %; Fine – 26 %; Coarse – 13 %)
- ☞ After refining, its anhydrous form is called **Lanolin**.

CATTLE

1. The Head

- ➢ Poll is the region at the top of head, immediately between and behind the horns.
- ➢ Horns are the organs of defense.
- ➢ Fore head lies from poll down to the level of the eyes.
- ➢ Face lies from the level of the eyes downwards to the nostrils.
- ➢ **Bridge of nose** is the area of nasal bone.
- ➢ **Facial crest** is a ridge of bone on either side of face below the eyes. It is not so prominent as in horse.
- ➢ **Temporal fossa** is a depression between the base of the horn and outer angle of the eye. **Muzzle** includes nostrils, mouth and chin. It has upper lip, muffle, lower lip, chin, mouth, angle of mouth, tongue, teeth, gums, dental pad, inter-digital space.
- ➢ **Muffle** is the area between the nostrils, generally hairless, moist and black in colour.
- ➢ Upper jaw is formed by maxilla, premaxilla, while lower jaw is formed by mandible. Cheek is the area of masseter muscle.
- ➢ **Angle of the jaw** refers to the angle of mandible bone.
- ➢ **Jowl** is the space between the branches of the lower jaw.
- ➢ Throat lies just behind the jowl.

2. Neck

- ❖ Crest is the top of neck starting from poll.
- ❖ Base of neck is the place where neck join the body and its attachment to the head is termed *apex of neck*.
- ❖ Hollow of the neck is the hollow area at the base of the neck.
- ❖ Jugular groove is the well marked depression which runs down the lower part on each side of the neck from the angle of the jaw to just in front of the shoulder. The large blood vessels of the head and neck lie in this groove.
- ❖ Food pipe (gullet, oesophagus) lies on the left side of the jugular groove. Its position may be accurately noted when animal swallows a mouthful of food or regurgitates.
- ❖ Wind pipe (trachea) lies beneath jugular grooves and medially.
- ❖ Dewlap is the fold of the skin hanging down the lower part of the neck, the characteristic of Indian cattle.

3. The Trunk (Body)

- ✓ Hump is a fleshy mass, observed in Indian cattle.
- ✓ Withers is the raised area of thoracic vertebrae (3,4,5), just behind the hump.
- ✓ Back (Chine) lies behind the withers and runs as far back as the head of the last rib.
- ✓ Loin is the region of lumbar vertebrae.
- ✓ Rump is the region of sacrum.
- ✓ Point of rump is the highest point of rump formed by the sacral tubrae.
- ✓ Dock is the root of the tail,
- ✓ Switch of tail is the tuft of hairs at the end of the tail.
- ✓ Breast is the lower part of the neck where it joins the body.
- ✓ Brisket is the region between the two fore legs.
- ✓ Girth is the circumference of chest, from just behind the point

of elbow round the withers.

- ✓ Crop is the hollow triangular area behind the shoulder.
- ✓ Chest is the cage formed by the ribs springing from the back bone on top and breast bone below. It contains heart and lungs.
- ✓ Abdomen (belly) is the area behind chest, carrying alimentary canal and other organs. Flank is the hollow area in front of hook bones and stifle or the space between the last rib in front and hind quarter behind.
- ✓ Flap of flank is the fold of skin on the lower border of flank.
- ✓ Body comprises the chest, belly and flank. The latter two being known as Barrel..
- ✓ Udder is the name given to mammary gland in cow, which is divided into two parts. The anterior part is called fore udder and the posterior as rear udder.
- ✓ Milk vein (mammary vein) draws blood from the udder towards heart and its entrance into the abdominal wall is known as milk well.
- ✓ Twist is the angle formed by the hind legs.
- ✓ **Milk mirror** is the area of attachment of rear udder below vulva in the perineum.
- ✓ Escutcheon is a triangular pinkish area below the vulva, extending on both the sides up to pin bones.
- ✓ Clitoris is a small organ composed of erectile tissue, situated just within the lower commissure of the vulva.

4. Fore Limb

- ❖ The shoulder blade (scapula) slopes downwards and forwards to the Point of shoulder, the prominence formed by the upper extremity of the humerus.
- ❖ Shoulder joint is formed by distal end of scapula and proximal end of humerus.
- ❖ Elbow joint is formed when humerus continues backwards and

downwards to meet with proximal end of the radius and ulna.

- ❖ Shoulder is the region from the top of the shoulder blade including the large muscles behind.
- ❖ Arm is the region of massive muscles lying over the humerus.
- ❖ Fore arm is the name given to the region of radius and ulna.
- ❖ Point of elbow is the part of olecranon process projecting prominently at the back of the elbow joint.
- ❖ Axilla is the region inside the elbow.
- ❖ Knee joint is a complex joint formed by radius carpal bones and metacarpal bones.
- ❖ Fore cannon is the bony part below the knee joint to the next joint in front of the leg.
- ❖ The tendons from the bend of the knee down the back of the same area are back tendons. Fetlock joint is formed by the lower end of the metacarpal bone and the first phalanx with its sessammoides.
- ❖ Dew claws are the two horny toes behind the fetlock joint.
- ❖ Pastern is the region below fetlock and above coronet.
- ❖ Pastern joint is formed between first and second phalanges.
- ❖ Coronet is the region round the top of the hoof.
- ❖ Hoof is the outer horny covering of the foot which is divided into two parts called claws, each claw having horny wall, sole and bulb of heel.
- ❖ Hollow of the heel is the hollow space in the pastern region at the back and above the heels.
- ❖ Inter digital space or **cleft of hoof** is the space between two claws.

5. The hind limb

- ➢ Hind quarter is bounded by rump and dock above, buttocks (the mass of muscles lying on either side of the anus and extending downward to the level of the stifle) behind, flank in front and a line drawn parallel to the ground at stifle joint, below.

- **Hook bone** is bony prominence, of a hand's breadth, formed by the external angle of ileum (tuber coxae).
- **Pin bone** is the projection just below the root of the tail or dock, formed by tuber ischii.
- **Thurl** (hip joint) is about midway between hook bone and pin bone.
- **Thigh** is formed by femur, which runs from the hip joint to the Stifle joint. Stifle joint is formed by femur, patella and tibia. The prominent bunch of muscles found over the outside of the lower part of the thigh is called **Gaskin** (second thigh).
- Groin is the inner aspect of thigh.
- Hamstring is the thick strong tendons running from the muscles of the back of the thigh to the point of the hock.
- Hock is a composite joint formed between the tibia, tarsal bones and metatarsal bones.
- Point of hock is the upper-most extremity of hock, formed by tuber calcis.
- Below the hock the same terms are used as in the fore limb except Hind cannon for Fore canon.

– GOAT –

- **Goats** are commonly slaughtered at one of four stages :
  - Milk fed kids weighing between 20 –30 lbs.
  - At birth (where labour is costly)
  - 6 – 8 months (Castrated bucks)
  - Cull does.
- Goat meat is preferred to Mutton in India. Angora meat is much more delicious than that of other goats and fetches higher price.
- Chevon is somewhat dark (pink red) and coarse. It has a characteristic goaty odour. The fat is yellowish. Best meat is obtained at 6-12 months of age. The digestibility coefficient and biological value of dried chevon are 95.2 and 60.4 %, respectively. The average amount of blood/ goat is 1.5 kg.
- Goat skins are of 2 types: Amritsar and Calcutta.

QUESTIONS

1. The comfort zone for cross bred cows (with 50 % exotic and indigenous blood) ranges from –
   A. 65-75 °F B. 100-110 °F
   C. 20-30 °F D. 30-40 °F

2. Permanent dentition in cattle is –
   A. I 0/4 C 0/0 P ¾ M ¾ B. I 0/4 C 0/0 P3/3 M 3/3
   C. I 0/3 C 1/1 P3/3 M 3/3 D. I 1/1 C 0/0 P4/4 M 3/3

3. In poultry eggs too large air cell may be possibly due to –
   A. Variable room temperature
   B. High humidity
   C. low humidity
   D. All

4. Soft Chicks at hatching may be due to –
   A. Unsanitary incubation conditions
   B. Too low temperature
   C. Too high humidity
   D. All

5. The requirement for water intake of adult cow at an environmental temperature which causes no heat stress is –
   A. 8-9 kg/ kg dry matter intake
   B. 7-8 kg/ kg dry matter intake
   C. 3-5 kg/ kg dry matter intake
   D. 1-2 kg/ kg dry matter intake

6. The water content of body of a new born calf is –
   A. 80 % B. 90 %
   C. 60 % D. None

7. Home tract of which breed is Bilaspur District –
   A. Pandharpuri B. Tarai
   C. Kimedi D. None of the above

8. Single cell protein is obtained from –
   A. Single cell organisms such as yeast, bacteria and algae
   B. All animal sources
   C. All plant sources
   D. None of the above

9. If a 35 % protein supplement has 12 % protein as urea. What is percentage of urea in that supplement –
   A. 12.83 % B. 10.86 %
   C. 9.72 % D. 4.3 %

10. For lactating dairy cattle producing 20 liters of milk per day urea could constitute ———% of total hay –
   A. 1 % B. 0.25 %
   C. 0.15 % D. None

11. Roughage on air dry basis contains –
   A. > 25 % crude fiber and < 80 % TDN
   B. > 30 % crude fiber and >60 % TDN
   C. > 18 % crude fiber and < 60 % TDN
   D. < 18 % crude fiber and < 60 % TDN

12. The most common Kharif leguminous crop for feeding livestock is –
   A. cowpea B. Berseem
   C. Lucerne D. All

13. The first few strips of milk from each quarter should not be mixed with the rest of the milk as it –
   A. contains more fat
   B. contains more bacteria
   C. should be used for mastitis detection
   D. None

14. Which of the following is not a correct method of milking –
   A. Knuckling B. Stripping
   C. Full hand method D. All

15. Which of the following should not be done just before milking –
   A. washing of teats B. washing of the whole udder
   C. teat dip D. none

16. Which of the following does not depress fat % in milk –
   A. feeding high concentrate ration
   B. feeding low roughage ration
   C. feeding ration having high crude fat
   D. excessive Pelleted feed

17. Highest per cent fat and protein is found in the colostrums of –
   A. cow B. sow
   C. goat D. Ewe

18. Practice of mating of unrelated pure bred animals with the same breed is called –
   A. Grading up B. out- crossing
   C. criss-crossing D. in-breeding

19. Average percentage of body weight due to blood in cow is –
   A. 9 B. 15
   C. 5 D. 7.7

20. Ghee produced from buffalo milk is white in colour –
   A. Niacin B. carotene
   C. Thiamin D. Riboflavin

21. A dairy cow weighing 300 kg require ——kg TDN for maintenance ration (excluding supplement for milk production)–
   A. 7 kg B. 5.5 kg
   C. 4.3 kg D. 2.36 kg

22. In Indian conditions, dry matter offered to dairy cows should ideally contain –
   A. 2/3rd roughage and 1/3rd concentrate
   B. 1/3rd roughage and 2/3rd concentrate
   C. 3/4th roughage and 1/4th concentrate
   D. 1/4th roughage and 3/4th concentrate

23. When sufficient legume is available, the roughage requirement of 400 kg crossbred cow for maintenance will be –
   A. 6.8 kg dry roughage & 10.2 kg green roughage on DM basis
   B. 4.9 kg dry roughage and 1.6 kg green roughage on DM basis
   C. 1.6 kg dry roughage and 15.6 green roughage on DM basis
   D. None of the above

24. The best site of branding in dairy cattle is thigh because –
   A. It provides more resistance to burn
   B. wound healing is faster
   C. Only marginal end of the hide is spoilt
   D. All of the above

25. For a calf below 3 months of age an overall covered space of ——should be provided –
   A. 20-25 sq. ft. B. 20-25 sq. meters
   C. 40-50 sq. ft. D. None

26. The newly-purchased animals should be quarantined before entry to the herd preferably at a minimum distance ——— from the resident animals –
   A. 10 km B. 8 km
   C. 5 km D. 300 meters

27. For better time management which of the following intensive housing system is preferred –
   A. Tail to tail system B. Face to face system
   C. Both D. None

28. The best time for dehorning a dairy calf is –
   A. 3 months of age B. day of birth
   C. fourth week of age D. second week of age

29. India became leading milk producer in the world in the year –
   A. 1998-1999 B. 1993-1994
   C. 1994-1995 D. 1996-1997

30. On the basis of CP content concentrates are classified as protein rich concentrates when their CP content is –
   A. > 40 % B. > 30 %
   C. > 18 % D. None

31. Feather meal is a protein rich product containing well over —— ——% protein –
   A. 80 B. 50
   C. 40 D. 30

32. Fish meal has enhanced nutritional value because of their content of growth factor called –
   A. Somatotropin B. Thyroxin
   C. Animal protein factor D. None

33. If a feed contains 10 % total nitrogen, its CP content will be–
   A. 6.25 % B. 16.5 %
   C. 165 % D. 10 %

34. For sufficient utilization of urea in the feed, the treated feed must contain –
   A. High TDN and low CP B. High level of antibiotics
   C. No sulphur in feed D. All

35. As per the formula suggested by NDRI for urea treatment of dry roughage the quantity of urea to be added to 100 kg of straw containing 90 % DM is –
   A. 1 kg B. 2 kg
   C. 4 kg D. None

36. If a feed stuff containing 40 % protein contains 5 % urea, the percent protein furnished by urea in the feedstuff is –
   A. 16 B. 14
   C. 12 D. 10

37. Ear notching is more common method of identifying –
   A. Cattle B. Buffalo
   C. Canine D. Swine

38. A Grower-Finisher swine ration should ideally contain –
A. 16 % protein B. 20 % protein
C. 22 % protein D. 24 % protein

39. Creep feed for swine should contain –
A. 16 % protein B. 18 % protein
C. 20 % protein D. 24 % protein

40. As the frequency of milking is increased in an optimally fed dairy herd, the milk production will –
A. Increase B. Decrease
C. Remain constant D. Either increase or decrease

41. The amount of true dietary protein that escapes the rumen and goes to the intestine is –
A. 50 % B. 40 %
C. 30 % D. 20 %

42. Aged animals are usually ——— efficient in digestion of feed.
A. More B. Less
C. Equally efficient D. None

43. Rumen protozoa number will be higher in dairy cattle fed with–
A. Concentrate diet B. By pass protein
C. Roughage diet D. All

44. For every 1 kg of organic matter fermented, approximately — gram N is taken up by rumen bacteria as protein and nucleic acids–
A. 10 B. 15
C. 20 D. 30

45. Daily maintenance requirement of DCP of a dairy cow weighing 400 kg is –
A. 0.25 kg B. 0.50 kg
C. 0.75 kg D. 1 kg

46. According to thumb rule of animal nutrition, the % TDN in maintenance ration should be –
A. 50 – 55 B. 60 – 64
C. 68 – 72 D. 80

47. Bovine female with its offspring is called –
A. Calf at foot B. Filly
C. Multiparous cow D. None

48. Hariana is a –
A. Milch breed B. Drought breed
C. Dual purpose breed D. None

49. Which country accommodates the highest number of buffaloes in the world –
A. China B. India
C. Indonesia D. Thailand

50. Malformed or Crippled chicken results due to –
A. Too low temperature B. Too high temperature
C. Incorrect turning of eggs wrong way up in the tray
D. All

ANSWERS

Q.	A.	Q.	A.	Q.	A.
1	A	18	B	35	C
2	B	19	D	36	B
3	C	20	B	37	D
4	D	21	D	38	A
5	C	22	A	39	C
6	B	23	B	40	A
7	C	24	C	41	B
8	A	25	A	42	B
9	D	26	C	43	C
10	A	27	A	44	D
11	C	28	D	45	A
12	A	29	A	46	C
13	B	30	C	47	A
14	A	31	A	48	C
15	B	32	C	49	B
16	C	33	A	50	D
17	D	34	A		

Fodder Production and Grassland Management

Indicate following statements as 'T' for true or 'F' for false

1. India has about 69 lakh hectare cultivable forage area.( )
2. Kharif crops are mainly sown during June – July ( )
3. Maize is sown at a depth of 3-5 cm. ( )
4. The content of Potassium in KNO_3 should be applied before sowing. ( )
5 Standard seed rate of oats is 80 -100 kg per hectare. ( )
6. P_2O_5 and K_2O should be applied before sowing. ( )
7. Hybrid Napier is not a perennial crop. ( )
8 *Medicago* sativa is the botanical name of Lucerne. ( )
9 Animal urine may be used as germination promoter. ( )
10. Sweet Sudan is a popular variety of Bajra. ( )
11. Roughage contains less than 18 % crude fiber. ( )
12. Kharif crops are mainly sown during Winter months. ( )
13. Hissar method is popular for the making of Hay. ( )
14. Cattle dung generally contains 9 % nitrogen. ( )
15. In case of cowpea, row to row distance should be about 40-50cm. ( )
16. Seed rate of Berseem is 40 -50 kg / ha. ( )
17. Rent and Blue mountain are the important varities of Oats.( )
18. Agronomical calendar starts from Jan. – Feb. ( )
19. M. P. Chari is a variety of Maize. ( )
20. Maize and Sorghum are good for silage making. ( )

Ans. : 1- (T), 2- (T), 3- (T), 4- (F), 5- (T), 6- (T), 7- (F), 8- (T), 9- (T), 10- (F), 11- (T), 12-(F), 13- (T), 14- (F), 15- (F), 16- (F), 17- (F), 18- (F), 19- (F), 20- (T)

Fill in the blank with most appropriate word (s):

21- Indian grass and fodder research station is situated at _____

22. Addition of _____ reduce the temperature of silo.

23. Oil cakes are the examples of _____ fertilizers.

24. Leguminous crops should be taken after _____ crops.

25. Seed rate of Berseem is _____ kg / hectare.

26. Para grass may be grown in _____ condition.

27. 2-4 D is used as _____

28. Kent and Green mountain are the important varities of _____

29. Farm Yard Manure contains _____ % of nitrogen.

30. Main constituent of green fodder is _____

31. In India _____ per cent of total agriculture land is under fodder production.

32. Cultivable forage satisfies only _____ per cent of total agriculture land is under fodder production.

33. Rabi crops are mainly sown during _____

34. Cluster bean and Dhaincha are the example of _____

35. Full doses of P_2O_5 and K_2O should be applied before _____

36. For good quality hay, oat should be harvested at _____stage.

37. Maize and Sorghum are good for _____ making.

38. *Cynadone dactylon* is the botanical name of _____

39. During silage preparation, sodium meta – bisulphate should be used @ _____/ ton of green fodder.

40. Hybrid Napier is a _____plant.

Choose most appropriate answer:

41. Pod forming fodder crops is
    a. Cow pea b. M. P. Chari
    c. Maize d. Lucerne

42. The nitrogen content in the proteins of fodder is about
    a. 40 % b. 60 %
    c. 50 % d. 80 %

43. Photosynthesis in plants usually takes place in
    a. Stem b. Leaves
    c. Internodes d. All of these

44. Maize and Cowpea – oat is a rotation of
    a. One year b. Two year
    c. Three year d. None of the above

45. *Sesbania aculeate* is the botanical name of
    a. Dhaincha b. Blue green algae
    c. Black gram d. Maize

46 Percentage of water soluble Phosphorus (P_2O_5) in single super phosphate is
    a. 10 b. 17
    c. 18 d. 16

47. Sorghum for better growth and development require a photoperiod of
    a. 8 hr. b. 10 hr.
    c. 11 hr. d. 12 hr.

48. In case of intercropping of Maize & cowpea, the row spacing of maize should be
    a. 35 – 40 cm b. 45 – 50 cm
    c. 20 – 25 cm. d. 50 – 60 cm

49. Standard seed rate of Teasinto is
    a. 15 – 25 kg / ha b. 60 – 70 kg / ha
    c. 10 – 15 kg / ha d. 30 – 40 kg / ha

50. Guar should be harvested for fodder production at the stage of
    a. Flowering b. Pod formation
    c. C. R. I. d. Any of these

51. Tillering stage of oat
    a. 5 – 10 D. A. S. b. 18 – 22 O. A. S.
    c. 10 – 15 D. A. S. d. 25 – 30 D. A. S.

52. Kasni weed seeds generally found mixed with the seeds of
    a. Berseem b. Gini
    c. Sorghum d. All of these

53. Growth of Berseem stops if average day temperature reaches above
    a. 25° C b. 40° C
    c. 30° C d. 45° C

54. Sowing depth for maize is
    a. 1 – 2 cm b. 3 – 5 cm
    c. 8 – 10 cm d. 10 – 15 cm

55. Sweet Sudan is a popular variety of
    a. Bajra b. Berseem
    c. Sorghum d. Maize

56. Standard seed rate of Sainji (Mellilolus alba) is
    a. 30 – 35 kg / ha b. 3 – 4 kg / ha
    c. 12 – 15 kg / ha d. 20 – 25 kg / ha

57. Napier grass should be sown at spacing of
    a. 40 – 45 cm b. 90 – 100 cm
    c. 10 – 15 cm d. 50 – 60 cm

58. The grass that is found in tropical area
    a. Sehima / Dicanthium b. Canchrus
    c. Thermeda d. None of these

59. Optimum no. of trees in standard pasture should be
    a. 10 – 15 b. 18 – 20
    c. 20 – 25 d. As many

60. According to the land utilization statistics of India, the area under permanent pasture and grassland is about
    a. 10 million ha b. 13 million ha
    c. 25 million ha d. 50 million ha

Answer Key

(21) Jhansi (22) Salt (23) Organic
(24) Non leguminous (25) 25 -30 (26) Water logged
(27) Weedicide (28) Oats (29) 0.5 – 0.7
(30) Water (31) 4.4 (32) 46.6
(33) Oct. Dec. (34) Green Manuring (35) Sowing
(36) Milking (37) Silage (38) Doob grass
(39) 2 kg (40) Perennial

Q.	A.	Q.	A.	Q.	A.	Q.	A.	Q.	A.
41	A	42	D	43	B	44	A	45	A
46	D	47	B	48	A	49	D	50	A
51	D	52	A	53	B	54	B	55	C
56	C	57	B	58	A	59	B	60	B

MITHUN

1. Mithun belong to the family
   A. Bos arni B. Bos indicus
   C. Bos frontatis D. Bos grunniens

2. In India Mithuns are found mostly in
   A. Temperate Himalayan region
   B. Wet easthern region
   C. Northern region of India
   D. North eastern hill region

3. Mithun are adopted by man for his
   A. Personal interest B. Social culture
   C. Agricultural needs D. All of the above

4. Mithun is considered status symbols amongst the
   A. Foothill people B. Tribesman
   C. Plains D. Combination

5. The main use of mithun is for
   A. Draught purpose / agricultural purpose
   B. Meat purpose
   C. Milk purpose
   D. Sacrificial values

6. Wild relatives of Mithun are
   A. Gaur B. Bantom
   C. Kouprey D. All of the above

7. The mithun is presumed to have originated from its ancestor
   A. Gaur B. Bantom
   C. Kouprey D. Gaur cf bating

8. In India domestication of Mithun started firstly along
   A. Indo-Pak border B. Indo-Myanmar border
   C. Indo-Banglaesh border D. None of above

9. The Mithun has been described by tribals as
   A. Sacrificial buffalo B. Ceremonial cattle
   C. Ceremonial meat D. Ceremonial Ox

10. Mithun is considered as
   A. Ferocious beast B. Docile gentle
   C. Timid and shy D. Nocturnal

11. Mithun mostly thrive on
   A. Tree leaves B. Green twigs
   C. Long grasses D. All of the above

12. Mithun population is highest in the state of
   A. Mizoram B. Nagaland
   C. Arunchal Pradesh D. Manipur

13. The Mithun population in India is apparently in the ranges of
   A. 100,000 B. 200,000
   C. 500,000 D. 750,000

14. The male hybrid of Mithun is called
   A. Jatsa B. Bull
   C. Jatsamin D. Bullock

15. The female hybrid of Mithun is called –
   A. Cow B. Jatsamin
   C. Jatsa D. Mithun cow

16. Mithun body weight on an average ranges from –
   A. 200 – 350 kg B. 400 – 700 kg
   C. 600 – 950 kg D. 1000 – 1200 kg

17. The normal colour of Mithun is usually –
   A. Piebald B. Greyish white to white
   C. Brown black to black D. Black

18. Karyotype of the Mithun consist of –
   A. 48 Chromosomes B. 58 Chromosomes
   C. 60 Chromosomes D. 62 Chromosomes

19. The largest bovine dwelling on earth is –
   A. Yak B. Mithun
   C. Cattle and buffalo D. Gaur

20. The most important characteristic of gaur –
   A. Gigantic size B. Highly muscular body
   C. Fierce look D. All of the above

21. The similarity between Mithuns and gaurs is –
   A. Body weight B. Physical appearances
   C. Coat colour D. Horns

22. The forehead of Mithun is –
   A. Deeply concave B. Less convex
   C. Less concave D. Almost straight

23. The colour of horn in Mithun is usually –
   A. Wholly black B. Reddish brown
   C. Brown and tip black D. Light brown

24. In the case of Mithun, what is ture about its horn –
   A. Inward near the tip B. Outward spread
   C. Slight curve D. Flat horn

25. In the case of gaur horn it turn –
   A. Non curving horn straight B. Flat horn
   C. Outward spread D. Inward near the tip

26. Sweat gland is present in –
   A. Gaurs B. Mithuns
   C. Bantom D. Both A & B

27. The Mithuns is able to adapt in –
   A. Hot as dry condition B. Hot and humid condition
   C. Humid tropical condition D. Temperate condition

28. How many types of noise a gaur Mithun can call on different occasions –
   A. 2 B. 3
   C. 5 D. 7

29. The feeding behaviour of Mithun is –
A. Grazing B. Browsing
C. Nibbling D. 1 and 2

30. The mithun has a craving for –
A. Sugar B. Salt
C. Green grasses D. Concentrate

31. The habitats preferred by Mithun is –
A. Peninsular region B. Open grassland
C. Hilly tract D. 1 and 2 combine

32. A low 'moo' a kind of note at –
A. Seeing the human being
B. Suspicion or alarm on sight of hunter / pedatoes
C. Calling other fellow animal in season of salt
D. When they face danger.

33. Mithun is reared by the tribesmen mostly under –
A. Intensive system B. Semi-intensive system
C. Free range system D. A and B combine

34. The habitat of Mithun is at an elevated ranges above –
A. 200 – 1000 m. above m.sl.
B. 300 – 3000 m. above m. sl.
C. 500 – 50,000 m. above m. sl.
D. A and B

35. The agroclimatic zones of north-eastern hills region consist of–
A. Alpine
B. Sub alpine and temperate
C. Wild hills and topical zone
D. All of the above

36. The comfort zone of Mithun lies between –
A. 5^0 C to 12^0 C B. 13^0 C to 23^0 C
C. 7.8^0 C to 34.4^0 C D. 14^0 C to 28^0 C

37. Mithun prefer rainfall of –
A. Low rainfall B. High rainfall
C. Medium rainfall D. None of these

38. Gaur is known by different names in different part of India as–
A. Seladang B. Bunboda
C. Karkona D. All of the above

39. Indian bison / gaur prefer to live in –
A. Low jungle B. Foothill
C. upland forests D. Valley

40. The body length in Indian gaur average is (in cm) –
A. 185.00 B. 260.00
C. 175.00 D. 310.55

41. The tail length average in Indian gaur is –
A. 87.50 B. 86.25
C. 94.00 D. 96.72

42. The decline in Mithun population is due to –
A. Deforestation on large scale
B. Indiscriminate hunting
C. Disease outbreak
D. All of the above

43. Mithun is commonly referred to as –
A. Gayal B. Sahiwal
C. Gabaygorue D. All of the above

44. Mithun is often described as –
A. Coconut of the mountain B. Cattle of the mountains
C. Poor man's cow D. Sheep of the mountains

45. Mithun are also classified under different zoological names i.e.–
A. Bikos gavaeus B. Bison sylhetanus
C. Bibos gaurus frontatins D. All of the above

46. The body weight of the Mithun found in Nagaland & Manipur is–
A. 200 – 300 kg B. 400 – 500 kg
C. 500 – 600 kg D. 550 – 700 kg

47. Mithun calves are born with a coat colour of usually –
A. Bright chestnut skin B. Black
C. Dark brown D. Black brown

48. The coat colour of Mithun in Arunachal Pradesh varies widely as–
A. White grey B. Black white
C. White black D. All of the above

49. The stocking colour of Mithun is –
A. Typical white B. Pale yellow
C. Light white D. All of the above

50. The coat colour of the Mithun varies with –
A. Environmental factor B. Age and sex
C. Feeding habit D. Climate Factor

51. In the curved horns, variation are such as –
A. Curved upward straight and inward
B. Curved upward and then forward near the tip
C. Curved upward and then backward near the tip
D. All of the above

52. Mithun are generally classified accordingly to its –
A. Size B. Shape of horn
C. Body colour D. All of the above

53. The preference by the tribes for the selection of Mithun for sacrificing purpose –
A. Black colour with grey forehead
B. Black brown colour and light brown forehead
C. White stocking
D. All of the above

54. The usual age for sacrificing of Mithun is –
A. 2 years B. 4 years
C. 5 years D. 7 years

55. The idea for selection of Mithun at 5 years of age is usually based on –
A. To obtain more flesh
B. Full body coat colour develop
C. To obtain less body weight
D. None of the above

56. The various methods of selection is based on –
A. Tandem method
B. Independent culling level method
C. Selection index method
D. All of the above

57. In the tandem method selection is based on –
A. Value of economic score for each trait under consideration for selection
B. Several traits purely qualitative, quantitative or both are considered simultaneously.
C. Selection is based on only one character
D. Combination of A and B

58. In independent culling level method of selection of Mithun –
A. Separate determination of the value or economic score for each trait under consideration for each trait.
B. Several traits purely quantitative, quantitative or both are considered simultaneously.
C. A or B both
D. None of the above

59. The type of mating practised in Mithun is –
A. Inbreeding B. Out breeding
C. Both A and B D. None of the above

60. Out breeding can be classified as–
A. Pure breeding B. Uncontrolled breeding
C. Controlled breeding D. All of the above

61. Important qualitative traits of Mithun are –
A. Coat colour B. Horn pattern
C. Temperament D. All of the above

62. Important quantitative traits of Mithun are –
A. Feed conversion ability B. Carcass yield
C. Breeding efficiency D. All of the above

63. The Mithun in its natural habitat are threatened due to –
A. Landslides B. Soil erosion
C. Deforestation D. All of the above

64. The National Research Centre of Mithun is located at –
A. Porba village in Phek district, Nagaland
B. Sagalee in Papum Pare district, Arunachal Pradesh
C. Meaziphema, Nagaland
D. None of the above

65. A hybrid Mithun is a cross between –
A. Gaur and local cow B. Banting and Jersey
C. Gaur and buffalo D. Banting and buffalo

66. The aim of interspecies hybridization is to exploit hybrid vigour and observe –
A. Growth rate B. Greater milk yield
C. Meat production yield D. All of the above

67. Crossing of Mithun can be done with –
A. Cattle B. Yak
C. Gaur D. All of the above

68. Mithun hybrid cross between Gaur and Mithun are often –
A. Ferocious B. Mild temperament
C. Docile nature D. 2 and 3

69. The craving for salt by Mithun is believed to be due to –
A. Hunger for a particular mineral and NaCl
B. Want of some trace minerals
C. Internal parasitic load
D. All of the above

70. Mithun is usually –
A. Shade-seeking animal B. Sun-seeking animal
C. Water-seeking animal D. Mud-seeking animal

Answer Key : Mithun

Q.	A.	Q.	A.	Q.	A.	Q.	A.	Q.	A.
1	C	15	B	29	B	43	D	57	D
2	D	16	B	30	B	44	D	58	C
3	D	17	C	31	C	45	B	59	B
4	B	18	B	32	B	46	D	60	C
5	D	19	D	33	C	47	B	61	D
6	D	20	D	34	B	48	A	62	D
7	A	21	C	35	D	49	D	63	D
8	B	22	B	36	C	50	E	64	D
9	D	23	A	37	B	51	B	65	D
10	B	24	B	38	D	52	D	66	A
11	D	25	D	39	C	53	D	67	D
12	C	26	D	40	B	54	D	68	D
13	B	27	C	41	A	55	C	69	D
14	A	28	C	42	B	56	A	70	A

CAMELS

SALIENT FEATURES

- Permanent dental formula is 2 (1/3, 1/1, 4/4, 3/4) = 42
- One humped ***Arabian*** or ***Dromedary*** camel found in Middle East and India; Lighter, thin, longer in hind, soft coat.
- Two humped Bactrian camel found in Central Asia.
- The following table shows important particulars about camel :

Particulars	Camel
Family	Camelidae
Genus sp.	*Camelus dromedarius*
In group	Herd
Newborn	Calf
Adult male	Stallion
Adult female	She camel
Act of mating	Mating
Act of parturition	Littering
Voice produced	Bleating/ Bellowing
Place of Habitation	Stable

- The following table shows common production parameters of camels

Particulars	Camel
Birth wt. (kg)	40 – 50
Mature wt. (kg)	500 – 800
Life span (yr)	20 – 30
Products/ Purpose	Draft, meat

- The following table shows physiological parameters of camels

Particulars	Camel
Rectal Temp^0 F	99.6
Normal pulse (min)	30 – 50
Normal Resp. (min)	10 – 12
Duration of heat (days)	5 d
Gestation Period (days)	365 – 410 (370)

QUESTIONS

1. The year of domestication of dromedary camel in Arabian bay is –
   A. 1000 BC B. 1500 BC
   C. 1800 BC D. 1000 AD
2. The camel species in India belong to –
   A. Bactrian B. Dromedary
   C. Both D. None
3. The largest population of camel is found in –
   A. Gujarat B. U.P.
   C. Haryana D. Rajasthan
4. Chromosome number of camel is –
   A. 78 B. 74
   C. 70 D. 68
5. Rajasthan constitutes how much of Indian camel population –
   A. 70 % B. 30 %
   C. 40 % D. 5.9 %
6. A camel can pull a load equivalent to how much percentage of body weight –
   A. 50 % B. 30 %
   C. 40 % D. 20 %

7. The crossbred camel used by BSF in India is –
   A. Dogla B. Bikaneri
   C. Jaiselmari D. None

8. The mammary gland of camel has how many teats –
   A. One B. Two
   C. Three D. Four

9. Characteristic shape of head and stop above the eye is a distinguished feature in –
   A. Bikaneri camel B. Jaisalmeri camel
   C. Mewari camel D. None

10. The prehensile organ in camels is –
   A. Lips B. Tongue
   C. Teeth D. Palate

11. The hump of camel is made up of –
   A. Glycogen B. Water
   C. Muscle D. Fat

12. The camel on an average has how many teeth –
   A. 30 B. 32
   C. 42 D. 34

13. Male camel attains adult age at –
   A. 6 – 8 years B. 8 – 9 years
   C. 2 – 3 years D. None

14. Age of sexual maturity in female camel is –
   A. 4 – 6 years B. 3 – 4 years
   C. 7 – 8 years D. None

15. Maturity rate of camel is –
   A. Fast B. Moderately fast
   C. Slow D. Very slow

16. A camel can survive for how many days without water –
   A. 7 B. 3
   C. 5 D. 10

17. Camel produces one calf every _____ year.
   A. One B. Two
   C. Three D. Four

18. The age of full sexual maturity in male camel is –
   A. 4 years B. 5 years
   C. 7 years D. 8 years

19. The shape of testicles in camel is –
   A. Spherical B. Oval
   C. Kidney shaped D. Elongated

20. In camel, sigmoid flexor is ..... in penis.
   A. Present B. Absent
   C. Not demarcated D. None of these

21. In camel penis, position of sigmoid flexor is –
   A. Post scrotal B. More scrotal
   C. Absent D. None of these

22. During pregnancy, the Corpus Luteum _____ in the ovary.
   A. Degenerates B. Persists
   C. Is absent D. Is detached

23. Ovulation in camel occurs after –
   A. 36 – 48 hr. post coitus B. 55 hr. post coitus
   C. 10 hr. post coitus D. 25 – 28 hr. post coitus

24. The ovulation in camel is –
   A. Spontaneous B. Induced
   C. Both D. None

25. Gestation period of camel –
   A. 390 days B. 430 days
   C. 290 days D. 310 days

26. Daily requirement of camel for maintenance and 10 hr. work is–
   A. 700 gm DCP B. 300 gm DCP
   C. 50 gm DCP D. 500 gm DCP

27. Camel working for 1 hour would require daily –
A. 136 Mj ME B. 49.6 Mj ME
C. 89-6 Mj ME D. None of above

28. Weaning of camel calf is done at age of –
A. 6 – 8 months B. 1 – 3 months
C. 10 – 12 months D. At any time

29. Percent of total proteins in camel colostrum is –
A. 22.4 % B. 17.8 %
C. 4.6 % D. 11.2 %

30. Maximum loss of water from body which camel can withstand without adverse effect –
A. 20 % B. 29 %
C. 12 % D. 35 %

31. In camel, which one is absent –
A. Sigmoid flexure B. Cowper's gland
C. Prostrate gland D. Seminal vesicle

32. The camel breeds during _____
A. Winter B. Spring
C. Summer D. Both 2 & 3

33. Estrus cycle in camel on an average lasts for how many days –
A. 20 days B. 23 days
C. 21 days D. 22 days

34. The breeding season in male is called as –
A. Musth B. Heat
C. Rutting D. Both 1 and 3

35. The average gestation period in camel is –
A. 365 days B. 390 days
C. 310 days D. 400 days

36. The parturition occurs in which position –
A. Sitting B. Standing
C. Lying D. None of these

37. Breeding of she camel is done –
A. Every year B. After 2 years
C. After 3 years D. Alternate year

38. An adult male can serve how many females in age–
A. 50 B. 100
C. 10 D. 150

39. The calf is weaned at an age of –
A. 12 months B. 18 months
C. 15 months D. 24 months

40. The male odour is produced from skin gland present on –
A. Back of neck B. Limbs
C. Flank D. Perianal area

41. The ballooned out soft palate during rut is called –
A. Kammis B. Kuppara
C. Goulla D. Bladder

42. The sexual act in camel last for –
A. 5 to 10 minutes B. 30 minutes
C. 1 hour D. 10 -20 minutes

43. A camel can lose body weight without ill effects up to –
A. 12 % B. 15 %
C. 20 % D. 30 %

44. 100 g of fat in the hump can yield how much water –
A. 107 g B. 41 g
C. 68 g D. 150 g

45. Camel can have diurnal variation in body temperature of –
A. 2^{0} C B. 10^{0} C
C. 6^{0} C D. 1^{0} C

46. The RBC of camels can swell up to –
A. 100 % B. 240 %
C. 130 % D. 170 %

47. The camel is a –
A. Mono-gastric animal B. Ruminant
C. Pseudo ruminant D. None

48. The camel on an average produces saliva daily up to –
A. 180 litres B. 80 litres
C. 280 litres D. 58 litres

49. The pH of saliva is –
A. 6 to 7 B. 10 to 11
C. 8 to 9 D. 5 to 6

50. The gall bladder in camel is –
A. Well developed B. Absent
C. Small D. Moderately developed

51. Number of incisors on upper jaw of adult camel is –
A. 2 B. Zero
C. 4 D. 6

52. The fore stomach of camels has how many distinct compartments –
A. 4 B. 2
C. 1 D. 3

53. The small intestine length in camels is –
A. 10 to 20 m. B. 30 to 40 m.
C. 40 to 50 m. D. 5 to 10 m.

54. A camel needs how many hours of foraging per day –
A. 8 to 10 hours B. 4 to 6 hours
C. 2 to 4 hours D. 12 hours

55. The camels can be classified as –
A. Grazers B. Browsers
C. Both D. None

56. The average per day water requirement in camels is –
A. 10 to 20 l B. 15 to 25 l
C. 20 to 40 l D. 40 to 50 l

57. Trypanosomiasis in camel is called –
A. Surra B. Tibarsa
C. El – Debaba D. All of these

58. Castration in camel is done at an age of –
A. 2 to 4 years B. 6 to 10 years
C. 6 to 8 years D. 4 to 6 years

59. Training of the camel is done at an age of –
A. 1 to 2 years B. 5 to 6 years
C. 21/2 to 3 years D. 41/2 years

60. The camels are put to regular work after an age of –
A. 4 years B. 6 years
C. 2 years D. 8 years

61. The age of camel is estimated from –
A. Lower jaw teeth B. Upper jaw teeth
C. Canines D. Molars

62. The term dromedary means –
A. Sturdy B. Intelligent
C. Stray D. Runner

63. The peculiarity of camel milk is –
A. High protein B. High fat
C. Presence of Vitamin D. High lactose

64. The population of camels in India –
A. 11 million B. 1.1 million
C. 2.2 million D. 22 million

65. The hollow above the eye in Bikaneri breed is called –
A. Hee pars B. Stop
C. Ozlar grove D. Furrow

66. The luxuriant black hairs on eyebrows, eyelids and ears in Bikaneri camels is called as –
A. Jhee pras B. Stop
C. Tust D. Raikas

67. A breed of camel well suited to hot and hilly area is –
A. Bikaneri B. Jaisalmeri
C. Mewari D. Sindhi

68. The new world camels constitute, how many genera –
A. One B. Two
C. Three D. Four

69. The daily salt requirement of a camel fed with straw is –
A. 30 to 50 gm. B. 60 to 80 gm.
C. 100 to 120 gm. D. 150 gm.

70. The respiration rate per minute in camels is –
A. 10 to 20 B. 20 to 25
C. 5 to 10 D. 25 to 30

71. Which of the following is used for presence of trypanosomiasis–
A. Sand ball test B. Tail to hair test
C. Both A & B D. Gram's staining

Directions : **Write A for true and B for false statements. (Q. 72-89)**

72. Camel does not store water.
73. Service takes about 15 minutes.
74. Camel has little subcutaneous fat.
75. Male camel has two poll glands.
76. Body temperature of camel is highly variable.
77. Working camels require 20 Mega calories per day.
78. Camel requires 112 gm salt per day at least.
79. Salt deficiency may result continuous wear and tear off in camels.
80. Arabian camel is highest milk yielder among camel breeds.
81. Fat content in meat increases to as much as 20.5% in 20 year old camel.
82. Camel dromedary is one humped camel.
83. Arabian camel is two humped camel.
84. Bactrian camel is one humped camel.
85. Bactrian camel has shorter legs, very thick coat, skill voice and

deliberate spitting habit.
86. Arabian camel has weak hind legs.
87. Arabian camel is found in areas with warm winters and very hot summers.
88. Camel is not found in wet, humid areas.
89. Camel attains full length at the age of 9 years.
90. Ancestors of family Camelidae originated in :
A. Asia B. North America
C. South America D. Africa

Answer Key : Camels

Q.	A.	Q.	A.	Q.	A.	Q.	A.	Q.	A.
1	B	19	A	37	B	55	B	73	A
2	A	20	C	38	A	56	C	74	A
3	B	21	D	39	C	57	B	75	A
4	C	22	C	40	A	58	C	76	A
5	A	23	B	41	C	59	A	77	B
6	C	24	B	42	A	60	A	78	A
7	D	25	A	43	D	61	A	79	A
8	D	26	B	44	A	62	A	80	A
9	B	27	B	45	C	63	C	81	A
10	A	28	A	46	B	64	B	82	A
11	D	29	B	47	C	65	B	83	B
12	C	30	A	48	A	66	C	84	B
13	A	31	D	49	C	67	C	85	A
14	A	32	A	50	B	68	B	86	A
15	A	33	A	51	A	69	A	87	A
16	D	34	C	52	D	70	C	88	A
17	D	35	D	53	B	71	C	89	A
18	A	36	A	54	B	72	A	90	B

RABBIT

SALIENT POINTS

- Ratio of 1 : 10 is common for mass breeding.
- Rabbit is an induced ovulator.
- Rabbits are receptive to mating on day 14 of every 16 days cycle.
- Standard size nest box for medium size rabbit is 16 x 10 x 8 inch high.
- Age for start breeding is eight month.
- Gestation period is 31 – 33 days.
- Lop rabbit is known as king of the fancy.
- If both ears stood out over head, parallel with the cheeks, condition is called as horn lop.
- Chinchilla rabbit is a fur variety of rabbit.
- Lighter strips on coloured feet condition is known as BANNED FEET in rabbits.
- Nose marking on the English breed, which resembles a butterfly with open wings, is known as **butterfly shunt.**
- **Frosted nose** condition refers to sprinkling of white hairs found on the noses of fox rabbits.
- **Wall eye** is a disqualification and refers to blue or china eye common in Dutch breed.
- Angora, Dutch, English Flemish, Himalayans, Lops are fancy **breeds** of rabbit.
- **Rex** is any coloured rabbit with plush-like characteristics of coat peculiar to breed.

- Pearl, Satins, New Zealand white, Lilacs, Sables, Smoke are **fur breeds**.
- Vaginal colour cycle runs from a pale whitish pink to a reddish purple.
- Young are born naked, blind and deaf. Eyes and ears open by day 10.
- Young ones are called **kits**.
- Act of giving birth in rabbits is called kindling.

QUESTIONS

1. What is the feed conversion efficiency with feed grain ratio in rabbits –
   A. 1:3 B. 1:4
   C. 1 : 2 D. 1:2-3
2. In which state, rabbit meat production is more popular –
   A. Tamilnadu B. Andhra Pradesh
   C. Kerala D. All of the above
3. The origin for crossbred Angora is –
   A. India B. U.K.
   C. Germany D. Russia
4. What is the yearly wool yield of German Angora –
   A. 400 -600 g / year B. 700 – 1,000 g / year
   C. 300 – 400 g / year D. 500 – 600 g / year
5. What is the yearly wool yield of crossbred Angora –
   A. 300 – 400 g / year B. 700 – 1000 g / year
   C. 500 – 600 g / year D. 400 – 600 g / year
6. Which type of Angora breed has white fine quality wool –
   A. German Angora B. Russian Angora
   C. British Angora D. Crossbred Angora

7. Which type of Angora breed has white medium fine quality wool –
A. Russian Angora B. Crossbred Angora
C. Both D. None of the above

8. Which type of Angora breed has 10 -20 % guard hair –
A. German Angora B. Russian Angora
C. British Angora D. Crossbred Angora

9. In the following breeds of rabbit, which breed has 2-4 % guard hair –
A. German Angora B. British Angora
C. Both A & B D. None of the above

10. The North Temperate Region station, Garsa for development of wool type rabbits are located in –
A. Jammu & Kashmir B. Arunachal Pradesh
C. Himanchal Pradesh D. Uttaranchal

11. The crossbred Angora which has been developed from –
A. German angora B. Russian angora
C. British angora D. All of the above

12. What is the country of origin of New Zealand White –
A. Russia B. U.K
C. Europe D. India

13. What is the country of origin of Dutch breed of rabbit –
A. Russia B. U.K.
C. Europe D. India

14. What is the country of origin of Soviet Chinchilla breed –
A. Russia B. U.K.
C. Europe D. India

15. What is the country of origin of Black brown Rabbit –
A. U.K. B. India
C. German D. Europe

16. What is the country of origin of White Giant breed –
A. U.K. B. India
C. Russia D. German

17. Fur colour of Angora rabbit is –
A. Steel grey B. White
C. Black/Brown D. Grayish brown

18. What is the Fur colour of Soviet chinchilla rabbit –
A. Steel grey B. White
C. Black D. White/grey

19. Fur colour for Grey giant breed is –
A. Steel grey B. Grey
C. Grayish brown D. None of the above

20. A mature female rabbit used for breeding is called –
A. Queen B. Doe
C. Ewe D. None of the above

21. A mature male rabbit used for breeding is called as –
A. Buck B. Ram
C. Both 1 & 2 D. None of the above

22. A young rabbit whose eyes are not yet opened –
A. Pup B. Kitten
C. KitD. Kid

23. What is the name for 10 to 12 weeks old rabbit ready for market–
A. Broiler B. Fryer
C. Tender D. None of the above

24. In case of rabbits act of parturition is called as –
A. Calving B. Kidding
C. Whelping D. Kindling

25. In Rabbit, habit of consumption of own faecal matter is called–
A. Coprophagy B. Cannibalism
C. Faecophagy D. None of the above

26. Those rabbits which grow very fast for meat purpose i.e. 2 kg body weight in just 12 weeks of age is called –
A. Fryer B. Broiler rabbit
C. Broiler D. Tender

27. What is the name for 20 weeks age young rabbit –
A. Lamb B. Kid
C. Bunny D. None of the above

28. In case of Backyard rabbit producer, the number of young born per litter is –
A. 4-7 B. 3-9
C. 5-7 D. 4-9

29. In case of commercial rabbit producer, number of young born per litter is –
A. 6-12 B. 7-12
C. 5-13 D. 6-13

30. In case of backyard rabbit producer, the killing out percentage is –
A. 10-40 % B. 40-50 %
C. 20-60 % D. 50-60 %

31. In case of commercial rabbit production, the killing out percentage is –
A. 10-40 % B. 10 -50 %
C. 50 -65 % D. 50-55 %

32. In case of backyard rabbit production, time taken to attain 2 kg live Body Weight –
A. 7-19 wks B. 5-10 wks
C. 8-10 2wks D. 6-10 wks

33. In case of commercial rabbit production, time taken to attain 2 kg live Body Wt. –
A. 7-10 wks B. 5-10 wks
C. 8-10 wks D. 6-10 wks

34. Ambient temperature requirement for wool producing rabbit as–
A. 15 to 20° C B. 10 to 25° C
C. 20- to 30° C D. 25 to 30° C

35. Normal relative humidity for wool producing rabbit is –
A. 60 – 70 % B. 50 -70 %
C. 65 – 70 % D. 60 -75 %

36. Ambient temperature requirement for raising meat type rabbit is –
A. 20 – 25 % B. 25-30 %
C. 30 – 35 % D. None of the above

37. Breeding age for medium size breeds of rabbit –
A. 2 -5 months B. 3 – 5 months
C. 4 – 5 months D. 5 - 6 months

38. What is the breeding age for smaller breeds –
A. 2 – 5 months B. 4-5 months
C. 3 – 5 months D. 5 – 6 months

39. What is the breeding age for large size breed –
A. 8 – 10 months B. 3 - 5 months
C. 4 - 5 months D. 5 – 6 months

40. Place where domesticated rabbits are kept –
A. House B. Backyard
C. Cage D. Rabbitry

41. What is the average life span for rabbits –
A. 2 – 6 yrs. B. 5 – 10 yrs.
C. 3 – 8 yrs. D. 6 – 12 yrs.

42. What is the rectal temperature of rabbit –
A. 101 – 102.2 ° F B. 102.0 – 103.2 ° F
C. 103 – 104° F D. None of the above

43. What is the number of breeding females per male –
A. 9 numbers B. 8 numbers
C. 7 numbers D. 6 numbers

44. What is the weaning age for rabbits –
A. 30 – 50 days B. 32 – 56 days
C. 40 – 50 days D. 42 – 56 days

45. What is the age of puberty for male (bucks –
A. 5 – 9 months B. 5 – 8 months
C. 6 – 9 months D. 6 – 8 months

46. What is the age of puberty for female (doe) –
A. 5 – 9 months B. 5 – 8 months
C. 6 – 9 months D. None

47. What is the average adult buck female body weight –
A. 2 – 4 kg B. 3 – 4 kg
C. 2.5 – 5 kg D. 3.5 – 5 kg

48. What is the average adult doe body weight –
A. 2 – 3 kg B. 3 – 5 kg
C. 2 – 4 kg D. 4 – 5 kg

49. What is the birth weight of the young rabbit –
A. 20 – 50 gm B. 40 – 70 gm
C. 30 – 60 gm D. 30 – 70 gm

50. What is the normal gestation period for rabbits –
A. 25 – 30 days B. 30 – 32 days
C. 28 – 34 days D. 30 – 34 days

51. In case of Rabbits, ovulation occurs –
A. 10 – 12 hrs. before mating
B. 10 – 12 hrs. after matting
C. 12 – 24 hrs. after mating
D. 12 – 24 hrs. after mating

52. In case of rabbits, the fertilized ovum reaches the uterus –
A. 72 hrs. after ovulation B. 72 hrs before ovulation
C. 74 hrs. before ovulation D. None of the above

53. In case of rabbits, implantation takes place –
A. 6 days B. 9 days
C. 7 days D. 10 days

54. Maximum numbers of mating (per day) in rabbit (buck) is –
A. 4 B. 12
C. Both 1 & 2 D. None of the above

55. Time taken for kidding in rabbits –
A. 20 – 30 minutes B. 25 – 30 minutes
C. 10 – 30 minutes D. 15 – 30 minutes

56. How many times a rabbit can breed per year –
A. 4 – 6 times B. 6 – 8 times
C. 5 – 6 times D. 7 – 8 times

57. The lactation yield of the rabbit per day –
A. 150 – 200 gm. B. 250 – 300 gm.
C. 200 – 250 gm D. 300 – 400 gm.

58. When the baby rabbits start taking grass and concentrates –
A. 1 – 2 weeks B. 2 – 3 weeks
C. 1 – 3 weeks D. None of the above

59. What is the normal water consumption of rabbits –
A. 3 – 4 lit. / day B. 2 – 5 lit. / day
C. 2 – 4 lit. / day D. 3 – 5 lit. / day

60. For rabbits (12 weeks old), the height of the cage should be –
A. 45 cm. B. 55 cm.
C. 50 cm. D. 60 cm.

61. For 12 weeks old rabbits what is the floor space requirement in cages –
A. 0.46 m^2 B. 0.41 m^2
C. 0.56 m^2 D. 0.51 m^2

62. What is the minimum requirement mesh size in square –
A. 18 x 18 mm B. 19 x 19 mm
C. 20 x 20 mm D. 21 x 21 mm

63. How can you classify the rabbit based on feeding behaviour –
A. Ruminants B. Herbivores
C. Non – ruminant herbivores D. Fresh graze eaters

DOGS

SALIENT POINTS

- Dogs need about 3 g protein/ kg body wt. per day
- Study of dogs is known as KYNOLOGY.
- Scientific name of domestic dog is *Canis familiaris*.
- Borzoi breed is also known as Wolfhound.
- German Shepherd is also known as Alsatian.
- Vizsla breed is also known as Hungarian Pointer.
- Great Dane breed is also known as German Shepherd.
- Chow breed is also known as Canton dog.
- Pug, Peckingese, Poodle are toy breeds.
- St. Bernard is the heaviest breed of dog.
- Collie, Malmute, GS are working dogs.
- Basenji, Afghan, Beagle are hound dogs.
- Retriever, Pointer, Setter, Spaniel are sporting dogs.
- Normal dog has two estrous periods in a year.
- Implantation occurs on 17 – 18 days of pregnancy.
- Dental formula of dog is 3142/3143 (44 teeth).
- Dogs need 22 % protein in diet (on dry basis) for growth reproduction.
- 5 % fat is recommended per 100 gm of diet (dry basis).
- Bull dogs have very short broad heads (brachycephalic).
- Mexican hairless dog has virtually no hair coat.
- Dogs are digitigrade animals.
- Dogs can hear pure tones of 35 kHz.
- Dog is a domesticated wolf.
- A pair of dogs is known as Brace.
- Pendulous inner corners of upper lips are known as flews.

- Dog days is a term applied to the hottest season of the year.
- Pups gain on average 2 – 4 gm/ day/ kg of their expected adult weight.
- Normal birth weight of kittens is 90 – 100 gm.
- Cats need is 5 gm protein/ day/ kg body wt.

Table

Requirement For Maintenance		
	Adult Dog	**Adult Cat**
Protein	18%	26%
Fat	5%	9%

QUESTIONS

1. Optimal diet for adult dog should have –
   A. 8 – 15 % protein B. 22 – 25 % protein
   C. 3 % protein D. 5 % protein
2. Which among the following dogs is mostly preferred for managing farm animals on pastures and ranges –
   A. Polar dogs B. Shepherd dogs
   C. Hound dogs D. Terrier dogs
3. Indian desi dogs are the descendants of the –
   A. Dingo B. Indian barking wolf
   C. Pariah D. All of the above
4. Energy requirement for growing puppies is –
   A. 40 K cal/kg B. 120 K cal/ kg
   C. 200 K cal/kg D. 500 K cal/kg
5. According to British kennel club, the domestic dogs have been classified into –
   A. 5 groups B. 7 groups
   C. 6 groups D. 4 groups

6. Identify the non – sporting "working group" breed in the following –
   A. Bull dog B. Dalmatian
   C. Dachshund D. German Shepherd

7. Identify the non – sporting "Utility group" breed in the following–
   A. Alsatians B. Boxer
   C. Dalmatian D. Great Dane

8. Which is the Gun dog in the followings –
   A. Labrador Petri ever B. Lhasa Apso
   C. Basenji D. None of the above

9. Identify the Hound breed dog among the following –
   A. Bull Terrier B. Yorkshire Terrier
   C. Beagle D. Golden Retriever

10. Identify the Terrier breed dog in the following –
    A. Pug B. Chihuahua
    C. Cocker Spaniel D. Airdale Terrier

11. Identify the toy breed dog among the following breeds –
    A. Skye Terrier B. Pekingese
    C. Dachshund D. Cocker spaniel

12. What is the place of origin for Boxer dog –
    A. Germany B. England
    C. France D. Europe

13. What is the place of origin for Chow – chow dog –
    A. China B. Scotland
    C. Ireland D. Belgium

14. What is the place of origin for 'collie' dog –
    A. Italy B. Scotland
    C. Ireland D. Belgium

15. 'Blue – tongue' is the characteristic feature of –
    A. Chihuahua B. Basenji
    C. Dalmatian D. Chow – chow

16. What is the place of origin for Chihuahua dog –
    A. China B. Europe
    C. Mexico D. Germany

17. Identify the world smallest breed of dog –
    A. Chow chow B. Chihuahua
    C. Pug D. Pomerarian

18. Barkless dog is –
    A. Basenji B. Beagle
    C. Dandie – Dinmount terrier D. Pembroke

19. Place of origin for Pomerarian dog is –
    A. Siberia B. France
    C. Poland D. England

20. Place of origin for pointer dog is –
    A. Spain B. Scotland
    C. Europe D. Egypt

21. Button shaped ear is specific characteristic for –
    A. Poodle B. Pointer
    C. Pekingese D. Pug

22. The largest breed of dog in the world is –
    A. German shepherd B. Mastiff
    C. Great Dane D. None of the above

23. Face is specified characteristic sign for –
    A. Bull dog B. Dalmatian
    C. Labrador D. All of the above

24. Powerful working dog capable of tolerating harsh cold weather is–
    A. Collie B. Pembroke
    C. Husky D. All of the above

25. Example of sporting breeds –
    A. Boxer B. Bloodhound
    C. Spaniel D. Samoyed

26. Sporting dog that can be extensively used for hunting aquatic birds is –
A. Sussex spaniel B. Irish walter spaniel
C. Clumber spaniel D. All of the above

27. Indian dog, which is considered to be developed from wild dog of Yamuna riverine of Meerut region is –
A. Bhutia B. Sanehta
C. Gaddi D. Tazi

28. The breed is used as a hunting dog in Tamilnadu and Karnataka is–
A. Rajapalyam B. Rampur hound
C. Gaddi D. Banjara

29. This type of dog is taken to high altitude with sheep flock –
A. Bhutia B. Himalayan sheep dog
C. Banjara D. None of the above

30. Zebra marking is seen in coat of –
A. Rajapalyam B. Rampur hound
C. Gaddi D. Banjara

31. Common name 'Mahidand' is used for –
A. Gaddi B. Bhutia
C. Banjara D. Rampur hound

32. The colour of the saddle area in hounds is called –
A. BOB B. Blanket
C. Blue button D. Brood bitch

33. One of the heaviest dogs in the world is –
A. Great Dane B. German Shepherd
C. Pointer D. Saint – Bernard

34. Which is the following dog having water resistant under coat–
A. Labrador B. Golden Retriever
C. Maltese D. All of the above

35. Breed having "V" shaped ears is –
A. Bull Mastiff B. Eskimo dogs
C. Pyrėneam mountain dogs D. All of the above

36. This type of breed having ear is smaller erect with falling tip–
A. Boxer B. Doberman
C. Great Dane D. None of the above

37. Ear of which breed is small, erect but slightly drooped forward is –
A. Doberman B. Collie
C. Dachshund D. Bull terrier

38. The puberty age (approximate) for dog is –
A. 6 – 8 months B. 6 – 12 months
C. 6 – 10 months D. 6 – 14 months

39. In case of dogs ovulation occurs –
A. 48 – 60 hrs before acceptance of male
B. 48 – 60 hrs after acceptance of male
C. 12 – 28 hrs before acceptance of male
D. 12 – 28 hrs after acceptance of male

40. The incidence of pseudo-pregnancy in different breeds and of dog is about –
A. 2 to 40 % B. 3 to 40 %
C. 4 to 40 % D. 4 to 40 %

41. Time duration for estrus receptivity in different breed of dogs is–
A. 44 to 60 hrs. B. 46 to 60 hrs.
C. 48 to 60 hrs. D. 50 to 62 hrs.

42. The copulation time for dogs is –
A. 10 -30 minutes B. 30 -50 minutes
C. 20 -40 minutes D. 40 -60 minutes

43. Gestation period for almost all the dogs are –
A. 61 ± 2 days B. 62 ± 2 days
C. 63 ± 2 days D. 65 ± 2 days

44. The time taken for delivery of the first pup is –
A. 20 – 30 minutes B. 40 – 50 minutes
C. 30 – 40 minutes D. None of the above

45. The time taken for delivering second and subsequent pups ranges–
A. 1 – 10 minutes B. 1 – 20 minutes
C. 1 – 15 minutes D. 1 – 30 minutes

46. In case of dogs delivery comprises –
A. 25 stages B. 35 stages
C. 4 stages D. 6 stages

47. During whelping, which stage is longest –
A. First stage B. Second stage
C. Third stage D. Fourth stage

48. The post partum estrus interval for dogs is –
A. 30 to 90 days B. 20 to 80 days
C. 30 to 60 days D. None of the above

49. The whelping – conception (w-c) interval for bitches is –
A. 140 to 210 days B. 145 to 215 days
C. 150 to 220 days D. 155 to 225 days

50. No. of pairs in mammary gland of bitch is –
A. 1 – 4 pairs B. 2 – 5 pairs
C. 3 – 5 pairs D. 4 – 8 pairs

51. The age for breeding a bitch is –
A. 9 – 18 months B. 12 – 18 months
C. 10 – 18 months D. 11 – 18 months

52. Type of estrous cycle for a bitch is –
A. Polyestrous B. Cyclic – oestrus
C. Monoestrous D. Non – cyclic oestrus

53. Length of oestrus cycle for a bitch is –
A. 5 months B. 6 months
C. 7 months D. 4 months

54. Length of estrous in case of bitch is –
A. 6 – 13 days B. 9 – 13 days
C. 8 – 13 days D. None of the above

55. Proper time for artificial insemination in bitch is –
A. 2 – 3 days before onset of true estrus
B. 2 – 3 days after onset of estrous
C. 3 – 6 days before onset of true estrous
D. 3 – 6 days after onset of true estrous

56. What is the age for weaning in dogs –
A. 2 – 6 weeks B. 4 – 6 weeks
C. 3 – 6 weeks D. None of the above

57. What is the time of implantation in dogs –
A. 15 days post coitus B. 16 days post coitus
C. 19 days post coitus D. None of the above

58. What type of placenta present in dogs –
A. Epitheliochorial B. Haemochorial
C. Endotheliochorial D. Both 1 and 2

59. Average number of pup / kitten born during one whelping is–
A. 3 – 7 pups B. 5 – 9 pups
C. 4 – 8 pups D. 6 – 12 pups

60. What is the lifespan for dogs –
A. 8 – 16 years B. 7 – 14 years
C. 10 – 15 years D. 11 – 16 years

61. Breeding season for bitch is –
A. August to September B. February to March
C. June to July D. Both 1 and 2

62. House for dogs is called as –
A. Shed B. Cage
C. Kennel D. None of the above

63. How to estimate the metabolisable energy (ME) for small and medium size breeds
A. 132 x 0.75 w kg B.135 x 0.75 w kg
C. 136 x 0.75 w kg D. 138 0.75 w kg

64. In which stage of development the puppies require more energy in feed –
A. Growing B. Younger age
C. Adult D. Both 1 and 2

65. After whelping when puppies get 40 % of their adult weight –
A. 2 to 4 months B. 3 to 6 months
C. 2 to 6 months D. 3 to 4 months

66. After whelping, when the puppies get 80 % of their adult weight–
A. 2 ½ to 8 months B. 4 ½ to 8 months
C. 3 ½ to 9 months D. 5 ½ to 9 months

67. During gestation, which stage of pregnancy bitch requires more energy –
A. 2 to 4 weeks B. 3 to 5 weeks
C. 2 to 6 weeks D. 3 to 4 weeks

68. What is the exogenous water requirement for dogs in a thermo-neutral environment –
A. 1 to 3 times the dry matter intake of food.
B. 2 to 3 times the dry matter intake of food.
C. 3 to 4 times the dry matter intake of food.
D. 3 to 4 percent the dry matter intake of food.

69. For pregnant bitches fed with carbohydrate diet in which how much digestible crude protein is required (per unit metabolic) –
A. 6 gm. B. 7 gm
C. 8 gm D. None of the above

70. What is the digestible crude protein requirement for pregnant bitches fed with non carbohydrate feed (per unit of metabolic body wt.) –
A. 12 gm. B. 14 gm
C. 16 gm D. 18 gm

71. More development of shoulder muscle is called –
A. Barrel B. Brisket
C. Bossy D. Bracelets

72. A pair of dogs is called –
A. Brush B. Kennel
C. Burr D. Brace

73. A mixed coat of light and dark hair forming irregular strips is called –
A. Bridle B. Bloom
C. Breeching D. Burr

74. In case of dogs, the inner side of the ear is called –
A. Button ear B. Burr
C. Apron D. None of the above

75. In case of dogs, the short bodied compact animal called –
A. Cloddy B. Drag
C. Cobby D. None of the above

76. In case of dogs, the low thickest and relatively heavy dog –
A. Cobby B. Drag
C. Cloddy D. None of the above

77. This part is located between the fore and rear legs called –
A. Coarse B. Condition
C. Covering ground D. Coupling

78. What is the name of long hairs present at the back of the thighs in certain breeds –
A. Culotte B. Cur
C. Crabbings D. None of the above

79. In case of dogs, pendulous inner angle of upper lip is called –
A. Flag B. Flews
C. Flush D. Furrow

80. What is the name for tuft of long hair on ears, legs and tail –
A. Fall B. Fiddle
C. Flews D. Feathering

81. "Duddley Nose" represents the colour of –
A. Light brown nose B. Dark brown nose
C. Light blue nose D. Dark blue nose

82. A rudimentary additional toe is called –
A. Claw B. Dewclaw
C. Both A & B D. None of the above

83. Black or blue patches on white colour coat is mostly associated with Great Dane having –
A. Harsh coat B. Guard hair
C. Harieguin D. All of the above

84. A fleshy part of lips and jaws are mostly significant in –
A. Boxer B. Great Dane
C. Bull Dog D. All of the above

85. The third stage of mating when male and female are joined sexually in tail to tail position is called –
A. Lock up B. Tie up
C. Both 1 & 2 D. None of the above

86. In case of dogs, abnormally small eye is called –
A. Wall eye B. Pig eye
C. Squint eye D. None of the above

87. What is the name of crossbred hound dog –
A. Lurcher B. ICD
C. KCI D. None of the above

88. In case of dogs, more development or overhanging of lips is called –
A. Flews B. Flush
C. Lippy D. All of the above

89. A combination of blue, grey and black colours in coat is called–
A. Flews B. Flush
C. Lippy D. All of the above

90. A body coat of three colours usually white, black and tan is called –
A. Merle B. Tricolour
C. Nick D. None of the above

91. What is name for point between the eye where the nasal bone and skull meet –
A. Stripe B. Stop
C. Blaze D. Snip

92. Tail of the hound or other sporting dogs is called –
A. Squirrel tail B. Screw tail
C. Stern D. Ringtail

93. Weak and thin muzzle in dog is called –
A. Lippy B. Snipy
C. Bossy D. Burr

94. What is the coat colour of the Rajapalayam dog –
A. Brown B. Tan
C. Creamy D. Dull white

95. Which dog has thin, smooth and white colour with black spots or liver spots which may very in size, but never form patches –
A. Doberman B. Dalmatian
C. Eskimo dog D. Grey hound

96. When was the breed standards for boxer dog was organized –
A. 1905 B. 1911
C. 1921 D. None of the above

97. Which type of dogs have Doliocephalic head –
A. Saint Bernard B. Collie
C. Pug D. Italian grey hound

98. Dog having the brachycephalic head is –
A. Bull dog B. Pug
C. Boxer D. All of the above

99. What type of dogs used for rescuing people that would other wise perish in alpine storms –
A. Great Dane B. German Shepherd
C. Saint Bernard D. Blood Hound

100. Dogs used for retrieving the ducks from muddy water area are–
A. Spaniels B. Pembroke
C. Pointer D. Retrievers

Answer Key

Q.	A.	Q.	A.	Q.	A.	Q.	A.	Q.	A.
1	A	21	D	41	C	61	D	81	D
2	B	22	B	42	B	62	B	82	A
3	D	23	A	43	C	63	A	83	B
4	B	24	C	44	B	64	A	84	C
5	C	25	C	45	B	65	D	85	C
6	D	26	B	46	C	66	C	86	C
7	C	27	C	47	D	67	A	87	B
8	A	28	A	48	A	68	B	88	A
9	B	29	B	49	C	69	B	89	C
10	D	30	D	50	C	70	A	90	D
11	B	31	A	51	B	71	C	91	B
12	A	32	B	52	B	72	C	92	C
13	C	33	D	53	C	73	D	93	B
14	A	34	C	54	A	74	A	94	D
15	D	35	D	55	A	75	B	95	B
16	C	36	C	56	C	76	C	96	A
17	C	37	A	57	A	77	C	97	B
18	A	38	C	58	C	78	D	98	D
19	B	39	B	59	B	79	A	99	C
20	A	40	B	60	C	80	B	100	D

CHAPTER -18

POULTRY SCIENCE

POULTRY

SALIENT POINTS

- Ornithology is study of birds.
- Poultry refers to economically important birds.
- Project Directorate on Poultry is situated in Hyderabad (Andhra Pradesh).
- **Red jungle fowl** (*Gallus gallus*) is considered as ancestor of modern fowl (*Gallus domesticus*).
- Aseel is known for royal gait, scented meat and fighting ability.
- **Karaknath** is famous for highly medicinal value. Its meat is blackish in colour and is known to possess aphrodisiac property.
- Guinea fowl is known for high disease resistance and gamy flavor of meat.
- Turkey is considered as pious bird by Christian community.
- *Meleagris gallopavo* is scientific name for Turkey.
- Incubation/hatching period for guinea fowl egg is 28 days.
- Incubation/hatching period for poultry egg is 21 days.
- Snood is reddish fleshy structure with raised dots, present on nose in turkey.
- Guinea fowl has a bony structure, known as Helmet, instead of comb on head.
- Pearl, Lavender and White are important variety of guinea fowl.
- India has first position in egg production in world (Year 2004).
- Young one of guinea fowl is known as keet.
- Cockerel is a male chicken under 1 year of age.
- Gander is a male goose.

- Poult is a turkey chick.
- Rooster is a male chicken over 1 year of age.
- Biosecurity is a management system to minimize the disease exposure of flocks.
- Capon is a neutered male chicken.
- Giblets refers to the portion of poultry carcasses that consists of hearts, gizzards and livers.
- Spent Hen is a breeder or commercial type egg hen that no longer performs at desired production levels.
- White meat refers to breast muscle.
- Red meat refers to leg muscle piece.
- World egg day is celebrated on 10th October.
- Eggs do not have Vitamin C.
- A hen requires 24 to 26 hours to produce an egg.

QUESTIONS

1. Curled toe paralysis in chicks is observed due to deficiency of ..... in chicken feed.
   A. Riboflavin B. Thiamine
   C. Pantothenic acid D. Vit. A
2. The main ancestor of to-day's chicken was –
   A. *Gallus gallus* B. *G. lafayetti*
   C. *G. varius* D. *G sonneratii*
3. Domestication of fowl started in China around –
   A. 800 BC B. 900 BC
   C. 1400 BC D. 100 BC
4. Scientific poultry keeping in India was initiated by –
   A. Christian B. Muslim
   C. Sikhs D. Hindu

5. First missionary poultry farm was established in 1912 in town–
   A. Etah B. Dehradun
   C. Bangalore D. Chennai
6. Five regional poultry breeding farms were started in –
   A. IInd five year plan B. First five year plan
   C. Fifth five year plan D. Sixth five year plan
7. Which class of birds are kept for egg production –
   A. Mediterranean class B. American class
   C. English class D. Asiatic class
8. Which class of birds are reared for broiler production –
   A. English class B. Mediterranian class
   C. English class D. Asiatic class
9. The baby birds from day-old to two month of age, is known as–
   A. Chicks B. Pullet
   C. Grower D. Frayer
10. Young chicken of either sex usually between 5-8 weeks age, having tender, soft and pliable meat, is known as –
    A. Broiler B. Grower
    C. Pullet D. Layer
11. Mature male chicken with coarse skin, toughened and darkened meat and hardened breast bone tip is called –
    A. Cock B. Broiler
    C. Grower D. Chicks
12. The elimination of unproductive or diseased bird from flock is known as –
    A. Culling B. Nulling
    C. Roasting D. Debudding
13. Germ cell of infertile egg is known as –
    A. Blastoderm B. Blastodisc
    C. Yolk D. Albumin

14. Outermost hard covering of egg is known as –
A. Egg – shell B. Shell membrane
C. Yolk D. Albumin

15. Egg shell is loosely covered with chalky powder, which partially blocks the pores of shell to prevent excessive moisture from egg is known as –
A. Cuticle B. Shell membrane, pores
C. Calcium D. None

16. Two layers which surround white protein of egg is/are called –
A. Shell – membranes B. Albumin
C. Yolk D. None

17. The semi-solid white proteinous mass works as insulating and shock absorbing for yolk, is known as –
A. Albumen B. Yolk
C. Germinal disc D. None

18. Which part of ovary and oviduct of chicken is functional –
A. Left B. Right
C. Lower right D. Lower left

19. A tube-like structure of 25 -27 inches long, where development of chicken egg takes place is known as –
A. Oviduct B. Ovum
C. Cloaca D. None

20. The part of oviduct, where most of the albumen is secreted is– known as
A. Magnum B. Infundibulum
C. Uterus D. None

21. The shell membrane protein of egg is formed in the –
A. Isthmus B. Magnum
C. Uterus D. Cloaca

22. Shell of egg that is formed and deposited over it in the part of oviduct, is called –
A. Uterus B. Magnum
C. Cloaca D. None

23. The litter used for intensive system of bird rearing should be–
A. Soft and compressible B. Hard and compressible
C. Soft and large size particle D. Hard and medium sized

24. Moisture present in litter should be –
A. 15 – 20 % B. 20 – 25 %
C. 5 –10 % D. More than 4 %

25. The compartment of cages used for rearing the hens, are arranged one above the others in –
A. Battery cage B. Single cage system
C. California cage D. None

26. Germ cell of infertile egg is known as –
A. Blastoderm B. Blastodisc
C. Yolk D. Albumin

27. The compartment of cages used fpr rearing hens, are arranged in stepwise in –
A. California cage B. single cage
C. Battery cage D. None

28. Dropping of birds are collected in dropping trays, which was fitted underneath each time in –
A. Battery cage B. California cage
C. Nesting system D. None

29. Dropping of birds from all compartment of cages falls on ground in –
A. California cage B. Battery cage
C. Nesting D. None

30. Pullets from grower house should be shifted to layer house on–
A. 18^{th} week B. 20^{th} week
C. 26^{th} week D. 15^{th} week

31. Photo period for layer should be –
A. 14 – 16 hrs. B. 18 – 20 hrs.
C. 8 – 10 hrs. D. 24 hrs.

32. In broiler, artificial heat should be provided during brooding only for –
A. 2 weeks B. 3 weeks
C. 4 weeks D. 6 weeks

33. The maximum space for broiler production is provided –
A. 1 sq. ft. / chicks B. 7 – 8 sq. ft. / chicks
C. 1 – 2 sq. ft. / chicks D. 2 – 2.5 sq. ft. / chicks

34. Photoperiod for broiler production is arranged for –
A. 24 hrs. B. 15 – 20 hrs.
C. 12 – 16 hrs. D. 10 – 15 hrs.

35. The ration, given to broiler for first 3-4 weeks, is called –
A. Starter ration B. Finisher ration
C. Grower ration D. Layer ration

36. The ration, given in the later part of broiler production, is known as –
A. Finisher ration B. Starter ration
C. Grower ration D. Breeder ration

37. The number of cock for obtaining layer chicks in deep litter system should be –
A. 10 % B. 8 %
C. 12 % D. 20 %

38. Eggs for hatching should be stored from –
A. 24^{th} age B. 20^{th} week
C. 22^{nd} week D. 30^{th} week

39. Comfortable temperature for optimal growth in chicken is –
A. 55 – 65° F B. 75 – 90° F
C. 40 – 50° F D. 20 – 40° F

40. Of total cost, feed alone constitutes approximately –
A. 60 – 70 % B. 30 – 40 %
C. 40 – 50 % D. None

41. The gross energy value of fat is –
A. 9.4 k. cal. / kg B. 12.6 k. cal / gm
C. 5.6 k. cal. / gm. D. None

42. The birds belonging to American class are –
A. Dual purpose B. Egg purpose
C. Meat purpose D. None

43. The Mediterranean class birds produce –
A. White shelled egg B. Brown shelled egg
C. Dark coloured egg D. None

44. Name the class of birds, which bears white ear lobe –
A. Mediterranean class B. English class
C. Asian class D. None

45. Feathered shank is only seen in the class of –
A. Asian class B. English class
C. American class D. None

46. Name the breed of duck, which are reared for egg production and originated from England –
A. Khaki Campbell B. Indian runner
C. Roven D. Muscovy

47. Incubation period for hatching of quail egg is –
A. 18 days B. 28 days
C. 21 days D. 15 days

48. Incubation period for hatching of turkey eggs is –
A. 28 days B. 21 days
C. 24 days D. 18 days

49. Artificial light is needed mainly to increase –
A. Egg production B. Meat production
C. Feather development D. Comb and wattle development

50. Gestation period in pig is –
A. 114 ± 5 days B. 158 days
C. 90 days D. 60 days

51. Weight of gilt at breedable time should be –
A. 90 – 100 kg B. 75 – 85 kg
C. 60 – 70 kg D. Less than 50 kg

52. The exotic breed of pigs are being used widely for pig breeding–
A. Large white yorkshine, Land race
B. Middle white yorkshine and Berkshire
C. Land race and Tam worth
D. Saddle back, Large white Yorkshire

53. The moisture percentage of litter should be –
A. 15 – 20 % B. 25 – 30 %
C. 10 – 12 % D. 30 – 35 %

54. Live embryo can be detected at the time of candling on 5th day of incubation by –
A. Radiating blood vessels B. Pink ring
C. Absence of blood vessels D. Size of Air-cell

55. The most critical factor for successful hatching is –
A. Temperature B. Humidity
C. Oxygen D. CO_2

56. The normal level of fertility in W. L. H. should not be less than _____ for better hatchability.
A. 95 % B. 90 %
C. 85 % D. 100 %

57. For selection of good laying performances, the most important character is –
A. Egg production B. Body weight
C. Mortality D. Egg weight

58. Covering of day-old chicks body is known as –
A. Fluffy B. Plumage
C. Down D. Dawn

59. Muscular stomach of Poultry is known as –
A. Gizzard B. Crop
C. Proventriculous D. Liver

60. The endocrine gland which regulate the secretion of other endocrine gland is known as –
A. Anterior Pituitary B. Adrenal
C. Thyroid D. Gonad

61. The primary reason for using antibiotics in poultry ration is for –
A. Growth promoter B. Antigen production
C. Better egg size D. Feather growth

62. Ear lobe of chicken hen is Red, then colour of egg will be –
A. Brown B. White
C. Red D. None

63. Ear lobe of a chicken hen is white, the colour of egg will be –
A. White B. Brown
C. Yellow D. None

64. Colour of shank of a bird is white, probably it belongs to class–
A. English B. American
C. Asiatic D. Mediterranean

65. Male in case of bird is –
A. Homogametic B. Heterogametic
C. Heterohomogametic D. None

66. Female in case of bird is –
A. Heterogametic B. Homogametic
C. Heterohomogametic D. 4. None

67. Osborn index is used for –
A. Selection of birds B. Quality of egg
C. Carcass quality D. None

68. BBLW is a variety of –
A. Turkey B. Chicken
C. Duck D. Quail

69. Muscovy is breed of –
A. Duck B. Geese
C. Quail D. Chicken

70. Meat type duck is –
A. Pekin B. Indian runner
C. Khaki Campbell D. All

71. Ornamental ducks is –
A. Indian runner B. Pekin
C. Crested white D. Khaki Campbell

72. Poult is a term used generally for –
A. Young turkey B. Young chicken
C. Young horse D. Young pig

73. Starter mash is fed to broiler up to –
A. 0 – 4 wk. B. 2 – 6 wk
C. 0 – 8 wk. D. None

74. Gizzard is present between –
A. Intestine and Proventriculus
B. Mouths and crop
C. Proventriculous and crop
D. None

75. Clutch is –
A. Continuous days of egg-laying B. Size of egg
C. Days of pause and laying D. None

76. Pterylace is –
A. Feather tracks B. Feather count
C. Feather length D. Feather strength

77. Pullet is a female of –
A. Chicken B. Duck
C. Quail D. Turkey

78. Snood is present in –
A. Turkey B. Chicken
C. Duck D. Quail

79. Crop is enlargement of –
A. Oesophagus B. Air sac
C. Gizzard D. Caecum

80. Drake is –
A. Male duck B. Male turkey
C. Male quail D. None

81. Egg for table purpose is –
A. Infertile B. Fertile
C. Both D. None

82. Perosis is caused due to deficiency of –
A. Mn B. Ca
C. P D. Fe

83. Nutritional encephalomalacia is due to deficiency of –
A. Vit. E B. Vit. A
C. Vit. B D. Vit B_{12}

84. Gumboro disease is caused by –
A. Virus B. Bacteria
C. Parasite D. Vitamin Deficiency.

85. Which of the following is egg transmitted –
A. Adeno virus B. CRD
C. Egg drop syndrome D. All of the above

86. Which of the following is egg transmitted –
A. Salmonellosis B. Viral arthritis
C. Fowl typhoid D. All

87. Which of the following is transmitted via carrier also –
A. Fowl Cholera B. Fowl Coryza
C. Fowl typhoid D. All

88. Which of the following is transmitted via carrier also –
A. IB B. NCD
C. Salmonellosissis D. All

89. Vaccination is not available for which of the following –
A. Coccidiosis B. IB
C. NCD D. MD

90. Which of the following is not a bacterial disease –
A. Coccidiosis B. Typhoid
C. Paratyphoid D. BWD

91. Hydrolysed feather meal is deficient in –
A. Lysine B. Methionine
C. Histidine D. All

92. Poultry don't require which vitamin in diet –
A. Vitamin C B. Vitamin B
C. Vitamin K D. Vitamin B_{12}

93. Fish meal has which limiting amino acid –
A. Lysine B. Methionine
C. Both 1 and 2 D. None

94. Enlargement of hock joint, shortening of bone and poor feather developed is due to deficiency of –
A. Zn B. Ca
C. P D. Se

95. Turning of egg is done ..... times a day.
A. 6 B. 4
C. 2 D. 1

96. Turning angle is –
A. 90° B. 60°
C. 30° D. 15°

97. Turning is done upto _____days in chicken during incubation.
A. 18 days B. Upto hatching
C. 12 days D. 16 days

98. Temperature and humidity of Hatcher should be –
A. 98.6 – 100.4° F and 60 %
B. 37° F and 50 %
C. 72 – 100° F and 70 – 90 %
D. None

99. pH of semen of poultry ranges from –
A. 7.0 – 7.6 B. 5.6 – 6.5
C. 6 – 7 D. None

100. During incubation heart begins to beat at –
A. 2 day B. 8 day
C. 17 day D. Just during hatch

101. Which one is not an extra embryonic membrane –
A. Yolk sac B. Amnion
C. Chorion D. All of above

102. Head usually develops towards –
A. Broad end B. Narrow end
C. At either end D. Depends upon setting of egg

103. Is it possible to get infertile egg in presence male –
A. Yes B. No
C. Depends on hen D. None

104. Broiler population consist of –
A. Mixed population B. Only male
C. Only female D. Ratio is male 50 : 50

105. Which is included in poultry –
A. Guinea fowl B. Geese
C. Quail D. All

106. Which can be stimulus for growth and production of poultry–
A. Light B. Sound
C. Vibration D. Small

107. Exchange of air occurs in –
A. Tertiary bronchi B. Secondary bronchi
C. Primary bronchi D. Lungs

108. Bursa is an organ having –
A. Lymphatics B. Lymphocyte
C. Both D. None

109. Which is an organ of immunity –
A. Thymus B. Spleen
C. Bursa D. All of above

110. Crop milk is produced in –
A. Pigeon B. Chicken
C. Turkey D. Quail

111. Salivary glands in poultry are –
A. 8 no. in group B. 9 no. in group
C. 10 no. in group D. 15 no. in group

112. Syrinx is an organ of –
A. Vocal capacity B. Immune system
C. Reproduction D. Ovulation

113. Syrinx in poultry located at –
A. Bifurcation of trachea
B. Anterior to tracheal bifurcation
C. Posterior to main artery
D. None of these

114. Teeth of poultry are modified into –
A. Beak B. Air passage
C. Air tube D. Comb

115. True stomach in case of poultry is modified into –
A. Beak B. Air passage
C. Air tube D. Proventriculus

116. Gizzard is an organ of –
A. Grinding B. Absorption
C. Excretion D. Digestion

117. White colour of dropping in poultry is due to –
A. Uric acid B. Presence of bile
C. Aflatoxin D. Alfa – alfa

118. Which part of poultry meat form the Drum stick –
A. Leg part B. Breast part
C. Neck D. Head

119. Shinging is a process, applied to remove the –
A. Filoplumes B. Feathers
C. Down feather D. Fluffy

120. Haugh unit is a measurement to know the –
A. Albumen index B. Yolk index
C. Height of yolk D. None

121. Giblets consist of –
A. Gizzard, heart & liver
B. Gizzard, lung & liver
C. Liver, lung & leg portion
D. Liver, lung and proventriculus

122. Flat egg filler has space for ..... eggs.
A. 30 B. 45
C. 60 D. 50

123. Healthy day old chick should weigh approximately –
A. 38 gm. B. 50 gm.
C. 60 gm. D. 25 gm.

124. Depigmentation in shank occur first on its –
A. Anterior side B. Posterior
C. Lateral D. Dorsal

125. In good layer, depigmentation starts first of all in –
A. Vent B. Eye ring
C. Earlobes D. Beak

126. In good layer depigmentation lasts in the organ –
A. Shank B. Earlobes
C. Beak D. Eye ring

127. In hen the functional ovary is –
A. Left ovary B. Right ovary
C. Both D. None

128. Average volume of semen per ejaculation is –
A. 0.5 ml. B. 1 ml.
C. 5.0 ml D. 0.1 ml.

129. Sperm concentration in the semen of cock is –
A. 4 billion B. 8 billion
C. 4 million D. 8 million

130. Spermatozoa can be remain viable in the oviduct of hen for –
A. 5 -11 days B. 1-4 days
C. 11 – 15 days D. None

131. Longest part of oviduct in hen is –
A. Magnum B. Isthmus
C. Uterus D. Vagina

132. Peak egg production in chicken is achieved at –
A. 22 – 42 weeks B. 10 – 22 weeks
C. 24 – 30 weeks D. 16 – 20 weeks

133. In hen egg production starts at the age of –
A. 18 – 20 weeks B. 22 – 24 weeks
C. 15 – 18 weeks D. After 30 Weeks

134. Egg production is economically viable in chicken up to the age of –
A. 72 weeks B. 60 weeks
C. 84 weeks D. 94 weeks

135. Shell membrane of egg is formed in –
A. Isthmus B. Magnum
C. Infundibulum D. Uterus

136. Egg shell of chicken egg is formed in –
A. Uterus B. Magnum
C. Isthmus D. Vagina

137. Length of oviduct in hen is –
A. 64 cm. B. 80 cm.
C. 40 cm. D. 38 cm.

138. Air sac in egg is formed –
A. After oviposition B. In uterus
C. In infundibulum D. In magnum

139. Ovum stays in magnum for –
A. 3 hrs. B. 20 hrs.
C. 1.5 hrs. D. 15 mts.

140. Colour of egg-shell in poultry is due to presence of –
A. Porphyrin B. Cholesterol
C. Calciferol D. All

141. Yolk of egg is synthesized in –
A. Liver B. Kidney
C. Duodenum D. Uterus

142. Yolk on ova is stored in –
A. Ovary B. Oviduct
C. Infundibulum D. None

143. Respiratory system of poultry consists of –
A. Lung and air sac. B. Lung and larynx
C. Beak and lung D. None

144. The number of cervical vertebrae in fowl is –
A. 13 B. 15
C. 11 D. 21

145. Common opening of digestive tract and urogenital tract in case of birds is known as –
A. Cloaca B. Vagina
C. Urethra D. None

146. Castrated male bird is known as –
A. Capon B. Broiler
C. Fryer D. None

147. The most nutritious part of the egg is –
A. Yellow yolk B. White albumen
C. Blastoderm D. Chalaza

148. Feathers of bird are –
A. Epidermal structure B. Endodermal
C. Mesodermal D. None of these

149. The number of throacic vertebrae in poultry is –
A. 7 B. 9
C. 11 D. 13

150. The positive heterosis is usually called as –
A. Hybrid vigour B. Half – sib
C. Full sib D. All

151. The organ which lies between the limbs of duodenum in poultry is –
A. Pancreas B. Kidney
C. Liver D. Ovary

152. By decreasing humidity factor of incubator, the incubation length will be –
A. Reduced B. Increase
C. Not effected D. None

153. Incubation of egg in natural condition is done by –
A. Brooding hen B. Most productive hen
C. Active male D. Lethargic males

154. Project directorate on poultry is located at –
A. Hyderabad B. Izatnagar
C. Bangalore D. Madras

155. Chromosomes number in chicken (2n) is –
A. 78 B. 76
C. 74 D. 82

156. According to ICMR, the average consumption of egg per person per year should be –
A. 180 eggs B. 280 eggs
C. 160 eggs D. 155 eggs

157. 8 – 12 week old chicken of either sex is known as –
A. Fryer B. Broiler
C. Cockerel D. Broody

158. 9 – 20 weeks old chicken of either sex is known as –
A. Roaster B. Fryer
C. Broiler D. Cockerel

159. Male chicken under 10 months of age is known as –
A. Stag B. Cock
C. Cockerel D. Fryer

160. Mature male chicken over 10 months of age is known as –
A. Tom B. Ram
C. Boar D. Cockerel

161. 15 months old turkey of either sex is known as –
A. Maline turkey B. Feline
C. Fryer D. Cockrerel

162. 16 weeks old duck of either sex is known as –
A. Roaster B. Fryer
C. Broody cockrail D. None

163. Shedding of feather, at the end of egg production is known as–
A. Moulting B. Desnooding
C. Clave cripping D. None

164. Twisted cord-like structure to hold white albumen in firm position is known as –
A. Chalaza B. Duck
C. Quail D. Turkey

165. Pullet is female of –
A. Chicken B. Duck
C. Quail D. Turkey

166. Crop is enlargement of –
A. Oesophagus B. Abomasum
C. Gizzard D. Larynx

167. Pterylace can be defined as –
A. Feather track B. Feather count
C. Egg count D. Egg size

168. Central Avian Research Institute is located at –
A. Izatnagar B. Aligarh
C. Bhubaneswar D. Namakkal

169. Birds are let loose during day time and made confined at night under which housing system for birds –
A. Free range system B. Semi-intensive system
C. Intensive system D. All of the above

170. In which type of cage system, the droppings of chicken fall on ground –
A. California cage system
B. Battery cage system
C. Perches system
D. Brooder house

171. Brooding temperature is 95° F for Ist week and it should be lowered by 5 ° F per week till the temperature reaches upto –
A. 75 – 80 °F B. 85 °F
C. 70 °F D. 60 °F

172. The relative humidity during brooding should be –
A. 50 – 60 % B. 75 – 80%
C. 85 % D. Below 50 %

173. How much brooder space should be provided per chick –
A. 7 sq. inches B. 10 sq. inches
C. 15 sq. inches D. 55 sq. inches

174. Photoperiod in case of broiler in its Ist week of brooding should be –
A. 24 hrs. B. 20 hrs.
C. 15 hrs. D. None

175. Process of egg-laying is known –
A. Oviposition B. Ovulation
C. All of the above D. None

176. A twisted cord of thick albumen attached to opposite sides of egg yolk to hold it firmly is known as –
A. Chalaza B. Blastoderm
C. Blastodisc D. Stalk

177. Excreta of birds is generally known as –
A. Dropping B. Litters
C. All of the above D. None

178. Gene of fibromelanosis, which is important for heat tolerance, is found in –
A. Kadaknath B. WLH
C. RIR D. WC

179. The most common type of comb present in poultry is –
A. Single comb B. Rose comb
C. Walnut D. Barberry

180. The birds having red ear lobe generally lay –
A. Brown colour shelled egg
B. White colour shell egg
C. Eggs with slightly yellowish tinge
D. None

181. Male in case of bird is –
A. Heterogameric B. Homogametic
C. Hetrophomogametic D. None

182. Nesting behavior of bird is under the influence –
A. Hormone B. Estrogen
C. Progesterone D. Oxytocin

183. Humidity of hatcher should be –
A. 60 % B. 55 %
C. 68 % D. 70 %

184. Temperature of incubator, for the purpose of good hatching should be kept at –
A. 98.6 – 100.4 °F B. 2. 94.5 – 98.0 °F
C. 3. 84.0 – 94.0 °F D. 4. 40.0 °C

185. For heavy breed of chicken, the ratio of male and female for proper fertilization of egg should be –
A. 1: 8–10 B. 1:12–14
C. 1:14–15 D. 1: 16–18

186. For light breed of chicken, the ratio of male and female for proper fertilization of eggs should be –
A. 1: 12–15 B. 1: 15–18
C. 1: 18–20 D. 1: 16–18

187. The renewal of old feather at the end of production year is known as –
A. Moulting B. Breakage of feather
C. Tilting of feather D. None

188. B – lymphocyte is responsible for the production of –
A. humoral immunity B. Cell – mediated immunity
C. Both D. None

189. Forced moulting can be introduced by –
A. Restricting the light B. Increasing the light period
C. Giving proteinous feed D. Giving high energy feed

190. True stomach in case of poultry is –
A. Proventriculus B. Gizzard
C. Crop D. None

191. Crude protein requirement in broiler starter ration is –
A. 23 % B. 25 %
C. 28 % D. 20 %

192. Which of the following acts as antioxidant in feed –
A. Selenium B. Manganese
C. Copper D. Iron

193. Factor responsible for antinutrition present in cotton seed cake–
A. Gossypol B. Aflatoxin
C. Ochratoxin D. None

194. Castor seed contains poisonous material naturally, known as –
A. Ricin B. Vitamin E
C. Aflatoxin D. Glycoside

195. Soyabean contains a factor, which is responsible for anti-trypsin action –
A. Soyin B. Recin
C. Gossypol D. Ochratoxin

196. The most active form of Vitamin D is called –
A. D_3 B. D_2
C. None D. All

197. Anti-hemorrhagic factor is –
A. Vitamin K B. Vitamin A
C. Vitamin C D. Vitamin D

198. Encephalomalacia occurs in poultry due to deficiency of –
A. Vitamin E B. Vitamin K
C. Vitamin A D. Vitamin D_2

199. Black tongue appears in bird due to deficiency of –
A. Niacin B. Riboflavin
C. Ascorbic acid D. Vitamin C

200. Perosis in birds occurs due to deficiency of –
A. Manganese B. Copper
C. Iron D. Zinc

201. Star grazing posture of birds are seen due to deficiency of –
A. Thiamine B. Magnese
C. Vitamin E D. Vitamin C

202. Best source of animal protein for feeding of birds is –
A. Fish meal B. Meat meal
C. Feather meal D. G. N. C.

203. Marek's Disease is caused by –
A. Herpes virus B. Pox – virus
C. Corona virus D. Reo virus

204. C. R. D. is caused by –
   A. *Mycoplasma gallisepticum*
   B. *Mycoplasma meleagridis*
   C. *Mycoplasma gallinarum*
   D. *Mycoplasma synoviae*

205. Fowl typhoid is caused by –
   A. *Salmonella gallinarum*
   B. *Salmonella pullorm*
   C. *Salmonella dublin*
   D. *Salmonella Bareilliae*

206. Avian tuberculosis is caused by –
   A. *Mycobacterium avium*
   B. *Mycoplasma gallinarum*
   C. *Mycoplasma synoviae*
   D. *Mycobacterium tuberculosis*

207. Coryza in chicken is caused by –
   A. *Haemophillus gallinarum*
   B. *Salmonella Dublin*
   C. *Mycoplasma synoviae*
   D. *Strongylus vulgaris*

208. Round worm infestation in female chicken is due to presence of –
   A. *Ascaridia galli*
   B. *Toxocara vitulorum*
   C. *Ascaris vitulorum*
   D. *Strongylus vulgaris*

209. Infectious synovitis in chicken is caused by –
   A. *Mycoplasma synoviae*
   B. *Toxocara vitolorum*
   C. *Ascaris vitulorum*
   D. *Strongylus vulgaris*

210. Fowl cholera in poultry is caused by –
   A. *Pasturella multocida*
   B. *Mycoplasma gallinarum*
   C. *Mycoplasma synoviae*
   D. 4. None

211. Caecal Coccidiosis in poultry is caused by –
   A. *Eimeria tenella*
   B. *Mycoplasma gallinarum*
   C. *Mycoplasma Synoiae*
   D. *Mycobacterium tuberculosis*

212. Brooder pneumoia in chick is caused by –
   A. *Aspergillus fumigatus* B. *Pasturella multocida*
   C. Both D. None

213. Nutritional encephelomelicia is due to deficiency of –
   A. Vitamin E B. Vitamin A
   C. Vitamin B D. Vitamin B_6

214. Gumboro disease is caused by –
   A. Virus B. Bacteria
   C. Fungi D. Mineral deficiency

215. Which one is bacterial disease –
   A. IBD B. Fowl Typhoid
   C. ILT D. ALC

216. Polyneuritis occurs due to deficiency of –
   A. Thiamine B. Riboflavin
   C. Cynocobalamin D. Pyridoxine

217. Exudative diathesis occurs due to deficiency of –
   A. Vitamin E B. Vitamin B
   C. Vitamin C D. Vitamin D

218. Roundworm of poultry is -
   A. Ascardia galli B. Toxocara
   C. Ascaris vitulorum D. None

219. Helicopter disease is synonym for –
A. Reo virus disease B. Pox virus disease
C. Adeno virus disease D. Herper virus

220. Paratyphoid infection in chicken is caused by –
A. *Salmonella typhimurium*
B. *Salmonella pullorum*
C. *Salmonella gallinarum*
D. *Salmonella Dublin*

Poultry Answer Key

Q.	A.	Q.	A.	Q.	A.	Q.	A.
1.	A	31.	A	61.	C	91.	C
2.	A	32.	A	62.	A	92.	C
3.	D	33.	D	63.	A	93.	A
4.	A	34.	A	64.	A	94.	A
5.	A	35.	A	65.	A	95.	A
6.	A	36.	A	66.	A	96.	A
7.	A	37.	A	67.	B	97.	A
8.	A	38.	A	68.	A	98.	B
9.	A	39.	A	69.	A	99.	A
10.	A	40.	A	70.	A	100.	A
11.	A	41.	A	71.	C	101.	D
12.	A	42.	A	72.	A	102.	A
13.	B	43.	A	73.	A	103.	A
14.	A	44.	A	74.	A	104.	A
15.	C	45.	A	75.	A	105.	C
16.	A	46.	A	76.	A	106.	A
17.	A	47.	A	77.	A	107.	A
18.	A	48.	A	78.	A	108.	B
19.	A	49.	B	79.	A	109.	D
20.	B	50.	D	80.	A	110.	A
21.	A	51.	A	81.	A	111.	
22.	A	52.	A	82.	A	112.	A
23.	A	53.	A	83.	A	113	A
24.	B	54.	A	84.	A	114	A
25.	A	55.	A	85.	D	115	D
26.	B	56.	A	86.	D	116	A
27.	A	57.	A	87.	C	117	A
28.	A	58.	A	88.	D	118	A
29.	A	59.	A	89.	A	119	C
30.	A	60.	A	90.	A	120.	A

Q.	A.	Q.	A.	Q.	A.	Q.	A.
121.	A	151.	A	181.	B	211.	A
122.	A	152.	C	182.	B	212.	A
123.	A	153.	A	183.	A	213.	A
124.	A	154.	A	184.	A	214.	A
125.	A	155.	A	185.	A	215.	B
126.	A	156.	A	186.	A	216.	A
127.	A	157.	A	187.	A	217.	A
128.	A	158.	A	188.	A	218.	A
129.	A	159.	A	189.	A	219.	A
130.	A	160.	A	190.	A	220.	B
131.	A	161.	A	191.	A		
132.	C	162.	A	192.	A		
133.	A	163.	A	193.	A		
134.	A	164.	A	194.	A		
135.	A	165.	D	195.	A		
136.	A	166.	A	196.	A		
137.	A	167.	A	197.	A		
138.		168.	A	198.	A		
139.	A	169.	B	199.	B		
140.	A	170.	A	200.	A		
141.	A	171.	C	201.	A		
142.	A	172.	A	202.	A		
143.	A	173.	B	203.	A		
144.	A	174.	A	204.	A		
145.	A	175.	A	205.	B		
146.	A	176.	A	206.	A		
147.	A	177.	A	207.	A		
148.	A	178.	A	208.	A		
149.	A	179.	A	209.	A		
150.	A	180.	A	210.	A		

CHAPTER -19

DAIRY TECHNOLOGY

DAIRY TECHNOLOGY

SALIENT FEATURES

- Milk contains less water than blood plasma.
- Ascending order of animal species in term of water composition in milk

  Water buffalo<bitch<sheep<cow<mare.
- Descending order of animal species according to lactose percentage in milk –

  Human>mare>sheep/cat>cow>goat>water buffalo>camel
- Milk is an emulsion of fat in water.
- Skim milk is bluish yellow in colour.
- Whey is greenish yellow in colour.
- pH of fresh milk is acidic (6.5)
- High pH values for fresh milk indicate udder infection and lower pH values indicate bacterial infection.
- Specific gravity of milk is usually expressed at 60°F.
- Average specific gravity of milk ranges from 1.028 to 1.030 for cows.
- Specific gravity of SNF in milk is 1.616.
- Freezing point depression lower than 0.530°C indicates addition of water.
- Mastitic milk shows a normal freezing point.
- In HTST pasteurization, milk is heated to 72°C for 15 seconds and promptly cooled to 5°C or below.

QUESTIONS

1. Dairy technology has been defined as that branch of dairy science which deals with –
   A. Processing of milk
   B. Manufacture of milk products
   C. Processing and distribution of milk and its byproducts
   D. All of the above.

2. Milk is defined as –
   A. Whole fresh, clean lacteal secretion from the mammary glands.
   B. Lacteal secretion of the mammary glands.
   C. Opaque white or bluish white liquid secreted by the mammary glands.
   D. None of the above.

3. The first semi-commercial dairying began with the establishment of military dairy farm at –
   A. Delhi 1790 B. Allahabad 1889
   C. Madras 1890 D. Calcutta 1950

4. Handling of milk in Co-operative milk unions was first established on a small scale in –
   A. Worli 1905 B. Madras 1910
   C. Allahabad 1913 D. Lucknow 1918

5. Pasteurization and bottling of milk on large scale for organized distribution was started first at –
   A. Delhi 1959 B. Bombay 1950
   C. Aarey 1950 D. Bihar 1960

6. Although India possess nearly one fifth of the bovine population, milk production in India accounts for only about one-sixteenth of the world mainly due to –
   A. Genetic factor B. Managemental factor
   C. Socio factor D. Disease factor

7. The daily per capita milk consumption as recommended by the Medical Authorities is –
   A. 200 gm / person B. 250 gm / person
   C. 280 gm / person D. 300 gm / person

8. The daily per capita milk consumption in India (2005) is –
   A. 10 gm / person B. 232 gm / person
   C. 114 gm / person D. 145 gm / person

9. Constraints in attaining optimum milk yield in India are mainly due to –
   A. Lack of organized milk production and collection
   B. Restricted transport facilities
   C. Shortage of processing and marketing organization
   D. All of the above.

10. The highest milk producing country in the world is –
    A. U. K B. Germany
    C. India D. U. S. A.

11. The major constituent of the milk is –
    A. Water B. Fat
    C. Protein D. All of the above

12. The minor constituent of milk is –
    A. Milk fat B. Lactose
    C. Casein D. All of the above

13. The true constituent of milk is –
    A. Milk fat B. Casein
    C. Lactose D. All of the above.

14. The fat composition of the buffalo milk is
    A. 3.2 B. 5.5
    C. 6.6 D. 8.6

15. The fat composition of exotic cow is –
    A. 3.6 B. 4.6
    C. 4.8 D. 5.5

16. The water composition of the buffalo milk is –
A. 75.5 B. 82.5
C. 84.2 D. 86.5

17. The water composition of the exotic cow is –
A. 70.5 B. 86.6
C. 79.5 D. 90.3

18 The protein composition of the buffalo milk –
A. 1.8 B. 2.5
C. 3.5 D. 3.9

19. The protein composition of the exotic cow is –
A. 3.1 B. 3.2
C. 3.4 D. 3.6

20. The most important factor affecting the composition of milk is–
A. Species B. Season
C. Interval of milking D. All of the above

21. Milk is an excellent source of –
A. Calcium and phosphorous
B. Vitamin D
C. Vitamin A
D. All of the above

22. Milk is considered as an ideal food since it supplies –
A. Body building proteins
B. Bone forming minerals
C. Energy-giving lactose
D. All of the above

23. Milk fat plays a significant role in the –
A. Nutrition value B. Flavour
C. Physical properties D. All of the above

24. The carotenoid content of cow milk is –
A. 20 ug / g B. 25 / ug / g
C. 30 / ug / g D. 35 / ug /. g

25. The average specify gravity of cow milk is –
A. 1.000 – 1.030 B. 1.028 – 1.030
C. 1.030 – 1.038 D. 1.620 – 1.245

26. The average specify gravity for buffalo milk is –
A. 1.030 – 1.032 B. 1.038 – 1.200
C. 2.000 – 2.400 D. 2.500 – 2.840

27. Milk is heavier than –
A. Ice B. Water
C. Solid D. Salt

28. The most common micro organism in milk –
A. Bacteria B. Virus
C. Mould and yeast D. All of the above

29. Micro organism in milk can be destroyed by –
A. Heat B. Ionizing
C. Chemical D. All of the above

30. Disease transmitted by milk by direct contamination of milk in human being –
A. Scarlet B. Paratyphoid fever
C. Gastroenteritis D. All of the above

31. Diseases transmitted by man to cow and than to milk –
A. Septic sore throat B. Scarlet fever
C. Diphtheria D. All of the above

32. Milk get contaminated through –
A. Flies B. Air and dust
C. Utensils D. All of the above

33. The common systems for collection of milk are –
A. Co-operative organization B. Individual producers
C. Contractor D. All of the above

34. Pasteurization of milk was first done by to –
A. Louis Pasteur 1860 B. Dr. Soxhlet 1886
C. Nicholas Appert 1809 D. Gail Borden 1801

35. The term pasteurization of milk refer to the process of heating every particle of milk to at least –
A. 63° C for 30 minutes B. 72°C for 15 minutes
C. 145° F for 15 minutes D. Any of the above

36. Most variable fraction of milk is –
A. Water B. Protein
C. SNF D. Fat

37. In the bottle pasteurization the cow milk tightly sealed with special caps are held at –
A. 60 – 62° C B. 63 – 66° C
C. 65 – 67° C D. 70 -72° C

38. In the batch / holding pasteurization the milk is heated to –
A. 60° C for 15 minutes and cooled to 10° C
B. 62° C for 20 minutes and cooled to 15° C
C. 63° C for 30 minutes and cooled to 5° C
D. 65° C for 30 minutes and cooled to 10° C

39. In high temperature short time (HTST) pasteurization the milk is heated to –
A. 65°C for seconds B. 70° C for 15 seconds
C. 72° C for 15 seconds D. 72° C for 30 seconds

40. Flavoured milk is usually made –
A. To make milk more palatable
B. To estimate the sale of milk
C. To put skim milk to profitable use
D. All of the above

41. Fortified milk is that milk in which there is addition of –
A. Vitamin B. Multi Vitamin
C. Mineral D. All of the above

42. Fermented milk are defined as chemical changes brought about on –
A. Protein B. Carbohydrate
C. Fat D. All of the above

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पुस्तक खराब करु नये.

43. Advantage of fermented milk is –
A. Nutritive value usually increased
B. Contain beneficial antibiotics
C. Possess therapeutic properties
D. All of the above

44. Starter species commonly used in milk industry is –
A. Staphylococus B. Streptococcus
C. Lactobacillus D. Leuconostoc

45. Function of active starter in the manufacture of a formented product is –
A. Acid production
B. Desired characteristic flavor production
C. Prevention of growth of undesirable microorganism
D. All of the above

46. In the mother starter, heat treatment is usually done at –
A. 150 ° F for ½ hr B. 170 °F for 1 hr
C. 180 °F for 1 ½ hr

47. What is the percentage of total nitrogen present in milk as Casine–
A. 10% B. 80%
C. 20% D. 30%

48. The percentage of casein and calcium content of Indian Buffalo milk is –
A. 2 % casein & 0.01 Ca %
B. 2.5 % casein & o.05 Ca %
C. 3 % casein & 0.19 Ca %
D. 3.5 % casein & 0.80 Ca %

49. Advantages of homogenization of milk is –
A. More palatable
B. Better adapted milk for bulk dispensing
C. Produces soft curd and is better digested
D. All of the above

50. Bulgarian Buttermilk culture consist of mainly –
A. Streptococcus lactis B. Kefir bacilli
C. Lactobacilli bulgaricus D. Lactobacilli acidophilus

51. Kumis's culture consist of mainly –
A. Lactobacillus acidophilus or bulgaricus
B. Str. lactis
C. Betabacterium caucasium
D. Streptococcus thermophilus

52. Micro-organism responsible for lactic fermentation of yogurt are –
A. Str. diacetilactis B. Leuconostoc strains
C. Lactobacillus acidophilus D. All of the above

53. Standardized milk for liquid consumption should contain a minimum –
A. 2.5 % fat and 5.5 % solid not fat
B. 3 % fate and 6.5 % solid not fat
C. 4.5 % fat and 8.5 % solid not fat
D. 5 % fat and 10.5 % solid not fat

54. Advantage of standardized milk is –
A. Surplus fat converted to butter and ghee
B. Easily digestible
C. Uniform of constant composition
D. All of the above.

55. Reconstituted milk is prepared by dispersing whole milk powder in water approximately in the proportion of –
A. ½ part powder to 4-5 part water
B. 1 part powder to 7-8 part water
C. 1 ½ part powder to 10 part water
D. 2.5 part powder to 12 part water

56. Reconstituted milk is heated at a temperature of
A. 35° C – 37 ° C B. 38° C – 43 °C
C. 40° C – 45° C D. 42° C – 47° C

57. Cream for manufacture of butter should have fat content of –
A. 10 – 20 % B. 30 – 40 %
C. 5 – 10 % D. 15 – 20 %

58. The heating temperature of recombined milk is –
A. 32 ° C – 35 ° C B. 36 ° C - 40 ° C
C. 38 ° C - 49 ° C D. 48 ° C – 52 ° C

59. Recombined milk is defined as those milk obtained from –
A. Butter oil B. Skim milk powder
C. Water D. All of the above

60. Toned milk is referred to as milk obtained from –
A. Water B. Skim milk powder
C. Spray dried milk powder D. All of the above

61. Toned milk should contain a minimum of –
A. 1.5 % fat and 6.5 % solid not fat
B. 2.5 % fat and 7.5 % solid not fat
C. 3 % fat and 8.5 % solid not fat
D. 4.5 % fat and 9.5 % solid not fat

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62. Cream is defined as –
A. That portion of milk which is rich in milk fat.
B. That portion of milk which has been gathered and which contains a large protein of milk fat.
C. When milk fat is concentrated into a fraction of the original milk.
D. All of the above.

63. According to PFA rules 1976, cream should contain not less than –
A. 15 % milk fat B. 20 % milk fat
C. 25 % milk fat D. 30 % milk fat

64. Predominent amino acid in milk is –
A. Lysine B. Valine
C. Cystine D. Both A and B

65. Pasteurization of cream is defined as the process of heating every particle of cream to not less than –
A. 65° C of 10 minutes B. 71° C for 20 minutes
C. 75° C for 20 minutes D. 72° C for 15 minutes

66. Objective for pasteurization of cream –
A. For complete neutralization of cream
B. To eliminate gaseous tainting substances
C. To destroy pathogenic micro-organism
D. All of the above

67. Least variable constituent of milk is –
A. Casein B. Fat
C. Minerals D. Lactose

68. Amongst the milk product the leading milk product is –
A. Cream B. Butter
C. Toned milk D. Pasteurize milk

69. Butter usually contain –
A. 60 % milk fat, 0.5 % curd & 1.5 % salt
B. 75 % milk fat, 1 % curd and 2 % salt
C. 80 % milk fat, 1.5 % curd and 3 % salt
D. 85 % milk fat, 2 % curd & 3.5 % salt

70. Which type of casein is highest in milk of buffalo –
A. K-casein B. β- Casein
C. α- casein D. None of the above

71. The moisture content in the butter is –
A. 12. 5 B. 15. 75
C. 16. 3 D. 19. 05

72. Butter is light in fat and fat soluble Vitamin like –
1. A 2. D.
3. E & K 4. All of the above

73. Cream for butter making is graded into –
A. 2 types B. 3 types
C. 4 types D. 5 types

74. Which type of casein is highest in cow milk –
A. k-casein B. γ-casein
C. β-casein D. α-casein

75. Which one has bioprotective effect by binding iron in digestive tract –
A. Casein B. Lysozyme
C. Immunoglobulin D. Lactoferrin

76. Adulteration of buffalo milk in cow milk is detected by –
A. Resazurin test B. Gram's test
C. Iodine test D. Hansa test

77. Development of orange colour in milk treated with nitric acid confirms the adulteration of –
A. Formalin B. NaCl
C. Cane Sugar D. Skim milk powder

78. Synonymously butter oil is termed as –
A. Milk fat B. Anhydrous milk fat
C. Dry butter fat D. All of the above

79. The butter oil consist of –
A. Butter fat B. Moisture
C. Acidity and peroxide D. All of the above

80. The percentage of butter fat in butter oil is –
A. 90 – 92 B. 92.5 – 95.75
C. 99.5 – 99.8 D. 95.25 – 97.5

81. Butter oil is richest source of –
A. Milk fat B. Vitamin A
C. Vitamin D D. All of the above

82. The uses of butter oil include –
A. Ice cream manufacture B. Confectionary industry
C. Cooking fat D. All of the above e

83. Cause of defect in butter oil –
A. Low quality milk
B. Faulty methods of production
C. Faulty processing and storage
D. All of the above

84. Ice cream is the frozen product obtained from –
A. Combination of milk products and cream
B. Additional of cane sugar, eggs, fruits
C. Edible flavours and permitted food colours
D. All of the above

85. Ice cream contain not less than –
A. 2 % fat, 1.5 % protein and 30 % solid
B. 5 % fat, 2.5 % protein and 32 % solid
C. 10 % fat, 3.5 % protein and 36 % solid
D. 12 % fat, 4.5 % protein and 38 % solid

86. Presence of antibiotics and sulpharesidues in milk is tested by–
A. Baudoin test
B. Iodine test
C. Hansa test
D. Delvotest kit

87. Presence of sesame oil in milk can be tested by –
A. Coaltar test
B. Strip cup test
C. California test
D. Baudoin test

88. The composition of soft Ice Cream is –
A. Fat
B. Milk solid not fat
C. Sugar, stabilizer and emulsifier
D. All of the above

89. Soft Ice Cream is usually drawn from freezer at around –
A. 5° C to 6° C
B. 7° C to 6° C
C. 8° C to 7° C
D. 9° C to 8° C

90. Defect in Ice cream arise usually due to –
A. Low quality ingredients
B. Improper mixing
C. Faulty method of manufacture and storages
D. All of the above

91. Optimum temperature for bactofugation is –
A. 10-15°C
B. 20-25°C
C. 30-35°C
D. 55-60°C

92. Homogenisation reduce the size of fat globule to maximum size of–
A. 10 μ
B. 50 μ
C. 1 μ
D. None

Answer Key :Dairy technology

Q.	A.	Q.	A.	Q.	A.	Q.	A.
1	D	26	A	51	A	76	D
2	D	27	B	52	D	77	D
3	B	28	D	53	C	78	D
4	C	29	D	54	D	79	D
5	C	30	D	55	B	80	C
6	A	31	D	56	B	81	D
7	C	32	D	57	B	82	D
8	B	33	D	58	C	83	D
9	D	34	D	59	D	84	D
10	C	35	B	60	D	85	C
11	D	36	D	61	C	86	D
12		37	D	62	D	87	D

13	D	38	B	63	C	88	D
14	C	39	C	64	D	89	C
15	B	40	C	65	B	90	D
16	C	41	D	66	D	91	D
17	C	42	D	67	D	92	C
18	D	43	D	68	B	93	C
19	C	44	B	69	C	94	C
20	D	45	D	70	C	95	D
21		46	C	71	C	96	D
22	D	47	B	72	D	97	D
23	D	48	C	73	B	98	C
24	C	49	D	74	D	99	C
25	B	50	C	75	D	100	D

CHAPTER -20

SWINE HUSBANDRY

SWINE HUSBANDRY

POINTS TO REMEMBER

- Pigs cannot utilize forage.
- Porcine stress syndrome prone pigs are sensitive to halothane anesthesia.
- *Sus scrofa / domestica* is the scientific name for pig.
- Pigs belong to family Suidae, order Artiodactyla.
- **Pig snout punch-** resembles bull puncher and is used for making hole in the pigs for ringing.
- **Pig rings-** are exactly of the same pattern as bull nose rings. In pigs, self-piercing rings are preferred.
- Dental formula

  Temporary : 2 (3/3, 1/1, 3/3, 0/0) = 28

  Permanent : 2 (3/3, 1/1, 4/4, 3/3) = 44
- ~~At birth, pigs have 8 teeth (4 incisors and 4 canines)~~
- Important terms regarding swine are depicted in table :

Particulars	**Pig**
Family	Suidae (Swine)
Genus sp.	*Sus domestica / scrofa*
In group	Drove, Stock, Herd
Newborn	Piglet
*Young male	Boarling / Runner
*Young female	Gilt
Adult male	Boar
Adult female	Sow
Castrated male	Hog/ Barrow[1]/Stag[2]
Castrated female (spaying)	Spayed

Act of mating	Coupling
Act of parturition	Farrowing
Voice produced	Grunting
Place of Habitation	Sty

[1]- Before reaching sexual maturity; [2]- After attaining sexual maturity.

- Following table shows normal physiological parameters of pigs:

Particulars	Pig
Rectal Temp^0 F	102.6
Normal pulse/ min	60 – 90
Normal Resp./ min	10 – 20
Duration of heat	3 – 4 d
Age at first service (mon)	8 – 10
Gestation Period	115

- Temporary teeth are replaced by permanent teeth when pigs attain an age of 20 months.
- Pork is poor in calcium and sodium content.
- Pork carcass composition can be estimated from back-fat thickness and loin area.
- Sucrose feeding to neonatal piglet causes diarrhea.
- Canine teeth are enlarged to form tusks.
-

Colour of breed	Examples
White breeds	Yorkshire, Chester White, Landrace
Red breeds	Duroc, Tomworth
Red + white	Hereford
Black + white	Hampshire, Berkshire, Poland China.

- Pig's intestine has higher capacity as compared to cattle.
- Pig is classified as monogastric omnivore.
- Pigs are weaned at 8 weeks of age.

-

Body wt/ age	Feed type
< 7 kg	Prestarter
> 1 week	Creep feed or starter feed
> 15 kg	Grower diet
> 35 kg	Developer diet
> 60 kg	Finisher diet

- Sow produces largest litter size between ages of 3 and 4 years.
- Average life span of pig is 16 years.
- Pigs housed at 15.6^{0}C grew faster than those housed at 32.2^{0}C.
- Pig have seven pairs of teats.
- Average litter size at weaning is 3.0.

QUESTIONS

PART -A

1. No of needle teeth present in swine –
   A. 1 pairs B. 2 pairs
   C. 3 pairs D. 4 pairs

2. Which one of the following dental formula belong to pig –
   A. $\frac{1\,2\,4\,4}{1\,2\,4\,4}$ B. $\frac{0\,1\,3\,3}{4\,1\,3\,3}$
   C. $\frac{3\,1\,4\,3}{3\,1\,4\,3}$ D. $\frac{3\,1\,4\,3}{3\,0\,3\,3}$

3. Order of permanent incisors eruption in pig is as follows –
   A. I, II, III pairs
   B. III, II, I pairs
   C. II, III, I pairs
   D. III, I, II pairs

4. III, I and II permanent incisors will erupt at the age of –
   A. 3, 8, 10 months respectively
   B. 4, 10 , 12 months respectively
   C. 6, 12, 18 years respectively
   D. 8, 12, 18 months respectively

5. One of the identification of swine is most commonly done by –
   A. Tattooing
   B. Colouring
   C. Branding
   D. Notching

6. Suckling Anemia is commonly observed in pigs because –
   A. Sow's milk is deficit in Iron and Copper
   B. Fatty lever degenerative conditions
   C. Animals kept on cement floor
   D. All the above

7. Piglet born in the last is generally weak and is called –
   A. Thrush
   B. Weakner
   C. Orphan
   D. Runt

8. Main reason for the piglet mortality is –
   A. Deficiency of Iron and Copper
   B. Mastitis
   C. Less number of teats
   D. Sow stampede

9. Weaning of piglets is done at the age of –
   A. 10 days
   B. 56 days
   C. 36 days
   D. 95 days

10. Early weaning in pigs is generally done at the age of –
    A. 1 week
    B. 2 weeks
    C. 4 weeks
    D. 5 weeks

11. Which one of the following is not a domesticated Indian pig–
    A. Desi pig
    B. Ghori pig
    C. Ankamali pig
    D. Andman Island pig

12. Desi pigs are distributed in –
    A. Manipur, Assam and Sikkim
    B. Karnataka, T. N. and Maharashtra
    C. Andaman Island
    D. U. P., Bihar and M. P.

13. Characteristic features of Large White Yorkshire pig are –
    A. Entire body is white in colour
    B. Face dished, broad snout
    C. Erect ears
    D. All of the above

14. Characteristic features of Landrace breed are –
    A. White in colour with black spots
    B. Drooping ears
    C. Straight face
    D. All of the above

15. Characteristic feature of Berkshire breed is –
    A. Black in colour
    B. Dished face
    C. Erect ears
    D. All of the above

16. Hampshire is characterized by –
    A. White belt around chest including legs.
    B. Dished face
    C. Erect ears
    D. All of the above

17. One of the following breed is red in colour –
    A. Landrace
    B. Hampshire
    C. Yorkshire
    D. Duroc

18. Which exotic breed is commonly used in cross-breeding of pigs in North Eastern States –
    A. Landrace
    B. Hampshire
    C. Yorkshire
    D. Berkshire

19. Which breed of pig is commonly used for cross-breeding to improve the meat quality –
A. Landrace
B. Hampshire
C. Berkshire
D. Middle white Yorkshire

20. Duration of farrowing in case of sow is –
A. 8 hrs.
B. 6 hrs.
C. 5 hrs.
D. 2 hrs.

21. Placenta of sow should be expelled within –
A. 10 hrs.
B. 8 hrs.
C. 6 hrs.
D. 2 hrs.

22. Gestation period in pig is –
A. 225 days
B. 335 days
C. 151 days
D. 112 days

23. Duration of heat in sow –
A. 21 hrs.
B. 18 hrs.
C. 21 days
D. 3 days

24. Duration of oestrus cycle in sow –
A. 32 days
B. 18 days
C. 28 days
D. 21 days

25. Maximum piglet mortality is due to –
A. Agalactia
B. Low milk production
C. Mastitis
D. Stampede by sow

26. Piglet mortality by stampede can be prevented by –
A. Making slope floor
B. Making rough floor
C. Providing sufficient bedding
D. Constructing guard rails

27. Which one of the following methods is more efficient in preventing piglet's mortality –
A. Mesh floor
B. Mud floor
C. Rough floor
D. Farrowing crate

28. Which one of the methods of swine rearing is followed in rural area –
A. Indoor system
B. Outdoor system
C. Mixed farming
D. Scavenging

29. Main advantages of early weaning are –
A. Sows can be rebred early
B. Weight loss during lactation is less
C. Better disease control
D. All of the above

30. Main constraint in early weaning is –
A. Increase in cost of feeding
B. Needs excellent management
C. Needs excellent sanitation
D. All of the above

31. Critical temperature in new born pig is –
A. 10^0 C
B. 15^0 C
C. 20^0 C
D. 35^0 C

32. Adult male pig used for breeding is –
A. Mare
B. Buck
C. Boar
D. None

33. Place where individual pig is kept –
A. Sty
B. Byre
C. Stable
D. Pen

34. Piglets mortality by stampede can be prevented by –
A. Extra space
B. Creep area
C. Creep nutrition
D. Guard rails

35. Group of pigs is called –
A. Herd
B. Drove
C. Flock
D. Band

36. The area which can not be subjected to scientific study is–
A. Origin of pig and breed
B. Swine behavior
C. Care of litter
D. Myth on pigs

37. The highest live weight of mature adult has been reported in–
A. Large white Yorkshire B. Tamworth
C. Landrace D. Duroc

38. The most reliable method of early pregnancy diagnosis in swine is –
A. Vaginal biopsy
B. Ultrasonic Scanning
C. Palpation
D. Blood progesterone / Estrogen

39. The greatest (most important) advantage in raising pigs is–
A. Pigs require a little space
B. Pigs do not require a large capital investment
C. Pigs do not require specific crops
D. All of the above

40. The greatest (most important) drawback in raising pig is –
A. Meat is not universally liked
B. Pigs can cause pollution
C. Pigs are nuisance
D. Pigs are competitors of human food

41. The main (most important) characteristic of good ration is–
A Palatable
B. Economical
C. Readily available
D. Nutritionally balanced

42. Indicate one most important factor responsible for improvement of a breed–
A. Generation Interval
B. Choice of environment
C. Growth rate
D. Heritability

43. While casting a pig, a twitch is applied to –
A. Lower Jaw B. Upper Jaw
C. Left leg D. Tail

44. Continuous light –
A. has no effect on ovulation rate
B. induces ovulation
C. hasten puberty
D. decrease milk production

45. Continuous darkness tends to –
A. decrease milk production B. hasten puberty
C. cause blindness D. None

Match the following

	Age group Column A	**optimum temperatures Needed (°C) Comumn B**	
46.	Lactating sows	A	18
47.	Grower pigs	B	16
48.	New born piglet	C	24
49.	Nursing piglet (24 kg)	D	35

50. Optimum number of pens under one boar sty under one boar sty under one roof=
A. 24 B. 40
C. 35 D. 50

PART-B

MENTION TRUE OR FALSE

1. Expulsion of fetus will occur one after another from both horns.
2. A Poland China is black in colour with 6 white points.
3. The domestic pig has 38 somatic chromosomes.
4. While breeding, boar should be taken to sow sty.
5. Wallowing is must during summer to reduce heat stress in pigs.
6. Extra light is provided in the corner of the farrowing pen for warmth of piglets.

7. Creep feed is the fortified ration having high protein content, provided to piglets.
8. Creep aree is the place in farrowing pen where creep ration is kept, which is not accessible by sow.
9. Creep ration is offered after 2 weeks when milk production goes down.
10. The diet should be reduced and made more bulky and laxative a few days before farrowing.
11. Early weaning can be practiced when excellent management is followed.
12. Pigs weighing 10 – 15 kg are switched over to developer diet.
13. Pigs reaching 35 kg should be shifted to developer diet.
14. Pigs after 60 kg should be provided with finisher ration.
15. The bacon type of pigs is common in area where available feeds are dairy byproducts.
16. Sty is a dwelling space consisting of one or more pens for pigs.
17. Pen is a part of sty for housing single or group of pigs.
18. As per the ISI specification, the housing structure should be raised on the fairly raised well drained site not liable to flooding.
19. Hog cholera Vaccination should be done in pig.
20. Administration of Iron and Copper in pig is one of the important managemental practices in young ones.
21. Notching is indirect method of identification used in swine.
22. Best way to reduce thermal stress in pigs by providing Wallowing tanks.
23. Pig possess 10 -12 mammary system, each teat possess single orifice.

24. Number of animals in sick animal shed should be less than 5 % of total animal population.
25. Garbage obtained should be boiled before feeding to pigs.
26. Fermented products like bakery wastes can be fed to pigs without any problem.
27. Pigs are considered cleanest animal as they defecate in the corner of the pen.
28. In notching, one notch in lower, right ear indicates number one.
29. In notching, one notch in lower, left ear indicates number three.
30. In notching, one notch in upper, right ear indicates number 10.
31. In notching, one notch in upper, left indicates number 30.
32. In notching, one hole in the right ear indicates number 100.
33. Vaccination against swine fever is done on 45th day.
34. Cleaning of shed should be done daily.
35. Injection of inferone is done on 7th day.

Answer Key (Part-A)

Q.	A.	Q.	A.
1.	A	26.	D
2.	C	27.	D
3.	D	28.	B
4.	D	29.	A
5.	D	30.	D
6.	A	31.	D
7.	D	32.	C
8.	D	33.	A
9.	B	34.	D
10.	C	35.	B
11.	D	36.	D
12.	D	37.	A
13.	D	38.	B
14.	D	39.	D
15.	D	40.	A
16.	D	41.	D
17.	D	42.	D
18.	C	43.	B
19.	C	44.	A
20.	C	45.	B
21.	C	46.	B
22.	D	47.	A
23.	D	48.	D
24.	D	49.	C
25.	D	50.	A

ANSWER TO TRUE/FALSE (Part- B)

All are true except questions 5, 17, 26.

TEST SERIES - 1

(Based on memory of Uttranchal P.C.S..-2003)

1. Which of the following oil cakes has maximum protein?
   (a) Mustard cake (b) Sal seed cake
   (c) Cotton cake (d) Groundnut cake

2. What type of immunity is produced by vaccine?
   (a) Active (b) Passive
   (c) Artificial (d) Acquired

3. What does antiserum contain?
   (a) Antibodies (b) Antibiotics
   (c) Antigen (d) None of the above

4. Zebra-marking in the large intestine of cattle denotes
   (a) Rinder-pest (b) Brucellosis
   (c) Tuberculosis (d) Johne's disease

5. Ascoli's test is performed for the diagnosis of which particular disease in animals?
   (a) Tuberculosis (b) Anthrax
   (c) Black quarter (d) Rinder-pest

6. Improper dressing of navel cord in newly born calves may lead to development of which disease?
   (a) Pneumonia (b) Colitis
   (c) Nutritional scour (d) joint-ill

7. Indicate the disease of newly born calf among the following :
   (a) Osteomalacia (b) Hepatitis
   (c) White scour (d) Night blindness

8. Which is the causal organism of Black Quarter disease in cattle?
   (a) Bacillus subtilis
   (b) B.coli
   (c) Streptococcus lactis
   (d) None of the above

9. New castle disease is other name of which disease?
   (a) Coccidiosis (b) Fowl Pox
   (c) Fowl Cholera (d) Ranikhet disease

10. Indicate virus disease among the following :
   (a) Anthrax (b) Sterility
   (c) Cow pox (d) Acute mastitis

11. Which one is the bacterial disease among the following?
   (a) Rabies (b) Pyometra
   (c) Coccidiosis (d) Cattle Plague

12. Indicate the blood parasitic disease among the following:
   (a) Distemper (b) Surra
   (c) Ranikhet (d) Mastitis

13. Which breed of sheep is immune to Anthrax?
   (a) Merino (b) Gaddi
   (c) Rambouillet (d) Algerian

14. Which one of the following pairs is not correctly matched?
   (a) Haemorrhagic Septicaemia - Pasteurella
   (b) Black quarter - Coccidia
   (c) Foot and mouth - A.O.C
   (d) Mastitis - Staphylococcus

15. Penicillin is produced from
   (a) Fungi (b) Yeast
   (c) Mould (d) Algae

16. Haemophilia is the disease of
   (a) Brain (b) Liver
   (c) Kidney (d) Blood

17. The lowest grade cellular organization is exemplified by which of the following?
   (a) Farazoa (b) Protozoa
   (c) Mesozoa (d) Metazoa

18. KOFAL-KIT technique to detect cancer virus in birds has been developed by whom?
   (a) N.D.R.I (b) I.C.A.R
   (c) I.V.R.I (d) C.A.R.I

19. Which of the following statements is not correct?
   (a) Serum contains antibodies
   (b) Vaccine contains antigen
   (c) Blood contains red blood corpuscles
   (d) Plasma contains platelets

20. Which animal's milk has been found to contain anticancer and antitumour properties?
(a) Sheep (b) Camel
(c) Deer (d) Bitch

21. Mark the insecticide banned for use on animals for control of ectoparasites :
(a) B.H.C (b) Butox
(c) Melathion (d) Ivermectin

22. Name the disease in which case the carcass must be pitted with lime :
(a) Splenic fever (b) Pneumonia
(c) Tympanitis (d) Metritis

23. Which one of the following is responsible for undulant fever in man?
(a) Bacillus anthracis
(b) Brucella abortus
(c) Clostridium chauvoei
(d) Pasteurella multocida

24. Which one of the following disease of cattle is characterized by high fever and haemoglobinuria?
(a) Anaplasmosis (b) Babesiosis
(c) Pasteurellosis (d) Trypanosomiasis

25. Which one of the following organisms is responsible for producing wool sorter's disease in man?
(a) Brucella melitensis (b) Streptococcus
(c) Bacillus anthracis (d) Bacterium coli

26. When definite protection is acquired in case of active acquired immunity?
(a) 1-2 weeks (b) 2-4 weeks
(c) 4-6 weeks (d) 6-8 weeks

27. At what age Marek's disease commonly occurs in poultry birds?
(a) 2-5 weeks (b) 5-10 weeks
(c) 12-30 weeks (d) 40-50 weeks

28. In which disease of cattle vesicular lesions are found in mouth, hoof, skin and udder?
(a) Cow Pox (b) Rinder-pest
(c) Enteritis (d) Foot & Mouth

29. Which one of the following suffers from Ranikhet disease?
(a) Buffalo (b) Goat
(c) Poultry (d) Pig

30. Swine fever is a
(a) Viral disease (b) Bacterial disease
(c) Fungal disease (d) Parasitic disease

31. Match List I with List II and select the correct answer using the codes given below

List-I	List II
A. Pasteurella multocida	1. Swine Pox
B. Endoparasites	2. Anthelmintic
C. Virus	3. Haemorrhagic Septicaemia
D. Ectoparasites	4. Acaricides

Codes :

(a)	A	B	C	D
	4	1	3	2
(b)	A	B	C	D
	2	3	4	1
(c)	A	B	C	D
	3	2	1	4
(d)	A	B	C	D
	1	4	2	3

32. Mark the best place of insemination in artificial insemination :
(a) Vulva (b) Vagina
(c) Cervix (d) Oviduct

33. What should be the temperature of artificial vagina at the time of semen collection?
(a) 36°C (b) 45°C
(c) 42°C (d) 25°C

34. How much should be the totality of sperms at the time of insemination?
(a) Between 30-40 % (b) Between 60-80 %
(c) Between 40-55 % (d) Below 60 %

35. She-buffalo is
(a) Monoestrus (b) Diestrus
(c) Polyestrus (d) None of above

36. Persistent corpus luteum may lead to
(a) Abortion (b) Haemophilia
(c) Pyometra (d) Anoestrus

37. Which one of the following hormones is released from the hypothalamus?
(a) F.S.H (b) L.H.
(c) GnRH (d) A.C.T.H.

38. Which one of the following is the best for sterilization of rubber articles used in artificial insemination?
(a) 70 percent ethyl alcohol
(b) 20 percent ethyl alcohol
(c) Methyl alcohol
(d) Boiled water

39. Cystic ovary in female animal may lead to
(a) Nymphomania (b) Xerophthalmia
(c) Inguinal hernia (d) Mammitis

40. The thick mucoid discharge from the vagina for cow indicates the following.
(a) Pyometra (b) Heat cycle
(c) Mastitis (d) Vaginitis

41. How many cows a mature bull showed serve in one year?
(a) 100 (b) 200
(c) 300 (d) 400

42. During gametogenesis one primary spermatocyte gives rise to how many spermatids?
(a) 1 spermatid (b) 4 spermatids
(c) 8 spermatids (d) 16 spermatids

43. Which hormone is responsible for ovulation in females?
(a) F.S.H. (b) L.H.
(c) A.C.T.H. (d) Oxytocin

44. The sow's ova are ovulated how many hours after the start of oestrus?
(a) 8 (b) 12
(c) 24 (d) 36

45. Frozen embryos are stored in
(a) Water (b) Egg yolk citrate
(c) Ammonia (d) Liquid nitrogen

46. Which one of the following semen dilutor was developed at N.D.R.I. Karnal, for dilution of buffalo semen?
(a) Homogenized milk (b) Citric acid whey
(c) Egg yolk citrate (d) Egg yolk phosphate

47. Fertilization of ovum occurs in the following :
(a) Ovary (b) Uterus
(c) Oviduct (d) Infundibulum

48. For getting the advantage from male and female genotypes which practice should be adopted?
(a) Embryo transfer
(b) Artificial insemination
(c) Synchronization of estrus
(d) Natural mating

49. Which insemination will give best results?
(a) At the end of estrus
(b) Twelve hours after estrus
(c) Six hours after estrus
(d) At the beginning of estrus

50. Indicate the best method of semen collection from a bull.
(a) Sponge method
(b) Vaginal spoon method
(c) Artificial vaginal method
(d) None of the above

51. Indicate the best method of inseminating a cow.
(a) Hand in vagina method
(b) Vaginal spoon method
(c) Artificial vaginal method
(d) None of the above

52. What should be used for fumigation of animal sheds?
(a) Formalin (b) Phenol
(c) Lysol (d) Savlon

53. Which of the following sets of diseases that can be transmitted to man by consuming raw milk of animals?
(a) Cancer, T.B., Nephritis
(b) Leprosy, Abortion, dysentery
(c) T.B., Malta fever, Tetanus
(d) T.B., Sore throat, Typhoid

54. Which chemical is used in footbath at a dairy farm?
(a) Caustic soda (b) Copper sulphate
(c) Tincture Iodine (d) Savlon

55. The normal dilution of phenyle for disinfection of cattle barn is the following :
(a) 3- 5 % (b) 10- 20 %
(c) 0.1- 0.5 % (d) 1- 2 %

56. Which one of the following is more affected in cow by noise pollution?
(a) Respiratory process (b) Digestive process
(c) Blood circulation (d) Milk yield

57. The chief ingredients of mosquito repellent cream is derived from
(a) Petroleum jelly (b) Neem
(c) Tulsi (d) Dhatura

58. Sun's energy is produced by
(a) Burning of gases (b) Nuclear fission
(c) Ultra-violet rays (d) Nuclear fusion

59. Poultry litter is used for
(a) Flesh production (b) Manure production
(c) Egg production (d) None of the above

60. The fish meal in chick ration can be replaced with blood meal up to :
(a) 1-2 % (b) 3-5 %
(c) 8-10 % (d) None of the above

61. Domestic animal's sewage basically contains wastes from :
(a) Animal shed (b) Toilet water
(c) Kitchen waste (d) All of the above

62. In India buffalo contribution towards milk production is
(a) More than 50 % (b) More than 80 %
(c) More than 90 % (d) None of the above

63. What should be the minimum contribution of livestock in the total income of mixed farming?
(a) 10 % (b) 20 %
(c) 30 % (d) 40 %

64. When was the progeny-testing programme launched by the Govt. of India?
(a) First Five-Year Plan (b) Second Five-Year Plan
(c) Third Five-Year Plan (d) Fourth Five-Year Plan

65. What is the status of our country in regard to poultry farming in the world?
(a) First (b) Second
(c) Third (d) Fifth

66. How much money was allocated by Planning Commission for Agriculture Research and education during the Ninth Five-Year Plan
(a) Rs.2500 crores (b) Rs.10
(c) Rs.500 (d) Rs.1500

67. Indicate the cattle breed which has its origin in Uttar Pradesh.
(a) Panwar (b) Nagauri
(c) Rathi (d) Sahiwal

68. Rhode Island Red is an exotic breed of chicken which belongs to class :
(a) English (b) American
(c) Mediterranean (d) Asiatic

69. Which one of the following is home tract of Jamunapari Goat?
(a) Agra (b) Mathura
(c) Chakarnagar (d) Allahabad

70. Which one of the following breed of goat yields Pashmina?
(a) Chegu (b) Jamunapari
(c) Bikaneri (d) Barbari

71. Which one of the following breed of pig originated from Denmark?
(a) Tamworth
(b) Landrace
(c) Berkshire
(d) Large White Yorkshire

72. Indicate the number of sex-chromosomes in sheep.
(a) 19 pairs (b) 23 pairs
(c) 27 pairs (d) 30 pairs

73. Which one of the following crossings evolved Hissardale sheep?
(a) Merino Ram with Bikaneri Ewe
(b) Merino Ram with Gaddi Ewe
(c) Merino Ram with Marwari Ewe
(d) Merino Ram with Nellore Ewe

74. Which one of the following is due to the effect of lethal genetic factors?
(a) Alkaptonuria (b) Blue eyes
(c) Achondroplasia (d) Deafness

75. Indicate the purpose of crossing the Alpine bucks with Barbari goats to evolve the strains for
(a) High meat production
(b) High milk production
(c) High wool production
(d) High hide production

76. Mule is usually sterile due to
(a) Hybridization (b) Hermophroditism
(c) Prepotency (d) Impotency

77. Place of origin of Sahiwal cow is the following :
(a) Kathiawad (b) Jodhpur
(c) Alwar (d) Montgomri

78. Karan Swiss and Karan Fries breeds of crossbred cows were developed by
(a) C.A.R.I. (b) I.V.R.I.
(c) C.D.R.I. (d) N.D.R.I.

79. Which country has been successful in producing transgenic goat which could produce milk containing gene?
(a) China (b) U.S.A.
(c) Japan (d) India

80. Cattalo is an example of which one of the following breeding systems?
(a) Close breeding
(b) Line breeding
(c) Hybridization
(d) Out crossing

81. Cattle have diploid number of 30 pairs of chromosomes. How many chromosomes will be available in one gamete?
(a) 60 (b) 120
(c) 30 (d) 90

82. In which of the following organs microbial digestion occurs in ruminants?
(a) Rumen (b) Reticulum
(c) Omasum (d) Small intestine

83. An ideal calf starter ration contains
(a) 14 % D.C.P. (b) 16 % D.C.P.
(c) 18 % D.C.P. (d) 20 % D.C.P.

84. Deficiency of calcium in calves causes
(a) Osteomalacia (b) Rickets
(c) Pica (d) Anaemia

85. Wheat straw contains
(a) 20 % T.D.N. (b) 30 % T.D.N.
(c) 40 % T.D.N. (d) 50 % T.D.N.

86. Which one of the glands remains inactive during reinsalivation?
(a) Parotid (b) Sub maxillary
(c) Sublingual (d) Pineal

87. Nucleosidase is a
(a) Proteolytic enzyme (b) Amylolytic enzyme
(c) Lipolytic enzyme (d) None of above

88. Excess feeding of which vitamin may lead to development of cancer and rheumatoid arthritis in animals?
(a) Vitamin-A (b) Vitamin-D
(c) Vitamin-C (d) Vitamin-E

89. Which of the salt in mineral mixture of cow prevents goiter disease?
(a) Cobalt chloride (b) Ferrous sulphate
(c) Sodium chloride (d) Potassium iodide

90. Ptyalin is present in
(a) Gastric juice (b) Intestinal juice
(c) Pancreatic juice (d) None of the above

91. Which one of the following pairs is not correctly matched?
(a) Night blindness- Vitamin-A
(b) Infertility-Vitamin-E
(c) Rickets-Vitamin-D
(d) Perosis-Vitamin-C

92. Indicate chemical factor of digestion among the following :
(a) Deglutition
(b) Salivary secretion
(c) Enzymic digestion
(d) None of the above

93. Which one of the following is maximum in egg albumin?
(a) Mineral matter (b) Fat
(c) Carbohydrate (d) Protein

94. Which one of the following constituents is found in milk only but not in blood?
(a) Vitamin-K (b) Calcium
(c) Casein (d) Glucose

95. Which one among the following is an essential amino acid?
(a) Alanine (b) Arginine
(c) Glycine (d) Proline

96. Leaves of certain trees and shrubs are also fed to animals. These are known as
(a) Emergency fodder
(b) Leguminous fodder
(c) Non-leguminous fodder
(d) Silage

97. How much common salt must be fed daily to a lactating cow?
(a) 25-30 gm (b) 45-50 gm
(c) 75-80 gm (d) 95-100 gm

98. How much Kg of good quality green fodder per day will be enough for an adult cow?
(a) 5-15 kg (b) 20-30 kg
(c) 35-50 kg (d) 70-90 kg

99. The D.C.P. requirement for production of per Kg milk with 4 % fat will be
(a) 50 gm (b) 55 gm
(c) 65 gm (d) 45 gm

100. Which one of the following is the breakdown product of cellulose?
(a) Propionic acid
(b) Peptic acid
(c) Uric acid
(d) Citric acid

101. Which one of the following is stored in the liver of animals?
(a) Glucose (b) Glycogen
(c) Sugar (d) Lactose

102. What should be the colour of good hay?
(a) Light yellow (b) Yellow
(c) Brown (d) Green

103. Extra feeding of pregnant cow should be done after how many months of conception?
(a) 3 months (b) 6 months
(c) 8 months (d) 9 months

104. Pica is caused due to deficiency of
(a) Protein (b) Cystein
(c) Phosphorus (d) Iodine

105. Saliva of cattle is
(a) Acidic
(b) Alkaline
(c) Neutral
(d) None of above

106. What should be the moisture content of stored hay?
(a) 15 %
(b) 20 %
(c) 25 %
(d) 30 %

107. Which is the best method of hand milking in cows?
(a) Knuckling
(b) Stripping
(c) Fisting
(d) None of above

108. Peak yield of milk in lactating cow is seen during
(a) 8 – 10 weeks of lactation
(b) 16 – 18 weeks of lactation
(c) 14 – 28 weeks of lactation
(d) None of the above

109. Dew claws are absent in
(a) Horses
(b) Cows
(c) Bullocks
(d) Buffaloes

110. At what age cattle becomes full mouth?
(a) 4 years
(b) 5 years
(c) 6 years
(d) 7 years

111. Indicate the gestation period of goat.
(a) 130 days
(b) 140 days
(c) 150 days
(d) 160 days

112. What should be the normal body temperature of a hen?
(a) 107°C
(b) 101°C
(c) 98°C
(d) 102°C

113. Indicate the optimum calving interval in cows.
(a) 9 months
(b) 14 months
(c) 19 months
(d) 24 months

114. What amount of water is needed by a cow for each Kg of dry matter consumed?
(a) 1 Kg
(b) 2 Kg
(c) 3 Kg
(d) 4 Kg

115. Which of the following milk contains more micro-organisms?
(a) Fore milk
(b) Middle milk
(c) Last milk
(d) Strippings

116. Mark the heat period in buffalo.
(a) 2-8 hours
(b) 8-10 hours
(c) 12-34 hours
(d) 4 days

117. Which animal was domesticated first of all?
(a) Dog
(b) Horse
(c) Buffalo
(d) Cow

118. What should be the basis for selection of bull calves for breeding?
(a) Birth weight of male calf
(b) Body confirmation
(c) Dam's milk yield
(d) None of the above

119. Indicate the best time effect of Oxytocin for let down of milk in cows :
(a) 3-5 minutes
(b) 8-10 minutes
(c) 10-15 minutes
(d) 15-20 minutes

120. What is the correct time for dehorning in calf?
(a) At birth
(b) 7-14 days age
(c) 1-2 month age
(d) 1-2 age

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TEST SERIES - 2

(Based on memory of U.P.P.C.S..-2002)

1. Anti foaming agents are used in the treatment of which one of the following diseases :
(a) Impaction (b) Tympany
(c) Indigestion (d) Diarrohea

2. What does vaccine contains :
(a) Antigen (b) Antibody
(c) Agglutinin (d) Johnin

3. Thieleriasis is caused by :
(a) Virus (b) Protozoa
(c) Bacteria (d) Fungus

4. In which disease the rise of body temperature of animal is not observed :
(a) Trypanosomiasis
(b) Milk fever
(c) Haemorrhagic septicemia
(d) Anthrax

5. Haemoglobinuria in cattle is a symptom of which disease:
(a) Piroplasmosis
(b) Trypanosomiasis
(c) Tuberculosis
(d) Coccidiosis

6. Dollar spots is characteristics in the infection of :
   (a) Trypanosoma equiperdum
   (b) Trypanosoma equinum
   (c) Trypanosoma evansi
   (d) Trypanosoma brucei

7. In which disease the streak of haemorrhages on the fold of mucosa of rectum producing the zebra marking in cattle are observed :
   (a) Foot and mouth disease
   (b) Vesicular stomatitis
   (c) Rinderpest
   (d) Blue tongue

8. The causal organism of undulant fever in man is :
   (a) Salmonella paratyphi
   (b) Pasteurella multocida
   (c) Brucella melitensis
   (d) Bacillus anthracis

9. Name the first scientist who had undertaken successfully the artificial insemination in cattle and sheep :
   (a) E.I. Ivanoff
   (b) Hoffman
   (c) L. Spallanzani
   (d) A. V. Leeuwenhoek

10. In liquid nitrogen frozen semen is stored at :
   (a) -79°C (b) -165°C
   (c) -196°C (d) -210°C

11. The best site for deposition of semen in cattle is :
   (a) Vagina (b) Mid-cervix
   (c) Uterus (d) Uterine horn

12. The best time to inseminate cows during the estrous cycle is :
   (a) Start of estrous (b) Middle of estrous
   (c) End of estrous (d) None of the above

13. Hydrophobia in man is caused by the bite of :
   (a) Dog affected with distemper
   (b) Dog affected with Rabies
   (c) Dot affected with Parvo
   (d) Dog affected with parasite

14. The causal organism of fowl cholera :
   (a) Haemophilus gallinarum
   (b) Borreliota avium
   (c) Pasteurella aviseptica
   (d) None of the above

15. Antibodies are found in :
   (a) Cerebrospinal fluid (b) Seminal plasma
   (c) Serum (d) Rumen fluid

16. Pica disease is caused by the deficiency of :
   (a) Vitamin E (b) Cobalt
   (c) Phosphorus (d) Selenium

17. Eating raw egg may produce :
   (a) Indigestion (b) Hepatitis
   (c) Nephritis (d) Biotin deficiency

18. Improper dressing of Navel cord in newly born calves may lead to :
   (a) Colitis (b) White scour
   (c) Pneumonia (d) Joint ill

19. Which one is the most suitable medicine for the treatment of surra in animals :
(a) Berenil (b) Terramycin
(c) Penicillin (d) Ivermectin

20. What for astringent medicine are used in animals :
(a) For relief of pain
(b) For checking vomiting
(c) For increasing appetite
(d) For checking diarrhoea

21. Name the metabolic disease amongst the following :
(a) Milk fever (b) Diarrhoea
(c) Tympanitis (d) Rinderpest

22. Which one is the protozoan disease amongst the following :
(a) Actinomycosis
(b) Johne's disease
(c) Ascariasis
(d) Trypanosomiasis

23. Average pulse rate per minute in sheep :
(a) 60 (b) 80
(c) 100 (d) 120

24. Mark the name of the buffalo meat :
(a) Chevon (b) Mutton
(c) Buffen (d) Beef

25. World's first mammal cloned is :
(a) Goat (b) Sheep
(c) Bitch (d) Heifer

26. Microcytic anaemia is usually observed due to deficiency of :
(a) Riboflavin (b) Zinc
(c) Iodine (d) Iron

27. The button ulcer in the mucosa particularly of the colon are characteristic lesion of :
(a) Swine fever (b) Blue tongue
(c) Rinderpest (d) Scrapie

28. Immunity produced by antiserum is known as :
(a) Inherited (b) Acquired
(c) Passive (d) Active

29. Ascoli test is performed for the diagnosis of which particular disease :
(a) Tuberculosis (b) Anthrax
(c) Johne's disease (d) Surra disease

30. What should be the temperature of A.V. at the time of semen collection :
(a) 42°C (b) 38°C
(c) 45°C (d) 48°C

31. For how many hours a day the layer house should have light :
(a) 12 (b) 16
(c) 18 (d) 21

32. Name the place where fertilization of ovum take place in the fowl :
(a) Isthmus (b) Oviduct
(c) Magnum (d) Cloaca

33. Poultry bird starts laying eggs at the age of :
(a) 10 weeks (b) 20 weeks
(c) 26 weeks (d) 32 weeks

34. Which is the broiler type breed of poultry:
(a) Australorp (b) Rhode Island Red
(c) White Cornish (d) White leghorn

35. Which one of the following nutrients is maximum in egg albumen :
(a) Carbohydrate (b) Protein
(c) Mineral (d) Vitamin

36. Which is the ruminant amongst the animals listed below:
(a) Cattle (b) Elephant
(c) Horse (d) Zebra

37. The main source of energy in animals feed is :
(a) Carbohydrate (b) Fat
(c) Protein (d) Vitamin

38. Which of these forages has the highest protein constant:
(a) Jowar (b) Maize
(c) Sugarcane top (d) Berseem

39. The best crop for hay making is :
(a) Green maize
(b) Green bajra
(c) Green oat
(d) Green Berseem

40. Number of essential amino acid in poultry feeding :
(a) 5 (b) 11
(c) 15 (d) 20

41. Which feed has the highest energy content :
(a) Maize (b) Groundnut cake
(c) Cottonseed cake (d) Sal seed cake

42. Sowing season of berseem fodder is :
(a) Kharif (b) Zaid
(c) Any time (d) Rabi

43. The TDN content of wheat straw is :
(a) 30 % (b) 40 %
(c) 50 % (d) 60 %

44. Colostrum feeding to newly born calf is essential because it is rich in :
(a) Carbohydrates (b) Fatty acids
(c) Globulins (d) Vitamin-C

45. The TDN content of an ideal calf starter should be :
(a) 50 % (b) 60 %
(c) 70 % (d) 80 %

46. Sen and Ray feeding standard is based on:
(a) NRC standard (b) ARC standard
(c) Frap's standard (d) Morrison standard

47. Another name of animal starch is :
(a) Glycogen (b) Starch
(c) Dextrin (d) Maltose

48. Prominent and zigzag milk vein in buffalo is indicative of:
(a) Better milk production
(b) Better fat production
(c) Better growth
(d) Better reproduction

49. Yellow colour of cow milk is due to :
(a) Casein (b) Carotene
(c) Riboflavin (d) Lactose

50. The glycosides present in linseed are known as :
(a) Durrin (b) Linamarin
(c) Indol (d) Lactrile

51. Feed stuff containing more than 18 per cent crude fibre is called :
(a) Roughage (b) Concentrate
(c) Feed supplement (d) Mineral mixture

52. Gossypol is present in :
(a) Mustard cake (b) Groundnut cake
(c) Cottonseed (d) Linseed cake

53 Match column I with II and select the correct answer from the code given below :

Column I	**Column II**
A. Anjan grass	1. Medicago sativa
B. Lucerne	2. Trifolium alexandrium
C. Cowpea	3. Cenchrus ciliaris
D. Berseem	4. Vigna sinensis

Code:

	A	B	C	D
(a)	1	2	3	4
(b)	3	1	4	2
(c)	4	3	2	1
(d)	2	4	1	3

54. Indicate laxative feed amongst the following :
(a) Crushed maize (b) Crushed barley
(c) Crushed gram (d) Wheat bran

55. An ideal calf starter contains digestible crude protein content of :
(a) 14 per cent (b) 16 per cent
(c) 18 per cent (d) 20 per cent

56. Main components of bone are :
(a) Sodium and Selenium
(b) Calcium and Phosphorus
(c) Iron and Copper
(d) Iodine and Sulphur

57. Body fats are source of :
(a) Reserved energy
(b) Ready energy
(c) Tissue building basic material
(d) None of these

58. Which amongst the following trade is most profitable :
(a) Cattle farming
(b) Buffalo farming
(c) Goat farming
(d) Mixed farming

59. Livestock is very important in Indian agriculture, since animal provide
(a) Draught power (b) Manure
(c) Both (a) and (b) (d) None of these

60. From the following amino acids which group is essential for layer's ration of birds :
1. Lysine
2. Methionine
3. Cysteine
4. Tryptophan

(a) 1, 2 and 3 (b) 1, 2 and 4
(c) 2, 3 and 4 (d) 1, 3 and 4

61. Average body temperature of hen is :
(a) 107° F (b) 101° F
(c) 98° F (d) 102° F

62. Formation of glycogen from lactic acid in the liver is called :
(a) Krebs cycle (b) Cori cycle
(c) Glycolytic cycle (d) Urea cycle

63. Identify sugar present in bull semen :
(a) Sucrose (b) Lactose
(c) Arabinose (d) Fructose

64. HCN poisoning in animals is caused by ingestion of :
(a) Stunted growth of Jowar
(b) Fungi infected groundnut cake
(c) Wilted Lucerne grass
(d) A dead body infected with anthrax organism

65. Growers are allowed layer diet at the age of :
(a) 18 weeks (b) 20 weeks
(c) 22 weeks (d) 24 weeks

66. Contribution from agriculture and animal husbandry to GDP is :
(a) 21 per cent (b) 31 per cent
(c) 41 per cent (d) 51 per cent

67. Indian Grassland and Fodder Research Institute is situated at :
(a) Izatnagar (b) Karnal
(c) Avikanagar (d) Jhansi

68. Indicate the draught breed of Indian cattle :
(a) Sahiwal (b) Tharparkar
(c) Amrit Mahal (d) Gir

69. Buffalo having highest percentage of fat in milk :
(a) Murrah (b) Bhadawari
(c) Nili-Ravi (d) Tarai

70. The average gestation period of buffalo is :
(a) 290 days (b) 300 days
(c) 310 days (d) 320 days

71. The headquarter of National Dairy Development Board is located in which state :
(a) Gujarat (b) M.P.
(c) Haryana (d) U.P

72. A teaser bull is maintained to :
(a) Keep herd moving (b) Inseminate cow
(c) Detect heat (d) None of these

73. How many cross-bred adult cows can be reared on one acre of fertile and irrigated land :
(a) 12 (b) 9
(c) 6 (d) 3

74. What is correct sequence of the following operations used in cream separation :
1. Filtration
2. Straining
3. Separation
4. Clarification

Code:

(a)	2	1	4	3
(b)	1	2	3	4
(c)	4	3	2	1
(d)	1	4	2	3

75. The father of white revolution in India is:
(a) N.E. Borlaug
(b) M.S. Swaminathan
(c) D. Sundresan
(d) V. Kurien

76. How much should be the maximum acidity present in sweet curd :
(a) 0.50 %
(b) 0.75 %
(c) 1.00 %
(d) 1.50 %

77. Which compound is responsible for present flavour in Dahi :
(a) Citric acid
(b) Lactic acid
(c) Diacetyl
(d) Propionic acid

78. Rancid flavour in ghee is produced due to the action of:
(a) Lipase enzyme
(b) Rennin enzyme
(c) Catalase enzyme
(d) Protease enzyme

79. Which test should be used to determine the extent of bacterial contamination in milk :
(a) Alcohol test
(b) C.O.B. test
(c) Ethanol test
(d) Resazurin test

80. On an average, the energy value of 100 gms of buffalo milk is :
(a) 50 calories
(b) 60 calories
(c) 75 calories
(d) 100 calories

81. Which one of the following is the top milk producing state :
(a) U.P.
(b) Punjab
(c) M.P.
(d) Gujarat

82. Castrated sheep is known as :
(a) Steer
(b) Wether
(c) Hog
(d) Teaser

83. The breeding coefficient of a population after two generations of full sib mating will be :
(a) 12.5 %
(b) 25.0 %
(c) 37.5 %
(d) 50.0 %

84. Diploid number of chromosomes in cattle is :
(a) 46
(b) 54
(c) 60
(d) 78

85. Milk production of cattle is which type of character :
(a) Sex-linked
(b) Sex-influenced
(c) Sex-limited
(d) Sex-determined

86. Linkage was discovered by :
(a) Muller (b) Morgan
(c) Wright (d) Stadler

87. The most popular fine wool production sheep in the world is :
(a) Merino (b) Rambouillet
(c) Lincon (d) Southdown

88. Mehasana breed refers to which species of livestock :
(a) Pig (b) Cow
(c) Sheep (d) Buffalo

89. Hissardale is a breed of :
(a) Cow (b) Goat
(c) Swing (d) Sheep

90. Which is not the draft breed of cattle :
(a) Red Sindhi (b) Amrit Mahal
(c) Kangayam (d) Nagore

91. Which one of the following is related to Metritis :
(a) Inflammation of vulva
(b) Inflammation of ovary
(c) Inflammation of uterus
(d) Inflammation of fallopian tube

92. Saponified vaccine against Anthrax is named as :
(a) Sterne vaccine (b) Carbo zoo vaccine
(c) Both of the above (d) None of the above

93. Match column I with II and select the correct combination from the code given below :

Column I		Column II
A.	Bacterial disease	1. Pullorum disease
B.	Viral disease	2. Brooder Pneumonia
C.	Fungal disease	3. Nematodes
D.	Parasitic disease	4. Gumboro Disease

Code:

	A	B	C	D
(a)	2	1	3	4
(b)	3	2	4	1
(c)	1	4	2	3
(d)	4	3	1	2

94. Veterinary Council of India was established in :
(a) 1984 (b) 1980
(c) 1990 (d) 1995

95. True stomach in cattle is called :
(a) Rumen (b) Reticulum
(c) Omasum (d) Abomasum

96. Which part of small intestine is duodenum :
(a) First (b) Middle
(c) Last (d) None of the these

97. Which breed of goat is known as milk queen :
(a) Alpine (b) Jamunapari
(c) Saanen (d) Toggenburg

98. Which one of the following poultry disease is caused by a R.N.A. virus :
(a) Marek's disease
(b) Fowl pox disease
(c) Infectious bursal disease
(d) Infectious laryngo-tracheitis disease

99. Fentanyl is given in combination with Droperidol in the ratio of :
(a) 1 : 50 (b) 50 : 1
(c) 500 : 1 (d) 1 : 500

100. The circulating form of iron is known as :
(a) Ferritin (b) Transferrin
(c) Haeme (d) Ferric

101. Hypoglycemic agent other than insulin is :
(a) Sulphonamide (b) Tolbutamide
(c) Riboflavin (d) Metiamide

102. The condition of persistent corpus luteum in cow and buffalo can be corrected by which of the following drugs:
(a) Vitamin A (b) Diethyl stilbo-esterol
(c) Lutalyse (d) Gentamycin

103. Which one of the following breeds of poultry contain feather on shank :
(a) Leghorn (b) Kadaknath
(c) Cornish (d) Langshan

104. In which disease of swing petechial haemorrhage is found under renal capsule :
(a) Swine pox (b) Swine plague
(c) Swine fever (d) None of the above

105. The causal organism of scabies in animal is :
(a) Fungus (b) Mites
(c) Bacteria (d) Virus

106. What are antibodies :
(a) Plasma cell (b) Globulin molecule
(c) Modified antigen (d) Lymphocyte

107. Hog cholera is characterized by :
(a) Blister in buccal cavity
(b) Shooting diarrhoea
(c) Muscles tremouring
(d) Pneumonia

108. Colostrum coagulates on heating due to presence of :
(a) High fat (b) Glyceride
(c) High lactose (d) Albumen and globulin

109. Black-Quarter is caused by :
(a) Clostridium novyi (b) Clostridium chauvoei
(c) Clostridium sordelli (d) All of the above

110. Rabies is caused by :
(a) Rhabdo virus (b) Alpha virus
(c) Aphtho virus (d) None of these

111. Aphtho virus causes :
(a) Foot and mouth disease
(b) Black leg disease
(c) Black-quarter disease
(d) Rabies disease

112. Another name of Anthrax disease is :
(a) Splenic fever (b) Malignant fever
(c) Charbon (d) All of above

113. Who discovered the causative agent of foot and mouth disease:
(a) Loeffler and Frosch (b) Pasteur
(c) Edward Jenner (d) None of the above

114. Cornstalk disease in cattle is caused by:
(a) Bacteria (b) Virus
(c) Fungi (d) Protozoa

115. Newcastle disease is caused by :
(a) Paramyxo virus type-3 (b) Herpes virus
(c) Paramyxo virus type-1 (d) None of above

116. Which one of the following bacteria causes wool sorter's disease in humans working in wool processing units :
(a) E. coli (b) M. tuberculosis
(c) B. anthracis (d) Brucella abortus

117. Name the chemical substance released in animals to attract male and female during :
(a) Vitamins (b) Neutrons
(c) Enzyme (d) Pheromones

118. For getting the advantage of both male and female genotype which practice should be adopted :
(a) Natural mating
(b) Synchronization of oestrus
(c) Artificial insemination
(d) Embryo transfer

119. Droplet infection is seen in which disease :
(a) Marek's disease
(b) Fowl pox
(c) Synchronization of oestrus
(d) Foot and mouth disease

120. Steroid hormones are secreted by :
(a) Adrenal cortex (b) Gonads
(c) Both (a) and (b) (d) Thyroid

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TEST SERIES - 3

(Based on memory of Civil Services Exam./I.A.S.-2001)

1. Consider the following statements :
Feeding of colostrums to a newly born calf is beneficial as it
1. Acts slightly as a laxative
2. Is a source of iron and globulin
3. Is a source of higher amounts of vitamin A and B
4. Supplies more lactose for growth
Which of the above statements are correct?
(a) 1 and 2 (b) 1 and 3
(c) 1, 2 and 3 (d) 2, 3 and 4

2. When the milk is stored at refrigeration temperature, the casein fraction which dissociates from casein micelles is
(a) Alpha-casein (b) Beta-casein
(c) kappa-casein (d) gamma-casein

3. Bifidus factor is present in the milk of
(a) buffalo (b) cow
(c) goat (d) human

4. Consider the following species :
1. Sheep 2. Human
3. Cow 4. Buffalo
The correct sequence in ascending order in terms of percentage of fat content in the milk of these species is
(a) 2,3,4,1 (b) 3,4,2,1
(c) 2,3,1,4 (d) 1,2,3,4

5. Milk is subjected to 'charm' test for the detection of
(a) pyruvate content (b) enterotoxins
(c) urea (d) penicillin residues

6. Age gelation of UHT sterilized milk is primarily due to the residual action of
(a) Thermo-stable proteases (b) Thermo-stable lipases
(c) Alkaline phosphatase (d) Acidic phosphatase

7. If three drops of concentrated nitric acid is added to 3 ml of melted ghee and is kept in hot water, the colour becomes yellow. The test indicates that ghee is
(a) Pure
(b) Adulterated with wax
(c) Adulterated with tallow
(d) Adulterated with vegetable fat

8. Which of the following conditions cause acidity in freshly-drawn milk:
1. Dissolved carbon dioxide
2. Presence of lactic acid
3. Presence of phosphates and proteins
Select the correct answer from the codes given below :
(a) 1, 2 and 3 (b) 2 and 3
(c) 1 and 3 (d) 1 and 2

9. Which one of the following pairs is not correctly matched?
(a) HTST : Flow diversion valve
(b) Spray dryer : Milk distributor
(c) Ice cream freezer : Dasher assembly
(d) Cream separator : Bowl shell

10. The types of soils which are commonly found on dairy equipment surfaces include :
(a) Liquid milk films (b) Air-dried films
(c) Heat-precipitated films (d) All of the above

11. Match List I (Defects in Cheddar cheese) with List II (Causes) and select the correct answer using the codes given below in the Lists :

List-I	List II
A. Mottled colour	1. Excessive acidity
B. Rind rot	2. Uneven acid development
C. Hard	3. High fat content
D. Greasy	4. insufficient moisture

Codes :

(a)	A	B	C	D
	2	1	4	3
(b)	A	B	C	D
	1	2	3	4
(c)	A	B	C	D
	2	1	3	4
(d)	A	B	C	D
	1	2	4	3

12. Consider the following steps :
(a) Adding rennet
(b) Salting
(c) Cutting the curd
(d) Drainage
(e) Adding starter
The correct sequence of these steps in manufacture of surti cheese is
(a) 5,1,3,4,2 (b) 1,5,3,2,4
(c) 5,1,3,2,4 (d) 1,5,3,4,2

13. The term 'overrun' relates to
(a) Table butter and processed cheese
(b) Processed cheese and ice cream
(c) Table butter and ice cream
(d) Table butter, processed cheese and ice cream

14. Consider the following types of cheeses :
1. Ricotta 2. Swiss
3. Mysosot 4. Cottage
Which of the above are made from whey?
(a) 1 and 2 (b) 2 and 3
(c) 1 and 3 (d) 2 and 3

15. Which one of the following pressure/pressure-combinations is/are employed for homogenization of milk?
(a) 500 psi followed by 2500
(b) 2500 psi followed by 500 psi
(c) 2500 psi only
(d) 500 psi only

16. Consider the following statements :
During cream separation if the cream screw of the bow is turned inwards, the cream will have higher percentag of fat. This is due to
1. Lesser volume of cream following out
2. The centrifugal force is more at the centre
3. The centrifugal force is lower at the outlet
Which of the above are correct?
(a) 1, 2 and 3 (b) 1 and 2
(c) 1 and 3 (d) 2 and 3

17. Match List I (Defects) with List II (Causal organism) and select the correct answer using the codes give below in the Lists :

List-I

A. Buttons in S.C.M
B. Sweet curdling of boiled milk
C. Bloat in S.C.M
D. Fishiness in butter

कृपया रेषा मारुन
पुस्तक खराब करु नये.

List II

1. *Torulopsis lactis condensi*
2. *Pseudomonas spp.*
3. *Bacillus subtilis*
4. *Aspergillus repens*

Codes :

(a)	A	B	C	D
	4	3	1	2
(b)	A	B	C	D
	1	2	4	3
(c)	A	B	C	D
	3	4	1	2
(d)	A	B	C	D
	4	3	2	1

18. Consider the following lactic cultures :
1. *Lactobacillus bulgaricus*
2. *Streptococcus thermophilus*
3. *Lactococcus lactis*
4. *Leuconostoc spp.*
Which of the above are likely to be present in dahi prepared under household conditions?
(a) 1 and 2 (b) 3 and 4
(c) 2 and 4 (d) 1 and 4

19. Refrigerated raw milk may contain heat-resistant hydrolytic enzymes produced by:
(a) Mesophilic Gram-positive bacteria
(b) Thermoduric spore-formers
(c) Psychrotrophic Gram-negative bacteria
(d) Psychrotrophic Gram-positive bacteria

20. Milk contains the following constituents :
1. Minerals 2. Phospholipids
3. Enzymes 4. Vitamins

Which of the above are considered as minor constituents?

(a) 1, 2 and 3 (b) 1, 3 and 4
(c) 1, 2 and 4 (d) 2, 3 and 4

21. Consider the following statements :
Skim milk has a greenish blue tint because of
1. The riboflavin content of milk
2. The combination of calcium with casein
3. The absence of deflection of light by fat globules
Which of the above are correct?

(a) 1, 2 and 3 (b) 2 and 3
(c) 1 and 3 (d) 1 and 2

***Directions*:**

The following 15 (fifteen) items consist of two statements, one labelled as 'Assertion A' and the other labeled as 'Reason R'. You are to examine these two statements carefully and decide if the Assertion 'A' and the Reason 'R' are individually true and if so. Whether the Reason is a correct explanation of the Assertion, Select your answer to these items using the codes given below and mark your Answer Sheet accordingly.

Codes :

(a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is Not a correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

22. Assertion (A) : Increasing trend in population and production of livestock in Indian agriculture is observed.
Reason (R) : Livestock production enterprise

even with a small size component plays crucial role in maintaining the economic status of Indian farmers.

23. Assertion (A) : The genetic code is said to be non-overlapping.
Reason (R) : A particular Codon always codes for the same amino acid.

24. Assertion (A) : The fat percentage in milk of Holsten Freisian cows is comparatively lower than that of Haryana cows.
Reason (R) : Fat percentage is negatively associated with the milk yield.

25. Assertion (A) : A relatively high body-temperature in poultry indicates a high metabolic rate and heat-production in them
Reason (R) : Rapid growth and nutrient utilization in broilers demands a high calorific content in their rations.

26. Assertion (A) : Occurrence of high amounts of tannins in top feeds reduces their voluntary intake.
Reason (R) : High tannin content of top feeds depresses their digestion and interferes with protein absorption.

27. Assertion (A) : Loose housing system of dairy cow is compatible with modern system of milking.

Reason (R) : It comprises the system in which animals are kept loose in an open paddock or a pasture throughout the day except night and milking time.

28. Assertion (A) : Weak acidic drugs are absorbed in stomach.

Reason (R) : Weak acidic drugs are ionized at pH prevalent in stomach.

29. Assertion (A) : The egg is preserved for three to four weeks by immersing it in quicklime solution for 16 to 18 hours with common salt in it and dried.

Reason (R) : Lime water is alkaline and partially seals the shell pores with calcium carbonate.

30. Assertion (A) : Mad cow disease (Bovine Spongiform Encephalopathy) is a disease of adult cattle characterized by progressive degeneration of central nervous system.

Reason (R) : Ingestion of mutton infected with Scrapie is not advisable.

31. Assertion (A) : Contagious bovine pleuropneumonia is caused by *Mycoplasma mycoides* var *mycoides*.

Reason (R) : Contagious bovine pleuropneumonia is communicable to other species such as sheep and goats by inhalation.

32. Assertion (A) : Alpha-naphthylthiourea commonly used as rodenticide also affects livestock.

Reason (R) : The death in the animals occurs due to marked pleural and pericardial effusion and pulmonary oedema.

33. Assertion (A) : High level of maternal antibody is transferred to chicks from vaccinated hens.

Reason (R) : High level of maternal antibody interferes with true development of active immunity in chicks.

34. Assertion (A) : Antigen trap ELISA may be used to identify Salmonella.

Reason (R) : Organisms trapped by a surface associated monoclonal antibody specific for antigen and trapped organisms, are positively identified as Salmonella by second labelled antibody.

35. Assertion (A) : Acetazolamide is contraindicated in salicylate poisoning in dogs.

Reason (R) : Acetazolamide produces systemic acidosis.

36. Assertion (A) : 18:8 stainless steel is one of the most satisfactory metal for making dairy equipments.

Reason (R) : This type of steel is not corroded by brine and chlorine solutions.

37. In mixed farming different enterprises are combined on the basis of :
(a) Joint relationship
(b) Supplementary relationship
(c) Mutual relationship
(d) Complementary relationship

38. Our livestock economy can significantly be improved if :
(a) Old animals are slaughtered
(b) Requisite products processing units are established
(c) Unproductive animals are discarded
(d) Requisite capital is injected

39. Which one of the following figures represents contribution of livestock to the GDP of agriculture sector?
(a) 20 % (b) 26 %
(c) 36 % (d) 40 %

40. Which one of the following statements represents the relationship of man, domestic animals and plants
(a) Man has been evolved in the company of animals
(b) Animals have profound emotional and psychological influences of man
(c) The use of animals with appropriate genetic characteristics for studying human diseases, nutrition and other health-related problems is of paramount importance to human society.
(d) Domestic animals eat those items which man cannot eat and convert them into useful products for human consumption

41. Which one of the following agroclimatic zone of India has two-fifth of sheep population but contributes only one-fifth of the total wool production?

(a) Western-central region
(b) Eastern region
(c) Northern temperate region
(d) Southern region

42. Consider the following buffalo-milk producing countries:
1. Pakistan 2. China
3. India 4. Nepal
The correct sequence of these countries in the order of highest to lowest milk production is
(a) 1, 2, 3, 4 (b) 2, 1, 4, 3
(c) 3, 1, 2, 4 (d) 3, 2, 4, 1

43. Match list I (Mechanism of heat loss in summer) with List II (method) and select the correct answer using the codes given below the lists :

List-I
A. Conduction
B. Convection
C. Radiation
D. Evaporation

List II
1. Natural/Fan-driven air movement
2. Sweating, panting
3. Lying down on cool concrete
4. Reduced heat absorption due to light coat with glossy texture

Codes :

(a)	A	B	C	D
	3	1	4	2
(b)	A	B	C	D
	3	1	2	4
(c)	A	B	C	D
	1	3	4	2
(d)	A	B	C	D
	1	3	2	4

44. In which one of the following animal species, males are not heterogametic?
(a) Goat (b) Camel
(c) Equine (d) Poultry

45. Heritability estimate of 0.17±0.24 is indicative of
(a) large additive variance available in the population
(b) not only low but unreliable heritability estimate
(c) absence of environmental variation
(d) high genetic potential of the animals

46. Match List I (Hybrid) with List II (Crosses between) and select the correct answer using the codes given below the Lists :

List-I	List II
A. Cattalo	1. Cattle x Yak
B. Hinny	2. Jack x Mare
C. Mule	3. Stallion x Jennet
D. Pien niu	4. Cattle x Bison

Codes :

(a)	A	B	C	D
	1	3	2	4
(b)	A	B	C	D
	4	3	2	1
(c)	A	B	C	D
	3	1	4	2
(d)	A	B	C	D
	4	2	3	1

47. Match List I (breeds of poultry) with List II (origin/ Country) and select the correct answer using the codes given below the Lists :

List-I	List II
A. White Leghorn	1. USA
B. Rhode Island Red	2. Mediterranean

C. White Cornish	3. Asia
D. Aseel	4. Australia
	5. England

Codes :

(a)	A	B	C	D
	1	2	4	3
(b)	A	B	C	D
	4	1	5	2
(c)	A	B	C	D
	2	1	5	3
(d)	A	B	C	D
	2	3	4	5

48. Which one of the following indigenous goat-breeds population declined markedly and is on the verge of extinction, and thus needs immediate steps for conservation?
(a) Ganjam (b) Sirohi
(c) Black Bengal (d) Jamunapari

49. Which one of the following animals produces 'mohair'?
(a) Merino sheep (b) Chegu goat
(c) Angora goat (d) Angora rabbit

50. Consider the following processes :
1. Transcription
2. Translation
3. Transformation
The processes involved in protein synthesis are
(a) 2 and 3 (b) 1 and 2
(c) 1 and 3 (d) 1, 2 and 3

51. Match List I (Scientists) with List II (Contribution) and select the correct answer using the codes given below the Lists :

List-I

A. F. Jacob and S. Monod
B. M. McClintock
C. H. Temin and D. Baltimore
D. H. G. Khorana

List II

1. Operon concept of gene control
2. Reverse transcription
3. Artificial synthesis of messenger RNA with known nucleotide
4. Jumping gene concept

Codes :

(a)	A	B	C	D
	3	1	2	4
(b)	A	B	C	D
	1	4	2	3
(c)	A	B	C	D
	2	4	3	1
(d)	A	B	C	D
	1	2	4	3

52. Which one of the following enzymes is responsible for constructing new DNA strands ?
(a) DNA gyrase
(b) DNA ligase
(c) DNA polymerase
(d) DNA endonuclease

53. Consider the following phenomena :
1. Synthesis of gene
2. Resolving the structure of DNA
3. Transgenesis
4. Gene sequencing

The chronological order in which they took place is

(a) 1, 2, 3, 4 (b) 1, 3, 2, 4
(c) 2, 1, 3, 4 (d) 2, 3, 1, 4

54. Which one of the following is the most common and easy method of gene transfer in animals?
(a) Embryonal stem cell method
(b) Use of retroviruses as vectors
(c) *In-vitro* fertilization and embryo transfer method
(d) Microinjection method

55. Which one of the following techniques can be used for faster multiplication of germplasm of high producing animals?
(a) Progeny testing
(b) Multiple ovulation and embryo transfer
(c) Artificial insemination
(d) Multiple trait selection

56. 'Robertsonian Translocation' is a chromosomal aberration which involves
(a) inversion of parts of chromosomes
(b) alternation in number of chromosomes
(c) loss of chromosomes
(d) fusion of chromosomes

57. The most polymorphic locus is
(a) Tf locus (b) MHC locus
(c) Hb locus (d) Blood group B

58. Match List I (Food/Fodder) with List II (Category) and select the correct answer using the codes given below the Lists :

List-I	**List II**
A. *Trifolium alexandrinum*	1. High protein feed
B. Soyabean cake	2. High energy feed
C. Avena sativa	3. Legume feed
D. Grain sorghum	4. Non-legume feed

List-I

A. F. Jacob and S. Monod
B. M. McClintock
C. H. Temin and D. Baltimore
D. H. G. Khorana

List II

1. Operon concept of gene control
2. Reverse transcription
3. Artificial synthesis of messenger RNA with known nucleotide
4. Jumping gene concept

Codes :

	A	B	C	D
(a)	3	1	2	4
(b)	A	B	C	D
	1	4	2	3
(c)	A	B	C	D
	2	4	3	1
(d)	A	B	C	D
	1	2	4	3

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Codes :

(a)	A	B	C	D
	3	2	1	4
(b)	A	B	C	D
	2	3	4	1
(c)	A	B	C	D
	4	1	3	2
(d)	A	B	C	D
	3	1	4	2

59. Match List I (Feed) with List II (Antinutritive factor) and select the correct answer using the codes given below the Lists :

List-I	List II
A. Mahua cake	1. Mimosine
B. Mango seed kernel	2. Crysophanic acid
C. *Cassia tora* seed	3. Mowarine
D. *Leucaena leuciphola*	4. Tannin

Codes :

(a)	A	B	C	D
	3	2	1	4
(b)	A	B	C	D
	2	3	4	1
(c)	A	B	C	D
	4	1	3	2
(d)	A	B	C	D
	3	1	4	2

60. Raw soyabean seed is not suitable in chicken-diet because it contains
(a) Trypsin inhibitor and haemagglutinins
(b) High protein and trypsin inhibitor
(c) High protein and high fat
(d) High protein and haemagglutinins

61. Consider the following mineral elements:
1. Copper
2. Zinc
3. Iron
4. Manganese

The correct sequence of these elements in descending order in terms of dietary requirements (mg/kg in the feed) for chicken is
(a) 3,4,2,1 (b) 4,3,2,1
(c) 3,4,1,2 (d) 4,3,1,2

62. Which one of the following statements regarding vitamin folic acid is correct?
(a) Pigs and poultry can synthesize and absorb vitamin folic acid from the gut hence it is not dietary essential
(b) Pigs can synthesize vitamin folic acid but poultry cannot, hence it is dietary essential for poultry
(c) Poultry can synthesize vitamin folic acid, however pigs cannot synthesize hence it is dietary essential for pigs
(d) Pigs and poultry can synthesize vitamin folic acid and pigs can absorb enough vitamin from the gut but poultry cannot absorb it, hence it is dietary essential for poultry

63. Which of the following statements are true with regard to urea-feeding to bovine?
1. The amount of urea should not exceed 1 % of roughage ration.
2. Urea should not be more than 3 % of concentrate part of ration.
3. Urea should not exceed 0.5 g/kg of body weight of animals.

Codes :

(a)	A	B	C	D
	3	2	1	4
(b)	A	B	C	D
	2	3	4	1
(c)	A	B	C	D
	4	1	3	2
(d)	A	B	C	D
	3	1	4	2

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Codes :

(a)	A	B	C	D
	3	2	1	4
(b)	A	B	C	D
	2	3	4	1
(c)	A	B	C	D
	4	1	3	2
(d)	A	B	C	D
	3	1	4	2

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2. Urea should not be more than 3 % of concentrate part of ration.
3. Urea should not exceed 0.5 g/kg of body weight of animals.

4. Urea should not exceed one-third of total crude protein equivalent of ration.

Select the correct answer using the codes given below:

(a) 1, 2 and 3 (b) 2, 3 and 4
(c) 1, 2 and 4 (d) 3 and 4

64. Consider the following energy losses :

1. Urinary loss 2. Gaseous loss
3. Heat increment 4. Faecal loss

The correct sequence of these losses in descending order in ruminants is

(a) 3,4,2,1 (b) 4,3,2,1
(c) 4,3,1,2 (d) 2,1,4,3

65. Which one of the following pairs of organs and enzymes is not correctly matched?

(a) Pancreas : Trypsin, chymotrypsin
(b) Small intestine : Aminopeptidase, dipeptidase
(c) Stomach : Pepsin, rennin
(d) Mouth : Sucrase, maltase

66. Which one of the following figures is the calving interval of a crossbred cow whose lactation period is 320 days, service period is 60 days and dry period is 100 days?

(a) 160 days (b) 380 days
(c) 420 days (d) 480 days

67. In buffaloes, frequent mounting by teaser is generally observed

(a) During mid-heat period
(b) During early-heat period
(c) During late-heat period
(d) Throughout the heat period

68. How many calving boxes are required in a farm with 100 breedable buffalo, cows with an intercalving period

of 14 months in staggered breeding system?

(a) 4 (b) 8
(c) 12 (d) 16

69. Which one of the following is the correct reason for not using creosote as disinfectant in milking parlours?

(a) It is not effective
(b) It is costly
(c) Milk may absorb the odour
(d) It is inflammable

70. Which of the following expenses are included under non-recurring component of total cost of milk production?

1. Construction of cattle shed
2. Purchase of foundation stock
3. Purchase of concentrate
4. Purchase of semen doses

Select the correct answer using the codes given below :

Codes :

(a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 2, 3 and 4

71. Consider the following statements :

Cattle pedigree sheet includes

1. History of ancestors of a particular animal
2. Present performance of a particular animal
3. Future performance of a particular animal
4. Past performance of a particular animal

Which of the above statements are correct?

(a) 1, 2 and 3 (b) 2 and 3
(c) 1, 2 and 4 (d) 1, 3 and 4

72. Which one of the following is correct gradient in drains to be provided in cattle barn?

(a) 1 in 40 (b) 1 in 60
(c) 2 in 10 (d) 2 in 20

73. Methane gas generated by biogas plants can be used for
(a) Heating and lighting
(b) Lighting, heating and motive power
(c) Motive power and deep freezing of semen
(d) Deep freezing of semen and lighting

74. Which one of the following material is used to enhance biogas production in winter season?
(a) Wheat straw (b) Sorghum Stover
(c) Urea (d) Common salt

75. Consider the following statements regarding the effect of glycerol in cryorotection :
1. Glycerol checks the rise of electrolytes to a harmful level
2. Glycerol checks the crystallization of sperm cells.
3. Glycerol decreases the freezing point of diluent.
4. Glycerol prevents the mechanical damage of sperms.
Which of the above statements are correct?
(a) 1 and 2 (b) 2 and 3
(c) 1, 3 and 4 (d) 1 2 3 and 4

76. Which one of the following is the universal diluent for the preservation of bovine semen?
(a) Tris buffer (b) Milk diluent
(c) Sodium citrate buffer (d) IVT diluent

77. Which of the following reproductive disorders are curable with prostaglandin therapy in cattle?
1. Pyometra
2. Foetal mummification
3. Delayed uterine involution
4. Silent estrus

Select the correct answer from the codes given below:
(a) 2 and 3 (b) 3 and 4
(c) 2, 3 and 4 (d) 1, 2, 3 and 4

78. Leydig cells in the testes of bull produces
(a) Hyaluronidase
(b) Testosterone
(c) Interstitial cell stimulating hormone
(d) Androsterone

79. Consider the following components of an egg :
1. Shell
2. Shell membrane
3. Yolk
4. Albumen
5. Chalaza
The correct sequence of their production and arrangement in the female reproductive tract of bird is
(a) 1, 2, 3, 4, 5 (b) 3, 5, 4, 2, 1
(c) 3, 4, 2, 5, 1 (d) 4, 5, 2, 1, 3

80. Consider the following events :
1. Ovulation 2. Fertilization
3. Placentation 4. Implantation
5. Parturition
The correct sequence of these events in a mammalian reproductive cycle is
(a) 1, 2, 4, 3, 5 (b) 2, 1, 4, 3, 5
(c) 2, 1, 3, 4, 5 (d) 1, 4, 3, 2, 5

81. Which of the following diseases need utmost precaution while carrying out post-mortem?
1. Tetanus 2. Rabies
3. Paratuberculosis 4. Rinderpest
Select the correct answer from the codes given below:

Codes :

(a) 1 and 2 (b) 2 and 3
(c) 1, 3 and 4 (d) 1, 2 and 4

82. Match list I (Type) with List II (Characteristics) and select the correct answer using the codes given below the lists :

List-I

A. Scotch ham
B. Prosciutto ham
C. Westphalian ham
D. Country ham

List II

1. Dry, cured and not cooked, ready to eat
2. Cured but not smoked, nor cooked
3. Uncooked, smoked and berries
4. Cured, smoked and aged for 6 to 9 months

Codes :

(a)	A	B	C	D
	1	2	3	4
(b)	A	B	C	D
	2	1	4	3
(c)	A	B	C	D
	1	2	4	3
(d)	A	B	C	D
	2	1	3	4

83. Storage of sperm in cocks occurs in
(a) Testis (b) Epididymis
(c) Vas deferens (d) Ampulla

84. Match list I (Type of meat) with List II (Animals) and select the correct answer using the codes given below the lists :

List-I	List II
A. Beef	1. Deer
B. Carameat	2. Sheep
C. Mutton	3. Buffalo
D. Venison	4.Cattle

Codes :

(a)	A	B	C	D
	1	3	2	4
(b)	A	B	C	D
	2	4	3	1
(c)	A	B	C	D
	4	3	2	1
(d)	A	B	C	D
	4	3	1	2

85. Consider the following sausages :
1. Head cheese
2. Mettwurst
3. Mortadella
4. Bockwurst
5. Frankfurter

The sausages that are predominantly associated with pork by product include
(a) 1, 3, 4, and 5 (b) 1, 2, and 3
(c) 2, 3, and 5 (d) 3, 4, and 5

86. Infections myxomatosis is a disease of
(a) Rabbit (b) Horse
(c) Sheep (d) Pig

87. 'Hump sore' a chronic dermatitis of cattle, is caused by
(a) *Parafilaria bovicola*
(b) *Parafilaria multipapillosa*
(c) *Stephanofilaria zaheeri*
(d) *Stephanofilaria assamensis*

88. A high rise in body-temperature, along with lacrimation, nasal discharge and marked swelling of the superficial lymph nodes in crossbred calves are indicative of
(a) Babesiosis (b) Theileriosis
(c) Anaplasmosis (d) Trypanosomiasis

89. Death due to Anaplasmosis in cattle occurs because of
(a) Histotoxic anoxia (b) Anaemic anoxia
(c) Anoxic anoxia (d) Stagnant anoxia

90. Consider the following feeding levels :
1. High in calcium
2. High in protein
3. High in phosphorus
4. Low in calcium
Select the correct feed levels to prevent parturient paresis in dairy cow
(a) 1 and 2 (b) 1 and 3
(c) 2 and 4 (d) 3 and 4

91. Which one of the following is directly involved in production of Ketosis in ruminants?
(a) TCA cycle (b) Acetyl CoA
(c) Oxaloacetate (d) Ketogenic acid

92. Post-parturient haemoglobinuria, primarily a disease of high-yielding dairy cows is caused by deficiency of
(a) Calcium (b) Molybdenum
(c) Magnesium (d) Phosphorus

93. Stiff lamb disease occurs due to deficiency of
(a) Vitamin A (b) Pantothenic acid
(c) Vitamin E (d) Vitamin K

94. Anaemia in piglets of 2 to 3 weeks of age is generally developed due to
(a) Improper absorption of iron from the gut
(b) Deficiency of iron in mother's milk
(c) Deficiency of protein
(d) Deficiency of vitamin B_{12}

95. Match list I (Poisoning) with List II (therapy) and select the correct answer using the codes given below the lists:

List-I	List II
A. Bracken Fern	1.Thiamine
B. Sweet Clover	2. 5% Acetic acid
C. Urea	3. Vitamin K
D. Fluorine	4. Aluminium sulphate

Codes :

(a)	A	B	C	D
	1	3	2	4
(b)	A	B	C	D
	2	4	3	1
(c)	A	B	C	D
	3	1	2	4
(d)	A	B	C	D
	1	3	4	2

96. Match list I (Poisoning) with List II (Antidote/treatment) and select the correct answer using the codes given below the lists :

List-I	List II
A. Iron	1. Dimercaptol (B.A.L)
B. Antimony	2. Atropine sulphate
C. Iodine	3. Sodium Ca EDTA
D. Malathion	4. Starch and milk

Codes :

(a)	A	B	C	D
	3	1	2	4
(b)	A	B	C	D
	1	3	2	4
(c)	A	B	C	D
	3	1	4	2
(d)	A	B	C	D
	1	3	4	2

97. Which of the following are the most commonly used antidotes to HCN poisoning in animals?
1. British antilewisite
2. Sodium thiosulphate
3. Calcium versenate
4. Sodium nitrite

Select the correct answer from the codes given below:
(a) 1 and 2 (b) 2 and 3
(c) 2 and 4 (d) 3 and 4

98. Which one of the following prevents formation of methaemoglobin from haemoglobin in animals suffering from nitrite toxicity?
(a) Methylene blue
(b) Potassium ferrocyanide
(c) Benzoquinone
(d) Poluidine blue

99. A cow grazing on stunted crop in drought area suddenly develops rumen atony, bloat and dyspnea. The animal dies of asphyxia. The autopsy reveals a bright unclotted blood and a bitter almond like odour from the carcass. The mist likely diagnosis of toxicity would be
(a) Sodium nitrate rich (b) Ergot
(c) Amygdalin (d) Digitalis

100. A sheep accidentally ingests an agrochemical from polluted water in a farm and exhibits marked hypersecretion, excitement and bradycardia; followed by convulsions and muscular paralysis. The most suitable antidote in this case would be
(a) Sodium-Calcium edetate
(b) Ephedrine
(c) Atropine sulphate
(d) Sodium selenide

101. Consider the following proteins :
1. Serum albumin
2. Serum protein
3. Eye lens protein

Which of these proteins are involved in occurrence of auto-immune disease?
(a) 1, 2 and 3 (b) 1 and 2
(c) 2 and 3 (d) 1 and 3

102. Which one of the following sets of organs/tissues is commonly affected by the deposition of immune complexes?
(a) Synovia, kidneys, spleen
(b) Spleen, lungs, liver
(c) Synovia, muscle, skin
(d) Choroids plexus, glomeruli, synovia

103. Which one of the following contagious diseases of livestock is not notifiable disease under Diseases of Animal Act, 1994?
(a) Glanders and Farcy in equines
(b) Bovine contagious pleuropneumonia in cattle
(c) Brucellosis in cattle
(d) Foot and mouth disease in cattle

104. According to the livestock (Import) Quarantine Rules, 'diseased' means suffering from any
(a) Metabolic disease
(b) Deficiency disease
(c) Infectious or contagious disease
(d) Disease of uncertain etiology

105. Which one of the following is the best method for demonstration of *tubercle bacilli*?
(a) Giemsa staining
(b) Ziehl-Neelsen staining
(c) Negative staining
(d) Capsular staining

106. Visceral larva migrans is caused by ingestion of eggs of
(a) *Echinococcus granulosus*
(b) *Toxoplasma gondii*
(c) *Toxocara canis*
(d) *Dirofilaria immitis*

107. Which one of the following pairs is correctly matched?
(a) Cyclozoonosis : Sylvatic yellow fever
(b) Metazoonosis : Histoplasmosis
(c) Direct zoonosis : Rabies
(d) Saprozoonosis : Hydatidosis

108. Which one of the following zoonotic diseases was reported in the year 2000 from Mumbai region?
(a) Babesiosis (b) Leptospirosis
(c) Listeriosis (d) Anaplasmosis

109. Which one of the following toxins is known to be the most potent one?

(a) Endotoxin of *Salmonella typhi*
(b) Enterotoxin of *Escherichia coli*
(c) Shiga toxin of *Shigella dysenteriae*
(d) Neurotoxin of *Clostridium botulinum*

110. Consider the following diseases :
1. Bang's disease
2. Scarlet fever
3. Anthrax
Milk-borne diseases would include
(a) 1 and 3 (b) 2 and 3
(c) 1, 2 and 3 (d) 1 and 2

111. Consider the following tests :
1. Rabbit ligated illeal loop test
2. Tissue culture assay
3. Latex particle agglutination test
4. Suckling mouse test
The tests used for the identification of heat labile toxin of *E. coli* would include
(a) 1, 2 and 3 (b) 1, 2 and 4
(c) 2, 3 and 4 (d) 1, 3 and 4

112. Match list I (Condition) with List II (Diseases) and select the correct answer using the codes given below the lists:
List-I
A. Working in hair and wool industry
B. Working in tannery industry
C. Working in slaughter house
D. Handling of eggs in poultry farm
List II
1. Brucellosis
2. Pulmonary anthrax
3. Salmonellosis
4. Mange

Codes :

(a)	A	B	C	D
	4	2	1	3
(b)	A	B	C	D
	2	4	1	3
(c)	A	B	C	D
	4	2	3	1
(d)	A	B	C	D
	2	4	3	1

113. Which one of the following pairs of poisoning and symptoms is not correctly matched?
(a) Lead : Blue line on gums, anaemia, pain in muscle and joints
(b) Mercury : Stomatitis, salivation, foetid breath, loosening of the teeth
(c) Phosphorus : Bronchospasm, weakness of chest, anaemia, breathlessness
(d) Arsenic : Oedema of eyelid, vomiting, diarrhea, anaemia

114. All of the following are included as euthanising agents except
(a) ammonia (b) barbiturates
(c) carbon dioxide (d) nitrogen

115. Which one of the following agents is selectively deposited in bone ?
(a) Nitrite (b) Alpha naphthyl thiourea
(c) Lead (d) Cyanide

116. Ecchymotic haemorrhages in the mucosa of natural orifices and subcutaneous tissue indicate poisoning due to

(a) Lantana camara
(b) Andrographis paniculata
(c) Sorghum indicum
(d) Abrus precatorius

117. Which one of the following drugs to treat digitalis induced cardiac arrhythmias in dogs ?
(a) Quinidine (b) Diphenyl hydantoin
(c) Procainamide (d) EDTA

118. Fentanyl citrate can be detected from the urine of race horses by
(a) Colorimetry
(b) Fluoro-immune assay
(c) UV spectroscopy
(d) Radio-immune assay

119. Match list I (Methods of euthanasia) with List II (site of action) and select the correct answer using the codes given below the lists :

List-I

A. Electrocution (current through brain)
B. Gunshot or captive
C. Barbiturates
D. Nitrogen inhalation

List II

1. Reduced partial pressure of oxygen
2. Spastic paralysis of respiratory muscles and fibrillation of heart
3. Direct depression of brain; death from hypoxia
4. Direct concussion of brain
5. Direct depression of cerebral cortex; respiratory and cardiovascular failure

Codes :

(a)	A	B	C	D
	4	2	1	3
(b)	A	B	C	D
	2	4	1	3
(c)	A	B	C	D
	4	2	3	1
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5. Direct depression of cerebral cortex; respiratory and cardiovascular failure

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(b)	A	B	C	D
	4	2	3	1
(c)	A	B	C	D
	3	4	5	1
(d)	A	B	C	D
	1	4	5	2

120. The sedative and muscle relaxant action of Detomidine is based on the activation of
(a) Pre-junctional α_2 receptors
(b) Post- junctional α_2 receptors
(c) Post- junctional α_1 receptors
(d) Post- junctional α_2 receptors

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TEST SERIES - 4

(Based on memory of U.P.P.C.S. Exam.-2001)

1. The colour of good silage should be :
(a) Green (b) Red
(c) Brown (d) Light brown

2. Which one of the following should not be fed urea :
(a) Bull (b) Cow
(c) Heifer (d) Newly born calf

3. How much metabolic water is obtained by the oxidation of 1 gm glucose :
(a) 0.60 gm (b) 0.56 gm
(c) 0.77 gm (d) 0.42 gm

4. Which one is an essential amino acid among the following :
(a) Alanine (b) Proline
(c) Arginine (d) Glycine

5. What should be the dry matter in fodder stored as 'Hay'
(a) 82 % (b) 70 %
(c) 70 % (d) 60 %

6. The other name of the Ketosis disease is :
(a) Uremia (b) Actemia
(c) Acetonemia (d) Ketourea

7. Which part of the stomach of ruminant resembles true stomach :
(a) Rumen (b) Reticulum
(c) Omasum (d) Abomasum

8. Bottle Jaw condition in cattle is symptom of :
(a) Fascioliasis (b) Ascariasis
(c) Amphistomiasis (d) Piroplasmosis

9. Which one among the following is a protozoan disease:
(a) Fowl Pox (b) Coccidiosis
(c) Ascariasis (d) Fowl cholera

10. A boar gives how much semen per ejaculate :
(a) 75-125 ml (b) 150-175 ml
(c) 200-250 ml (d) 300-325 ml

11. Hormone Androgen is synthesized in which gland :
(a) Ovary (b) Testicles
(c) Pituitary gland (d) Thyroid gland

12. Meat is poor source of :
(a) Protein (b) Calcium
(c) Iron (d) Fat

13. 'Hold up' of milk by the cow is caused by :
(a) Oxytocin (b) Renin
(c) Progesterone (d) Adrenalin

14. The calf should be dehorned at which age:
(a) At birth (b) 15th day
(c) After one month (d) After two months

15. The pathogenic bacteria may be present in :
(a) Clean milk (b) Safe milk
(c) Pasteurized milk (d) Boiled milk

16. The increase in size of udder between two milkings is :
(a) 2 times (b) 1½ times
(c) 3/4 times (d) 1/3 times

17. Wether is the castrated animal of :
(a) Cattle family (b) Buffalo family
(c) Sheep family (d) Goat family

18. Consider the following events in calving:
1. Expulsion of foetus
2. Breaking of allanto-chorion
3. Expulsion of placenta
4. Breaking of umbilical cord
The correct sequence of these events is :
(a) 1, 2, 4, 3 (b) 1, 4, 2, 3
(c) 2, 3, 1, 4 (d) 2, 1, 4, 3

19. Extra feeding of pregnant cow should be done after :
(a) 6 months (b) 3 months
(c) 1 months (d) 20 months

20. The age at first calving of a crossbred heifer is :
(a) 20-24 months
(b) 24-30 months
(c) 36-40 months
(d) 3-4 years

21. What is the minimum limit of income contributed by livestock in mixed farming :
(a) 5 % (b) 10 %
(c) 15 % (d) 20 %

22. Indicate optimum environmental temperature under which chicken perform normally :
(a) 65-80°F (b) 80-58°F
(c) 85-90°F (d) 90-95°F

23. Maximum yield from a lactating cow is obtained at the age of :
(a) 3-4 years (b) 5-6 years
(c) 7-8 years (d) 9-10 years

24. What will be the probable date of kidding when a goat is successfully mated on April 16 :
(a) September 13th
(b) September 30th
(c) October 13th
(d) October 30th

25. Width of a double byre tail to tail system for keeping the cows is :
(a) 10 meter (b) 11.5 meter
(c) 12.5 meter (d) 15.4 meter

26. Operation Flood Programme III was started in India during :
(a) 1981 (b) 1985
(c) 1990 (d) 1995

27. Which one is the best method for controlling ectoparasites in sheep :
(a) Dipping (b) Hand spray
(c) Smearing (d) Spraying

28. Which one is the most important livestock record for selection of a dairy cow :
(a) Artificial insemination record :
(b) Health record
(c) Daily milk yield record
(d) Fertility record

29. Paddock area for animal should be :
(a) Equal to shed are
(b) Double of the shed area
(c) Three times of the shed area
(d) No relation between shed and paddock area

30. Which one of the following breeds of poultry is of Indian origin :
(a) Cochin (b) Leghorn
(c) Langshan (d) Kadaknath

31. Which one of the following is a breed of sheep :
(a) Nili (b) Nali
(c) Murrah (d) Bhadawari

32. By the use of which hormone super ovulation can be achieved in cows and buffaloes during oestrus :
(a) Gonadotrophin
(b) Adrenalin
(c) Progesterone
(d) Oxytocin

33. Mutation was first discovered by :
(a) Wright (1791) (b) Muller (1972)
(c) Devries (1900) (d) Stadler (1928)

34. In which breed of buffalo the dewlap and udder are well developed :
(a) Murrah (b) Nili
(c) Bhadawari (d) Jafarabadi

35. The term 'Gene' was coined by :
(a) Johannsen (1909) (b) Morgan (1910)
(c) Mendal (1866) (d) Jenner (1990)

36. Home place of Saanen goat is :
(a) France (b) Switzerland
(c) England (d) Africa

37. The constituent found in milk but not in blood is :
(a) Globulin (b) Glucose
(c) Minerals (d) Lactose

38. Faeces is a good source of :
(a) Yeast (b) Coli form bacteria
(c) Lipolytic bacteria (d) Chromogenic bacteria

39. What is fat percentage in whipping cream :
(a) 20-25 (b) 30-40
(c) 40-50 (d) Above 50 %

40. Direct microscopic count is not suitable for :
(a) Raw milk (b) Clean milk
(c) Pasteurized milk (d) Bactofuged milk

41. The specific gravity of solid not fat of milk is :
(a) 1.00 (b) 1.04
(c) 1.2 (d) 1.6

42. 100 gm. Average Buffalo milk furnishes energy value :
(a) 50 calories (b) 75 calories
(c) 100 calories (d) 200 calories

43. Name the most common disease transmitted to human through cow's milk:
(a) Small pox (b) Malaria
(c) Milk fever (d) Tuberculosis

44. Fat is found in milk in which of the following forms :
(a) Emulsion (b) Colloidal
(c) Solution (d) Partial solution

45. How much chhana is obtained from 1 kg of milk :
(a) 100 g (b) 150 g
(c) 200 g (d) 250 g

46. Which one among the following organisms present in milk is responsible for production of undulant fever in man :
(a) Salmonella typhosa
(b) Salmonella dublin
(c) Clostridium welchii
(d) Brucella abortus

47. Identify the sugar present in milk :
(a) Sucrose (b) Lactose
(c) Mannose (d) Fructose

48. Which one of the following fat is of low iodine number:
(a) Lard (b) Tallow
(c) Soybean oil (d) Butter

49. The optimum temperature for the growth of thermoduric bacteria is :
(a) 20°C (b) 37°C
(c) 45°C (d) 55°C

50. Which one of the following diseases is caused by environmental dust :
(a) Anthrax (b) Ascariasis
(c) Hay fever (d) Rinderpest

51. Curled toe paralysis in chicken is due to deficiency of :
(a) Vitamin 'A' (b) Vitamin 'B2'
(c) Vitamin 'B12' (d) Vitamin 'E'

52. Cells producing male hormones are :
(a) Seminal vesicle (b) Seminiferous tubules
(c) Interstitial cells (d) Spermatic cord

53. Indicate best time for insemination a cow during oestrus cycle :
(a) Start of the oestrus
(b) End of oestrus
(c) Middle of oestrus
(d) Six hours after the end of oestrus

54. In Bang's disease of cattle abortion usually takes place during :
(a) 2nd month (b) 4th month
(c) 6th month (d) 8th month

55. Gall bladder is absent in :
(a) Dog (b) Sheep
(c) Horse (d) Buffalo

56. Underdeveloped ovary is the cause of which type of sterility :
(a) Acquired (b) Congenital
(c) Hormonal (d) Nutritional

57. Vaccination against corona virus is given in :
(a) Cattle (b) Swine
(c) Cats (d) Dogs

58. Alkali disease in animals is caused by :
(a) Selenium toxicity
(b) Fluoride deficiency
(c) Selenium deficiency
(d) Molybdenum toxicity

59. Freezed semen is stored in :
(a) Water
(b) Ammonia
(c) Liquid nitrogen
(d) Egg yolk citrate solution

60. Drug used for doping horses is :
(a) Oxytetracycline
(b) Theobromine
(c) Gentamycin
(d) Ampicillin

61. Milk fever is caused by :
(a) Deficiency of calcium
(b) High temperature due to bacterial infection
(c) Viral infection
(d) Parasitic infestation

62. Frozen embryo is stored in liquid nitrogen at a temperature of :
(a) -79°C
(b) -150°C
(c) -196°C
(d) -200°C

63. Presence of Negri bodies in the brain of dog indicates the disease :
(a) Distemper
(b) Rabies
(c) Parvo
(d) Leptospirosis

64. Recognize the disease caused by parasites :
(a) Pneumonia
(b) Pox disease
(c) Foot and mouth disease
(d) Piroplasmosis

65. The incubation period for natural infection in foot and mouth disease is :
(a) 2-5 days
(b) 7-10 days
(c) 12-15 days
(d) 20-25 days

66. In which part of the reproductive system yolk of chicken egg is formed :
(a) Infundibulum
(b) Magnum
(c) Ovary
(d) Uterus

67. Which one of the following is acute rapidly spreading respiratory and nervous disease of poultry :
(a) Fowl cholera
(b) Fowl pox
(c) Marek's disease
(d) Ranikhet disease

68. The bacteria Clostridium chauvoei causes which of the following disease in cattle :
(a) Black Quarter
(b) Mastitis
(c) Anthrax
(d) Johne's disease

69. The diameter of Fowl Pox virus is :
(a) 50 nm
(b) 150 nm
(c) 250 nm
(d) 350 nm

70. Dystokia in animals indicates :
(a) Difficulty in respiration
(b) Difficulty in parturition
(c) Udder infection
(d) Vaginal infection

71. Mark the oestrus cycle of a healthy cow :
(a) 21 days
(b) 18 days
(c) 28 days
(d) 30 days

72. Which medicine will you recommend for treatment of tympanitis in cattle :
(a) Carminative
(b) Astringent
(c) Antizymotic
(d) Purgative

73. Which of the following is an antifungal medicine :
(a) Rifampicin
(b) Penicillin
(c) Tetracycline
(d) Amphotericin

74. Which of the following diseases is transmitted by the tick Margaropus annulatus in cattle :
(a) Trypanosomiasis
(b) Babesiosis
(c) Brucellosis
(d) Pasteurellosis

75. At what age Marek's disease most commonly affects chicken :
(a) 1 day to 6 weeks
(b) 6-12 weeks
(c) 12-24 weeks
(d) 24-30 weeks

76. Indicate the main symptoms of Parvo infection in canines:
(a) H.G.E. with quick dehydration
(b) Pustules over abdomen with high temperature
(c) Convulsions with epileptic fats
(d) Vomiting with eating grass

77. The first dose of Rabies Vaccine should be given to dog at the age of :
(a) One year (b) 6½ months
(c) 9½ months (d) 3½ months

78. Thick creamy discharge from vagina of cow is indicative of :
(a) Metritis (b) Pyometra
(c) Vaginitis (d) Mastitis

79. Colostrum feeding in calves is essential for :
(a) Natural passive immunity
(b) Active immunity
(c) Artificial passive immunity
(d) None of these

80. Subnormal body temperature of a freshly-calved cow is indicative of :
(a) Anaemia (b) Parturient Paresis
(c) Heart failure (d) Pericarditis

81. Name the institute which has devised technique for detection of cancer virus in birds :
(a) Indian Veterinary Research Institute
(b) National Dairy Research Institute
(c) Central Drug Research Institute
(d) Central Avian Research Institute

82. Name of the soluble protein present in blood which is essential for blood coagulation :
(a) Fibrinogen (b) Casein
(c) Albumin (d) Globulin

83. Which one of the following bacteria causes Wool sorter's disease in man :
(a) Pasteurella multocida (b) Bacillus anthracis
(c) Clostridium chauvoei (d) Brucella abortus

84. Name the kit used of the detecting Avian leucosis virus in birds :
(a) Poultry kit (b) Ascoli kit
(c) Hansa kit (d) Cofal kit

85. Which organization provides best training to dogs for crucial services to the nation :
(a) R.P.F. (b) I.V.R.I
(c) B.S.F. (d) R.V.F.C

86. In which process of heating milk, it is heated to 135-150°C for fraction of a second followed by aseptic packaging :
(a) Pasteurization
(b) Uperization
(c) Ultra high temperature pasteurization
(d) Sterilization

87. Spleen is enlarged enormously in :
(a) Anthrax (b) Mastitis
(c) H.S. (d) T.B.

88. Gumboro is the disease of :
(a) Cattle (b) Buffalo
(c) Sheep (d) Chicken

89. The speed of bactofugator bowl or Bactofugation of milk is:
(a) 20000 rpm (b) 12000 rpm
(c) 2100 rpm (d) 1100 rpm

90. Which one is the best method of semen collection among the following :
(a) Fistula method (b) A.V. method
(c) Vaginal spoon method (d) Massage method

91. Stifle joint is formed between :
(a) Scapula and Humerus
(b) Femur and Tibia
(c) Tibia and Fibula
(d) Radius and Ulna

92. Glucagon hormone is secreted from :
(a) Anterior pituitary (b) Thyroid gland
(c) Pancreas (d) Adrenal gland

93. Pessaries are meant for insertion in :
(a) Vagina (b) Rectum
(c) Mouth (d) Nose

94. Organic type of poison in livestock is :
(a) Chlorinated hydrocarbons
(b) Lead
(c) Strychnine
(d) Prussic acid

95. Which one of the following poultry disease is caused by an RNA virus :
(a) Marek's disease
(b) Fowl pox
(c) Infections bursal disease
(d) Infections laryngotracheitis

96. Taylor's iodine reduction test is used for the diagnosis of which particular disease:
(a) Swine erysipelas (b) Vesicular exanthema
(c) Swine fever (d) Swine pox

97. In the treatment of cystic ovary we use:
(a) Prostaglandins (b) LTH
(c) Estrogens (d) LH

98. Rosolic acid test is performed in dairy industry to test the presence of :
(a) Vegetable fat (b) High acidity
(c) Alkaline neutralizer (d) High bacterial count

99. The best method for drying up a high lactating cow is to:
(a) Stop milking (b) Stop feeding
(c) Stop watering (d) Alternate milking

100. Match column I with column II and select the correct answer with the help of codes given below :

Column-I	**Column-II**
A. Jaffarabadi	1. Rohatak
B. Mehsana	2. Kathiawar
C. Murrah	3. Baroda
D. Nili	4. Firozepore

Code :

	A	B	C	D
(a)	4	3	2	1
(b)	3	2	1	4
(c)	2	3	4	1
(d)	2	3	1	4

101. Domestic buffalo has
(a) 48 chromosomes (b) 78 chromosomes
(c) 56 chromosomes (d) 66 chromosomes

102. Average pH of cow bull semen is :
(a) 4.5 (b) 6.1
(c) 6.7 (d) 7.5

103. If selection of bull is made on the basis of performance of his female relatives, it is called :
(a) Family selection
(b) Selection index
(c) Sib selection
(d) Sire index

104. Which one of the following character is least affected in poultry birds by inbreeding :
(a) Body weight (b) Egg production
(c) Hatchability (d) Mortality rate

105. Which one of the following characters is sex linked :
(a) Albinism (b) Diabetes
(c) Haemophilia (d) Night blindness

106. What is the meaning of meiosis :
(a) Change in chromosomes
(b) Duplication of chromosomes
(c) Exchange of chromosomes
(d) Reduction of chromosomes

107. What is XX/XY condition in cattle known as :
(a) Hermaphrodite (b) White heifer disease
(c) Crossing over (d) Freemartinism

108. Name the breed of goat found in the eastern region of the country :
(a) Ganjam (b) Angora
(c) Barbari (d) Jamunapari

109. Egg production is a :
(a) Sex linked trait
(b) Sex influenced trait
(c) Sex limited trait
(d) All of these

110. Which breed of buffalo possess copper coloured skin :
(a) Murrah (b) Jafarabadi
(c) Mehasana (d) Bhadawari

111. Name the place of origin of Jamunapari goat :
(a) Chakarnagar (b) Aligarh
(c) Saharanpur (d) Bhind

112. Kherigarh cattle belongs to which state :
(a) Bihar (b) Uttar Pradesh
(c) Rajasthan (d) Uttaranchal

113. Zebroid is the result of :
(a) Grading up (b) Hybridization
(c) Crossbreeding (d) Out crossing

114. Which breed of bullock is famous for 'Sawai chal' :
(a) Haryana (b) Kankrej
(c) Amrit Mahal (d) Kherigarh

115. The most popular breed of sheep for the production of fine wool in the world is :
(a) Rambouillet (b) Southdown
(c) Merino (d) Lincoln

116. Where pulse rate is recorded in sheep
(a) Maxillary artery (b) Coccygeal artery
(c) Digital artery (d) Femoral artery

117. In a properly managed dairy farm the ratio of milking to dry cow should be :
(a) 2 : 1 (b) 1 : 1
(c) 3:1 (d) 5:1

118. Indicate the disease of newly born calves related with the infection of umbilical cord :
(a) Nephritis (b) Joint-ill
(c) Arthritis (d) Rickets

119. In animal grooming is done for :
(a) For better milk production :
(b) For better blood circulation
(c) For better respiration
(d) For better digestion

120.

List-I	List II
A. Anthelmintic	1. Rohatak
B. Virus	2. Ectoparasites
C. Salmonella	3. Endoparasites
D. Acaricides	4. Gastroenteritis

Code :

	A	B	C	D
(a)	1	2	3	4
(b)	4	3	2	1
(c)	2	4	1	3
(d)	3	1	4	2

*****

TEST SERIES -5

(Based on memory of U.P.U.D.A./L.D.A. Exam.-2001)

1. The contribution of animal husbandry to national income in India is :
(a) 7 % (b) 9 %
(c) 11 % (d) 15 %

2. Upper limit of income to be contributed by live-stock in a mixed farming is :
(a) 29 % (b) 39 %
(c) 49 % (d) 59 %

3. Domesticated species of buffalo is :
(a) Bubalus domesticus
(b) Bubalus arni
(c) Bubalus riverine
(d) Bubalus buffalo

4. Proposed outlay for animal husbandry and dairying activities in 9th plan is :
(a) 552 crores (b) 1965 crores
(c) 2005 crores (d) 2838 crores

5. At what age the nose ring should be put in the nose of the bull:
(a) Before 6 months (b) 8 to 12 months
(c) 1 to 2 years (d) Above 2 years

6. Indicate optimum environmental temperature under which chicken perform normally :
(a) 65-80°F (b) 80-85°F
(c) 85-90°F (d) 90-95°F

7. Maximum milk yield from a cow is obtained when she attains the age of :
(a) 9-10 years (b) 7-8 years
(c) 5-6 years (d) 3-4 years

8. In cows the peak milk yield reaches in how many days after calving :
(a) 150 days (b) 90 days
(c) 15 days (d) 45 days

9. What will be the probable date of kidding when a goat is successfully served on April 16th :
(a) September 13th (b) September 30th
(c) October 13th (d) October 30th

10. Width of a double byre tail to tail system is :
(a) 10 meters (b) 11.5 meters
(c) 12.5 meters (d) 15.4 meters

11. The recommended light hours for laying birds is :
(a) 10-12 hours (b) 18-20 hours
(c) 14-16 hours (d) 22-24 hours

12. Desirable increase in live-weight of pregnant Zebu cow during last 60 days of gestation is :
(a) 10-15 kg (b) 20-30 kg
(c) 40-60 kg (d) 60-80 kg

13. Which one is the best method for controlling ectoparsites in sheep :
(a) Spraying
(b) Smearing
(c) Hand spray
(d) Dipping

14. Consider the following statements which are associated with loose housing system:
I. It is not suitable housing system
II. It is cheaper, to construct easier, to expand and flexible in utility and can accommodate at least 10-15 per cent more live-stock than the prescribed standards
III. It is very convenient for managing large herds
Of these statements:
(a) I, II and III are correct
(b) II and III are correct
(c) I and III are correct
(d) I and II are correct

15. The dung obtained per day from a bull is:
(a) 10 kg (b) 15 kg
(c) 20 kg (d) 30 kg

16. Which one of the following is most important live-stock record for selection of a cow :
(a) Artificial insemination record
(b) Health record
(c) Fertility record
(d) Daily yield record

17. In which one group of the following five states milk

availability per capita per day is above 220 g as recommended by ICMR :

(a) Punjab, Haryana, H.P., Rajasthan and Gujarat
(b) Delhi, U.P., Bihar, W.B. and Tamil Nadu
(c) Orissa, A.P., Karnataka, Kerala and Pondicherry
(d) M.P., Maharashtra, Assam, Meghalaya and Nagaland

18. What is a "drop bunch" :
(a) Crop of lamb of same age
(b) All lamb born is one day
(c) Group of ewe likely to lamb tonight
(d) Group of ewe breed one day

19. Which one of the following breeds of poultry is of Indian origin :
(a) Cochin (b) Leghorn
(c) Lang Shan (d) Kadaknath

20. Which breed's bullocks are famous for trotting speed :
(a) Burgur (b) Kankrej
(c) Amrit Mahal (d) Haryana

21. The volume of semen obtained per ejaculation of buck is:
(a) 2.5 cc (b) 2.0 cc
(c) 1.5 cc (d) 0.7 cc

22. Which one of the following breeds resembles 'GIR' breed :
(a) Sindhi (b) Deoni
(c) Haryana (d) Sahiwal

23. By the use of which hormone super ovulation can be achieved in cows and buffaloes during oestrus :
(a) Gonadotrophin (b) Adrenaline
(c) Progesterone (d) Oxytocin

24. Mutation was first discovered by :
(a) Wright (1791) (b) Muller (1927)
(c) De Varies (1900) (d) Stadler (1928)

25. In which of the following breeds of buffaloes the dewlap and udder are well developed :
(a) Murrah (b) Nili
(c) Bhadawari (d) Jafarabadi

26. Leghorn breed of poultry is :
(a) Asiatic (b) English
(c) Mediterranean (d) American

27. The best and only basis for selecting the young untried bull is :
(a) Type and conformation (b) Pedigree
(c) Disposition (d) Breed

28. Mendel's laws were overlooked for over:
(a) 34 years (b) 16 years
(c) 20 years (d) 40 years

29. To improve Indian buffaloes the right policy of breeding is:
(a) Selective breeding (b) Inbreeding
(c) Cross breeding (d) Hybridization

30. Which one of the following goat breeds yield Pashmina:
(a) Saanen (b) Black Bengal
(c) Beetal (d) Chegu

31. Which one is the breed of pig among the following :
(a) New Hampshire (b) Yorkshire
(c) Hissardale (d) Lincoln

32. When mating of distantly-related animals is done within the same pure breed, the method is called :
(a) Cross-breeding (b) Hybridization
(c) Line breeding (d) Close-breeding

33. Mule is the example of which of the following breeding systems :
(a) Grading up (b) Hybridization
(c) Out crossing (d) Crossing of inbred lines

34. Which one of the following semen diluters was developed at N.D.R.I., Karnal for dilution of buffalo semen :
(a) Egg yolk phosphate (b) Egg yolk citrate
(c) Homogenized milk (d) Citric acid whey

35. Math list I with II and select the correct answer using the codes given below the lists :

List I

(Name of Scientists)

A. Charles Darwin
B. T.H. Morgan
C. H.J. Muller
D. De Varies

List II

(Important contribution)

1. Law of heredity
2. Estimation of frequency of mutant gene
3. Linkage
4. Theory of evolution

Code:

	A	B	C	D
(a)	4	3	2	1
(b)	3	2	1	4
(c)	2	1	4	3
(d)	1	4	3	2

36. The colour of good silage should be :
(a) Green (b) Red
(c) Brown (d) Light Brown

37. In which of the following, crude fibre is digested in rumen :
(a) Cow (b) Horse
(c) Poultry (d) Pig

38. Which one of the following animals should not be fed urea :
(a) Bull
(b) Cow
(c) Heifer
(d) Newly born calves of cow

39. Which one of the following is most essential vitamin in the diet for Indian Zebu :
(a) Vitamin E (b) Vitamin A
(c) Vitamin B_2 (d) Vitamin D

40. Which one of the following cakes is fed to buffaloes to make the ghee granular white :
(a) Mustard cake (b) Groundnut cake
(c) Cottonseed cake (d) Linseed cake

41. Cobalt is the element of which vitamin :
(a) B_1 (b) B_2
(c) B_6 (d) B_{12}

42. How much metabolic water is obtained by the oxidation of 1 gram of glucose :
(a) 0.60 g (b) 0.56 g
(c) 0.77 g (d) 0.42 g

43. Calcium and phosphorus ration suitable for farm animals other than poultry is :
(a) 1 : 3 (b) 2 : 1
(c) 1 : 2 (d) 3 : 1

44. In which of the following conditions nitrogen balance will be positive :
(a) Fasting (b) High fever
(c) Growth (d) Prolonged illness

45. The percentage amount of every nutrient in any feed, which is actually digested inside the body is known as :
(a) Digestion trial (b) Digestion coefficient
(c) Metabolic trial (d) Metabolizable energy

46. Vitamin B_{12} is called :
(a) Thiamine (b) Riboflavin
(c) Cobalamin (d) Cynocobalamin

47. If mustard cake sample contained 5% nitrogen, then its crude protein content should be :
(a) 11.25 % (b) 21.25 %
(c) 31.25 % (d) 41.05 %

48. N.F.E. of the feed contains :
(a) Soluble carbohydrates
(b) Digestible protein
(c) Digestible fat
(d) Digestible crude fibre

49. The pH of Abomasum is in the range of :
(a) 1.0-1.3 (b) 2.0-3.0
(c) 3.0-4.0 (d) 4.0-5.0

50. Leaves of certain trees and shrubs are also fed to the animals. These are placed in which of the following groups of fodder :
(a) Leguminous fodder
(b) Non leguminous fodder
(c) Silage
(d) Emergency fodder

51. Which one of the following salts in mineral mixture prevents goitre in cow :
(a) Cobalt chloride (b) Iron sulphate
(c) Potassium iodide (d) Sodium chloride

52. Optimum moisture content in fodder for silage making should be :
(a) 61-70 % (b) 51-60 %
(c) 41-50 % (d) 31-40 %

53. HCN in sorghum is found at the crop stage of :
(a) 10-15 cm high plants
(b) Knee high stage
(c) Flowering stage
(d) Seed formation stage

54. When green fodder is preserved in succulent form, the method of preservation is known as :
(a) Ensiling (b) Artificial drying
(c) Storage (d) Hay making

55. D.C.P. found in wheat bran is :
(a) 6 % (b) 10 %
(c) 14 % (d) 20 %

56. The maximum moisture content in fodder stored as hay should be :
(a) 18 % (b) 25 %
(c) 30 % (d) 35 %

57. When cow has salvation, sore on feet, tongue and inside mouth, stamping of feet, lameness, off feed and drop in production, the cow will be suffering from which one of the following disease :
(a) H.S. (b) Black quarter
(c) Foot and mouth (d) Cow-pox

58. Certain calves suffer from severe diarrhoea with light coloured foul smelling water or foamy faeces and many calves are affected at a time and some die quickly. Indicate the name of the disease among the following :
(a) Rinderpest (b) Johnes disease
(c) Bloat (d) Calf scours

59. In a poultry farm 10 week old chicks are showing symptoms of leg weakness and paralysis with sudden death. Based on these symptoms which may be the disease among the following :
(a) Blue comb (b) Marek's disease
(c) A.L.C. (d) Blackhead

60. Ketosis is also called :
(a) Acetonemia (b) Uremia
(c) Actemia (d) Keto urea

61. Thick colourless discharge from vagina cow indicates :
(a) Pyometra (b) Heat cycle
(c) Mastitis (d) Vaginitis

62. Match column I with column II and select the correct answer with the help of code given below the column :

Column I
A. Infectious disease
B. Contagious disease
C. Parasitic disease
D. Deficiency disease

Column II
1. Due to nutritional deficiencies
2. Due to internal parasites
3. Due to specific organisms
4. Transmitted from one animal to another

Code:

	A	B	C	D
(a)	1	3	4	2
(b)	2	1	3	4
(c)	3	4	2	1
(d)	4	2	1	3

63. Body temperature of cow suffering from milk fever is :
(a) 100° F or less (b) 104° F
(c) 107° F (d) 110° F

64. Generally calves should be vaccinated at the age of :
(a) 1 to 2 months (b) 4 to 6 months
(c) 1 to 2 years (d) 1 to 2 years

65. Which one of the following is immune to Anthrax :
(a) Sahiwal cow
(b) Murrah buffalo
(c) Man
(d) Algerian breed of sheep

66. When a disease spreads in large area, simultaneously in a large number of animals then this disease is called :
(a) Sporadic (b) Exotic
(c) Epizootic (d) Enzootic

67. Which is the most widely used vaccine against Marek's disease :
(a) R-2 B strain vaccine
(b) Herpes virus of turkey
(c) Tissue culture vaccine
(d) Freeze dried vaccine

68. What is the cause of Haemorrhagic Septicaemia is cattle:
(a) Mycobacterium
(b) Pasteurella multocida
(c) Bacillus anthracis
(d) Actinobacillus lingnietresii

69. Bottle jaw condition in cattle is the symptom of which one of the following disease :
(a) Fascioliasis (b) Ascariasis
(c) Amphistomiasis (d) None of the above

70. Which one of the following diseases is a protozoan disease:
(a) Fowl pox (b) Ascariasis
(c) Fowl cholera (d) Coccidiosis

71. On a pig farm certain animals show fever, loss of appetite, constipation, diarrhoea and skin over belly shows dark red colour. Based on these symptoms which may be the disease among the following :
(a) Hog cholera
(b) Infectious dysentery
(c) Seine plague
(d) Swine erysipelas

72. If an animal is suffering from thin faeces mixed with mucous and blood or blood clots and faeces is of marked colour. Name the type of disease he is having among the following :
(a) Anthrax (b) Coccidiosis
(c) Babesiosis (d) Trypanosomiasis

73. In a poultry farm birds are showing the symptom of sneeze and difficult breathings. Some birds walk in circles or backwards. Which may be the disease among the following:
(a) Infectious coryza (b) Bronchitis
(c) New castle (d) C.R.D

74. How much semen is discharged by a boar per ejaculation:
(a) 75-125 ml (b) 150-175 ml
(c) 300-325 ml (d) 200-250 ml

75. Hormone androgen is synthesized in which gland :
(a) Ovary (b) Testicles
(c) Pituitary gland (d) Thyroid gland

76. Which hormone is responsible for ovulation :
(a) L.H. (b) F.S.H.
(c) Oxytocin (d) A.C.T.H.

77. When a semen diluter contains Glycine, distilled water and egg yolk, then it is known as :
(a) Egg yolk phosphate
(b) Egg yolk citrate
(c) Egg yolk glycine
(d) Milk diluter

78. Meat is a poor source of :
(a) Iron (b) Protein
(c) Calcium (d) Fat

79. Holding up of milk by a female is caused by :
(a) Oxytocin (b) Rennin
(c) Progesterone (d) Adrenalin

80. Which drug is used for doping race horses :
(a) Testosterone (b) Growth hormone
(c) Cocaine (d) Reserpine

81. Negri bodies are found in which disease :
(a) Rinderpest
(b) Food and mouth disease
(c) Enterotoxaemia
(d) Rabies

82. Spleen is enlarged enormously in :
(a) Anthrax
(b) Mastitis
(c) Haemorrhagic Septicaemia
(d) Tuberculosis

83. Gumboro is the disease of :
(a) Cattle (b) Chicken
(c) Buffalo (d) Sheep

84. Which disease of cattle is characterized by high fever and haemoglobinuria :
(a) Anaplasmosis (b) Trypanosomiasis
(c) Babesiosis (d) Pasteurellosis

85. What is the positive titre for blood serum-agglutination test for contagious abortion disease of cattle :
(a) 1 in 25 (b) 1 in 50
(c) 1 in 75 (d) 1 in 100

86. A cow feels uneasiness when milked, udder is swollen, hot and painful in acute cases and milk with clots or even blood clots. Name the disease on the basis of these symptoms :
(a) Mastitis disease (b) Johne's disease
(c) Cow-pox disease (d) Foot and mouth disease

87. Select the medicine for treatment of ketosis :
(a) Boric acid
(b) Sodium propionate
(c) Sodium bicarbonate
(d) Sodium chloride

88. Organic poison for live-stock is :
(a) Chlorinate hydrocarbons
(b) Lead
(c) Strychnine
(d) Prussic acid

89. The cause of post parturient paresis in cow is :
(a) Deficiency of folic acid
(b) Deficiency of cyanocobalamin
(c) Deficiency of calcium in bones
(d) Deficiency of calcium in blood

90. Undulant fever/Malta fever/Bang's disease are the different names given to :
(a) Brucellosis
(b) Coxiellosis
(c) Leptospirosis
(d) Taeniasis

91. Use of demulcent drugs is useful in :
(a) Strychnine poisoning
(b) Urea poisoning
(c) Arsenic poisoning
(d) All the above

92. Temperature and time required for pasteurizing milk in

H.T.S.T. method is :
(a) 72°C for 15 seconds
(b) 63°C for 30 minutes
(c) 150°C for less than one second
(d) 118°C for 20 minutes

93. According to PFA rules minimum standards for fat and S.N.F. prescribed for buffalo milk in U.P. are :
(a) 3.0% fat and 8.5% S.N.F.
(b) 4.5% fat and 8.5% S.N.F.
(c) 6.0% fat and 9.0% S.N.F.
(d) 1.5% fat and 9.0% S.N.F.

94. Fat is found in milk in which of the following forms :
(a) Colloidal (b) Solution
(c) Partial solution (d) Emulsion

95. Operation Flood Scheme to collect and sell the milk and to increase milk production, constituting milk cooperative societies on Anand pattern was launched by N.D.D.B. in :
(a) 1970 (b) 1977
(c) 1979 (d) 1952

96. Milk fat is more in which portion of the milk drawn from udder :
(a) Fore milk (b) Last milk
(c) Middle milk (d) Mixed milk

97. Total water content of cow milk is :
(a) 67% (b) 78%
(c) 87% (d) 97%

by milker. Which one of following micro-organisms is responsible for undulant fever in human being :
(a) Salmonella typhosa
(b) Salmonella dublin
(c) Brucella abortus
(d) Clostridium welchii

108. Approximately how much protein is obtained from cow milk:
(a) 10.0 g (b) 12.0 g
(c) 17.5 g (d) 19.5 g

109. á-s casein is what type of milk protein among the followings :
(a) Calcium sensitive casein
(b) Calcium insensitive casein
(c) Fraction of â casein
(d) Fraction of ã casein

110. Which one of the following bacteria produces diacetyl flavour :
(a) S. lactis
(b) S. diacetilactis
(c) B. lequefaciens
(d) P. fluorescence

111. Identify the sugar present in milk :
(a) Fructose (b) Sucrose
(c) Lactose (d) Mannose

112. Which one of the following is a fat with low iodine number :
(a) Lard (b) Tallow
(c) Soybean oil (d) Butter

113. The optimum temperature for the growth of thermoduric bacteria is :
(a) 37°C (b) 20°C
(c) 45°C (d) 55°C

114. Khoa is which type of milk product among the following:
(a) Dried milk product
(b) Concentrated milk product
(c) Fermented milk product
(d) Coagulated milk product

115. What type of adulteration is detected by Hansa test :
(a) Adulteration of water in milk
(b) Adulteration of vanaspati in ghee
(c) Adulteration of cow milk in buffalo milk
(d) Adulteration of starch in milk

116. If raw milk contains less than 2 lac/ml. bacterial content, it will be placed in which grade :
(a) Poor (b) Fair
(c) Good (d) Very good

117. In a chilling unit for which particular purpose milk is chilled and stored at 5°C :
(a) To check the growth of micro-organisms
(b) To kill all micro-organisms
(c) To remove the micro-organisms
(d) To reduce the number of micro-organisms

118. In which method of ghee making three layers of contents are formed before final clarification :
(a) Cream method
(b) Creamery butter method

(c) Prestratification method
(d) Indigenous method

119 Developed acidity in milk is due to :
(a) Citric acid (b) Lactic acid
(c) Casein (d) Citrates and phosphates

120. On an average how lactose is present in mother's milk :
(a) 3.5 per cent (b) 4.5 per cent
(c) 5.8 per cent (d) 6.8 per cent

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कृपया रेषा मारुन
पुस्तक खराब करु नये.

TEST SERIES - 6

(Based on memory of U.P.P.C.S..-2000)

1. Contribution of milk as leading agricultural produce to G.N.P. of India in the end of 1998 was :
(a) 6 % (b) 7 %
(c) 8 % (d) 9 %

2. Native place of prestigious Jamunapari goat is :
(a) Jalesar (Etah)
(b) Sadabad (Mathura)
(c) Chakarnagar (Etawah)
(d) Etmadpur (Agra)

3. National Research Centre for equines is located at :
(a) Hissar (b) Izatnagar
(c) Mukteshwar (d) Hastinapur

4. How much money has been allocated by the Planning Commission for agriculture research and education during ninth five year plan :
(a) Rs. 2500 crore (b) Rs. 100 crore
(c) Rs. 500 crore (d) Rs. 1500 crore

5. How much is the contribution by livestock to national income :
(a) 2 % (b) 7 %
(c) 12 % (d) 17 %

6. Contribution to G.D.P. (Gross Domestic Products) from animal husbandry and agriculture is :
(a) 11% (b) 21%
(c) 31% (d) 14%

7. Which one of the following breeds of cow belongs to Uttar Pradesh :
(a) Hariyana (b) Gir
(c) Sahiwal (d) Gangatiri

8. Main character for identification of Hariyana cow is :
(a) Long and broad face
(b) Long and narrow face
(c) Small and narrow face
(d) Small and broad face

9. One livestock unit is equivalent to :
(a) 500 kg body weight
(b) 450 kg body weight
(c) 400 kg body weight
(d) 350 kg body weight

10. Mark the width (including walls) of a tail to tail barn for housing 80 crossbred cows :
(a) 9.54 meters (b) 11.54 meters
(c) 13.54 meters (d) 15.54 meters

11. How many cows can be housed in a double row system of dairy barn of 30.6x11.54 m. (LxW) :
(a) 50 (b) 40
(c) 30 (d) 20

12. Desirable increase in live weight of pregnant Zebu cow during last 60 days of gestation period is :
(a) 10-15 kg (b) 25-30 kg
(c) 35-40 kg (d) 45-50 kg

13. How many permanent teeth are present in cattle :
(a) 12 (b) 22
(c) 32 (d) 42

14. Which breed of buffaloes is popular for producing milk with the highest fat content :
(a) Bhadawari (b) Murrah
(c) Nili (d) Mehasana

15. What type of milking pail is the best for clean milk production :
(a) Earthen pot (b) Domed bucket
(c) Ordinary tin bucket (d) Plastic bucket

16. Without breaking the egg, the internal quality of egg is determined by which of the following methods :
(a) Yolk index (b) Albumen index
(c) Haugh unit (d) Candling

17. Consider the following statements which are associated with loose housing system:
1. It is not suitable under Indian conditions
2. It is cheaper to construct, easier to expand and flexible in utility and can accommodate at least 10 to 15% more livestock than prescribed standard :
3. It is very convenient for managing large herd
Of these statements :
a. 1, 2 and 3 are correct b. 2 and 3 are correct
c. 1 and 3 are correct d. 1 and 2 are correct

18. Which of the following parameters are used in purchase of dairy cows for establishing a dairy herd :
(1) Milk yield in pail (2) Parity
(3) Stage of lactation (4) Feed consumption

Codes :

(a) 1, 2 and 3 (b) 1, 2 and 4
(c) 3 and 4 (d) 1, 2, 3, and 4

19. The optimum age at first calving of crossbred heifer is :
(a) 20-24 months (b) 24-30 months
(c) 36-40 months (d) 3-4 years

20. Sterilization of male calf is known as :
(a) Vasectomization (b) Castration
(c) Parturition (d) Wether

21. Which one of the following situations is most suitable to start a dairy farm :
(a) Remote village (b) Heart of the city
(c) Outskirts of the city (d) Away from the city

22. For every kg of milk produced the water needed by the cow is :
(a) 1-1.5 kg (b) 2-2.5 kg
(c) 3-3.5 kg (d) 4-4.5 kg

23. Sickle shaped flat horns are found in :
(a) Mehsana buffalo (b) Nagori cow
(c) Surati buffalo (d) Kenketha cow

24. Brucellosis is disease of :
(a) Gastrointestinal tract (b) Respiratory tract
(c) Reproductive tract (d) Nervous system

25. The gestation period of swine is :
(a) 80 days (b) 95 days
(c) 100 days (d) 115 days

26. Sheep flock owners in the plain prefer lambing in :
(a) Late autumn (b) Early winter
(c) Early spring (d) Late monsoon

27. Cattalo is the hybrid of :
(a) Indian cow and Indian he-buffalo
(b) American cow and American he-buffalo
(c) Cow and he-buffalo
(d) Cow and horse

28. The number of pair of chromosome in sheep is :
(a) 30 (b) 27
(c) 23 (d) 21

29. How many hours after start of oestrus the eggs are ovulated in sows :
(a) 36 (b) 24
(c) 12 (d) 8

30. The alternate crossing of male and female of two different breeds of cattle is known as :
(a) Top crossing
(b) Triple crossing
(c) Cross crossing
(d) Back crossing

31. Which breed of swine has golden red colour :
(a) Hampshire (b) Tomworth
(c) Berkshire (d) Yorkshire

32. 'Doe' is the adult female of :
(a) Dog (b) Duck
(c) Sheep (d) Goat

33. Which breed of goats from the following produced maximum milk :
(a) Saanan (b) Jamunapari
(c) Barbari (d) Beetal

34. Heritability of milk yield in dairy cattle is:
(a) 0.50 (b) 0.25
(c) 0.40 (d) 0.10

35. Which country has been successful in producing transgenic goat which could produce milk containing human gene :
(a) China (b) USA
(c) Japan (d) India

36. What should be the temperature of A.V. at the time of semen collection :
(a) 45°C (b) 42°C
(c) 36°C (d) 25°C

37. Which breed of sheep is immune to Anthrax :
(a) Merino (b) Gaddi
(c) Rambouillet (d) Algerian

38. Relationship between parents and offsprings is :
(a) 1/4 (b) 1/2
(c) 1/8 (d) 1/3

39. Which of the following is the most important factor for selection of bull :
(a) His size (b) His type
(c) His masculinity (d) His dam

40. The coefficient of relationship is 100% between :
(a) Mother and daughter
(b) Full sib
(c) Monozygotic twins
(d) Dizygotic twins

41. Mark the correct period of sexual cycle for the breeding of buffaloes :
(a) Proestrum (b) Oestrum
(c) Dioestrum (d) Postoestrum

42. Freezed embryos are stored in which of the following :
(a) Water (b) Egg yolk citrate
(c) Ammonia (d) Liquid nitrogen

43. Genotypic selection is generally used in the selection of:
(a) Milch cow (b) Dry cow
(c) Heifers (d) Bull

44. Which one of the following is a crossbred :
(a) Jersey (b) Brown Swiss
(c) Brown Sindh (d) Red Dane

45. The term genetics was given by
(a) Charles Darwin
(b) Mendel
(c) Lamark
(d) Batesan

46. Which one of the following is a mutagenic chemical :
(a) Mercuric chloride
(b) Potassium permanganate
(c) Prussic acid
(d) Aesculin

47. Uracil is present in :
(a) RNA (b) DNA
(c) Amino acid (d) 'b' and 'c' both

48. 'A' and 'B' are full-sibs, find out the coefficient of inbreeding of their progeny:
(a) 100 % (b) 75 %
(c) 50 % (d) 25 %

49. Starch equivalent of digestible protein is:
(a) 2.41 (b) 0.94
(c) 1.91 (d) 1.00

50. Metabolic water produced from 100 gm protein is :
(a) 107 gm (b) 60 gm
(c) 56 gm (d) 40 gm

51. In which part of the following the water content of eaten metrical is reduced to about 50 per cent :
(a) Abomasum (b) Omasum
(c) Reticulum (d) Rumen

52. Net protein utilization (NPU) is :
(a) $\frac{\text{Retained Nitrogen}}{\text{Absorbed Nitrogen}} \times 100$
(b) $\frac{\text{Weight gain (gm)}}{\text{Protein intake (gm)}} \times 100$

(c) $\frac{\text{Retain Nitrogen}}{\text{Intake Nitrogen}} \times 100$
(d) None of the above

53. Pica is caused by the deficiency of :
(a) Vit. B12 (b) Cysteine
(c) Selenium (d) Phosphorus

54. For every kg of milk produced the water need by cow is:
(a) 1.5 kg (b) 2.5 kg
(c) 3.5 kg (d) 5.5 kg

55. Mark the quantity of molasses added per ton of silage making from green sorghum fodder harvested at flowering stage :
(a) 30 kg (b) 20 kg
(c) 10 kg (d) Nil

56. Percentage of protein in layer ration should be :
(a) 16 (b) 18
(c) 22 (d) 24

57. Kellners feeding standard was based on :
(a) TDN (b) S.E.
(c) NE (d) Hay-equivalent

58. Of the total cost of rearing layers the feed costs amounts to :
(a) 20 per cent (b) 40 per cent
(c) 60 per cent (d) 80 per cent

59. An ideal calf starter contains :
(a) 50 % TDN (b) 60 % TDN
(c) 70 % TDN (d) 80 % TDN

60. D.C.P. requirements for one kg of milk of 5 % fat production is :
(a) 0.03 kg (b) 0.05 kg
(c) 0.07 kg (d) 0.09 kg

61. Indicate which feed of the following has highest energy:
(a) Maize (b) Groundnut cake
(c) Cottonseed cake (d) Salseed cake

62. Number of essential amino acids required for feeding the animals should be :
(a) 5 (b) 10
(c) 15 (d) 20

63. The ideal moisture percentage for 'hay' making is :
(a) 12-15 % (b) 16-20 %
(c) 20-25 % (d) 26-30 %

64. The term 'Biological Value' was first given to protein by:
(a) William Prout
(b) Carl Thomas
(c) Nesheim and Scott
(d) Stakstad

65. Another name of glycogen is :
(a) Starch (b) Animal Starch
(c) Dextrins (d) Sucrose

66. If mustard cake sample contains 5% nitrogen, its crude protein content would be :
(a) 11.25 % (b) 21.25 %
(c) 31.25 % (d) 41.25 %

67. Vitamin B12 is also called :
(a) Thiamine (b) Riboflavin
(c) Cynocobalamin (d) Folic acid

68. A hundred (100) kg of dry Lucerne contains nearly :
(a) 0.1 kg crude protein
(b) 0.5 kg crude protein
(c) 20 kg crude protein
(d) 40 kg crude protein

69. Which of the following cakes fed to buffalo makes the ghee granular :
(a) Mustard cake (b) Groundnut cake
(c) Cottonseed cake (d) Linseed cake

70. N.F.E. (Nitrogen free extract) of feed consists of :
(a) Dig. protein (b) Dig. fats
(c) Dig. Crude fibre (d) Soluble carbohydrates

71. Which part of the stomach is fully developed in a calf of 4 weeks age :
(a) Abomasum (b) Omasum
(c) Reticulum (d) Rumen

72. Gastric juice is highly acidic and has a pH :
(a) 3.5-3.8 (b) 4.0-4.4
(c) 4.5-5.0 (d) 5.0-5.5

73. The absence of choline in diet of chick causes :
(a) Perosis
(b) Curled toe
(c) Paralysis
(d) Coccidiosis

74. Colostrum feeding is essential to calves because it is rich in :
(a) Carbohydrates (b) Fatty acids
(c) Globulin (d) Vit. C

75. Cobalt is the element of Vitamin :
(a) B1 (b) B2
(c) B6 (d) B12

76. Which one of the following group of animals should not be fed urea :
(a) Bull (b) Cow
(c) Heifers (d) Sucking calves

77. Feed in mash form is digested by hen in :
(a) 1.5 hours (b) 2.5 hours
(c) 3.5 hours (d) 4.5 hours

78. For silage making the crop should have high amount of:
(a) Protein (b) Fat
(c) Carbohydrates (d) Vitamins

79. Starch equivalent of digestible protein is:
(a) 2.41 (b) 0.94
(c) 1.91 (d) 1.00

80. Body temperature of bull as compared to scrotal temperature is :
(a) Less (b) More
(c) Same (d) Normal

81. Magnesium sulphate is a :
(a) Irritant (b) Insecticide
(c) Caustic (d) Purgative

82. Buffalo meat is known as :
(a) Mutton (b) Chevon
(c) Beef (d) Buffen

83. Degnala is a disease of :
(a) Virus toxicity (b) Bacterial toxicity
(c) Fungal toxicity (d) Selenium toxicity

84. The causative agent of true Black leg in cattle is :
(a) Clostridium septicum
(b) Clostridium chauvoei
(c) Clostridium novyi
(d) Clostridium perfringenes

85. Proctitis is the inflammation of :
(a) Caecum (b) Perennial gland
(c) Prostrate gland (d) Anus

86. Floor space required for calving box of a cow is :
(a) 2.2-2.7 m2 (b) 3.6-4.5 m2
(c) 7.0-8.5 m2 (d) 9.0-13.5 m2

87. Thick yellowish discharge from vagina of cow indicates:
(a) Pyometra (b) Heat cycle
(c) Mastitis (d) Vaginitis

88. Which of the following hormones is produced in males only :
(a) FSH (b) L.H.
(c) Testosterone (d) Prolactin

89. Identify the disease of poultry that can be transmitted from hen egg to chicks :
(a) New Castle disease (b) Bronchitis
(c) Coccidiosis (d) Salmonellosis

90. Haemophilia is a disease of :
(a) Brain (b) Liver
(c) Kidney (d) Blood

91. Penicillin is produced from :
(a) Algae (b) Yeast
(c) Mold (d) Bacteria

92. Which one of the following is a bacterial disease :
(a) Parvo (b) Distemper
(c) Pyometra (d) Rabies

93. Which one of the following is not correctly matched :
(a) H.S. - Pasteurella
(b) BQ - Coccidia
(c) FMD - A.O.C.
(d) Mastitis - Staphylococcus

94. The chief ingredient of mosquito repellent cream is derived from :
(a) Petroleum jelly (b) Neem
(c) Oak (d) Dhatura

95. Use of animal tissue for suturing of fresh wound was begun by :
(a) Philip Syng Physick
(b) John Hunter
(c) Abbe Laslie
(d) Astley Cooper

96. A.B.R. test is used for diagnosis of which one of the following diseases :
(a) Brucellosis (b) Babesiosis
(c) Botulism (d) Leptospirosis

97. Which of the following species of Eimeria (E) is responsible for causing caecal coccidiosis.
(a) E. acervulina (b) E. tenella
(c) E. maxima (d) E. nacatrix

98. Serum agglutination test is performed in :
(a) Rinderpest (b) F.M.D.
(c) Piroplasmosis (d) Bang's disease

99. The spermatic cord of the animal contains :
(a) Arteries only
(b) Veins only
(c) Ducts only
(d) Arteries, veins and ducts

100. What is the best site for semen deposition in cattle :
(a) Body of uterus
(b) Os of the cervix
(c) Mid-cervix
(d) Uterine horns

101. What is the mode of transmission of bovine Brucellosis organisms in cattle :
(a) Insect vector (b) Oral ingestion
(c) Respiratory tract (d) Sexual contact

102. In which of the following disease colon of cattle shows zebra like markings:
(a) Cattle plague (b) Fascioliasis
(c) Pasteurellosis (d) Para-tuberculosis

103. Which one of the following diseases spreads by Herpes virus :
(a) Avian Leucosis complex
(b) Fowl pox
(c) Marek's disease
(d) New Castle disease

104. What is the duration of acquired passive immunity :
(a) 10-20 days (b) 20-30 days
(c) 30-40 days (d) 40-50 days

105. Which one of the following is nitrogenous substance of milk:
(a) Phospholipids (b) Cholesterol
(c) Uric acid (d) Carotene

106. The speed of clarifier bowl for clarification of milk is :
(a) 1100 r.p.m. (b) 2100 r.p.m.
(c) 12000 r.p.m. (d) 20000 r.p.m.

107. In which of the following process size of fat globules is reduced to less than 2 micron :
(a) Bactofugation (b) Clarification
(c) Homogenization (d) Filtration

108. The total solids content of buffalo milk is approximately:
(a) 10.2 per cent (b) 12.5 per cent
(c) 14.0 per cent (d) 15.3 per cent

109. Which constituent of milk changes into lactic acid during dahi making :
(a) Milk fat (b) Milk protein
(c) Minerals in milk (d) Milk carbohydrate

110. In how much time actual milking of a cow giving 40 litres of milk daily should be completed to get maximum yield :
(a) Less than 7 minutes (b) 10 minutes
(c) 30 minutes (d) 45 minutes

111. Flavouring compound in dahi is :
(a) Acetic acid
(b) acetaldehyde
(c) acetyl-methyl-carbinol
(d) diacetyl

112. The churning acidity of cream for butter making should be:
(a) 0.41% (b) 0.35%
(c) 0.21% (d) 0.15%

113. Casein content of cow milk is :
(a) 2.5 per cent (b) 3.0 per cent
(c) 3.2 per cent (d) 3.5 per cent

114. Starch adulteration in milk can be detected by :
(a) Azurin test (b) Clot on boiling test
(c) Fehling's solution (d) Iodine test

115. Mark the maximum moisture content of ghee as per legal standards :
(a) 1.5 per cent (b) 1.0 per cent
(c) 0.3 per cent (d) Nil per cent

116. What is the percentage of SNF in milk if it contains 5% fat, 4% proteins and 85% water :
(a) 10.0 per cent (b) 9.5 per cent
(c) 9.0 per cent (d) 8.5 per cent

117. Which of the following is the unit for measuring the viscosity of milk :
(a) Dyne (b) Poise
(c) Ohm (d) Mho

118. Which of the following is nitrogenous substance of milk:
(a) Creatine and creatinine
(b) Lactose
(c) Carotene
(d) N.F.E.

119. In which method of ghee-making heating cost is minimum :
(a) Creamery butter method
(b) Prestratification method
(c) Direct cream method
(d) Desi method

120. Which test is used for detection of buffalo milk adulterated with cow milk :
(a) Ring test (b) Hansa test
(c) Catalase test (d) Formalin test

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TEST SERIES - 7

(Based on memory of U.P.P.C.S..-1999)

1. What is the minimum limit of income contributed by livestock in a mixed farming :
(a) 0.5 per cent (b) 10 per cent
(c) 15 per cent (d) 20 per cent

2. What is the upper limit of income to be contributed by livestock in a mixed farming :
(a) 29 per cent (b) 39 per cent
(c) 49 per cent (d) 59 per cent

3. Domesticated species of buffalo is :
(a) *Bubalus domesticus*
(b) *Bubalus arni*
(c) *Bubals riverine*
(d) *Bubalus buffalo*

4. Proposed outlay for animal husbandry and dairying activities in 9th plan is :
(a) 552 crores (b) 1965 crores
(c) 2005 crores (d) 2838 crores

5. At what age the nose ring should be put in the nose of bull:
(a) 2 to 6 months
(b) 8 to 12 months
(c) 1 to 2 years
(d) Above 2 years

6. Indicate optimum environmental temperature under which chicken perform normally :
(a) 65-80°F (b) 80-85°F
(c) 85-90°F (d) 90-95°F

7. Maximum milk yield from cow is obtained when the attains the age of :
(a) 3-4 years (b) 5-6 years
(c) 7-8 years (d) 9-10 years

8. In cow the peak milk yield reaches in how many days after calving :
(a) 15 days (b) 45 days
(c) 90 days (d) 150 days

9. What will be the probable date of kidding when a goat is successfully served on April 16th :
(a) September 13th (b) September 30th
(c) October 13th (d) October 30th

10. Operation flood programme III was started in India during :
(a) 1981 (b) 1985
(c) 1990 (d) 1995

11. The contribution of Animal Husbandry to national income in India is:
(a) 7 per cent (b) 9 per cent
(c) 11 per cent (d) 15 per cent

12. The desirable gain in body weight per day of healthy growing calf is :
(a) 200 g (b) 300 g
(c) 400 g (d) 500 g

13. The pathogenic bacteria may be present in :
(a) Clean milk (b) Safe milk
(c) Pasteurized milk (d) Boiled milk

14. Castration in female calves is called :
(a) Sterilization (b) Teasur
(c) Vasectimization (d) Spaying

15. A double row dairy shed (60x10 mt) can house :
(a) 100 animals (b) 50 animals
(c) 200 animals (d) 1000 animals

16. The increase in the size of udder between two milkings is :
(a) 2 times (b) 1½ times
(c) ¾ time (d) 1/3 time

17. What concentration of the hypochlorite solution should be used for wiping the udder :
(a) 50 ppm (b) 100 ppm
(c) 200 ppm (d) 500 ppm

18. What should be the average amount of man hours labour/ cow/annum under cow shed system :
(a) 50 hours (b) 100 hours
(c) 150 hours (d) 200 hours

19. Wether is the castrated animal of :
(a) Cow (b) Buffalo
(c) Sheep (d) Goat

20. A bull used as teaser in cows is a :
(a) Castrated (b) Without testes
(c) Aged (d) Vasectomised

21. How much covered area is required for a 3-6 months old calf :
(a) 1.25 to 2.0 sq. meters
(b) 2.25 to 4.0 sq. meters
(c) 3.15 to 4.0 sq. meters
(d) 4.25 to 5.0 sq. meters

22. The calf should be dehorned at which age:
(a) At birth
(b) 15th day
(c) After one month
(d) After 2 months

23. What is a "drop bunch"
(a) Group of lambs of same age
(b) All lambs born in one day
(c) Group of ewe likely to lamb to-night
(d) Group of ewe bred one day

24. Which one of the following breeds of poultry is of Indian origin :
(a) Cochin (b) Leghorn
(c) Langshan (d) Kadaknath

25. Which breed of bullocks is famous for trotting speed :
(a) Haryana (b) Amritmahal
(c) Kankrej (d) Burgur

26. The volume of semen obtained per ejaculation of buck is :
(a) 0.7 cc (b) 1.5 cc
(c) 2.0 cc (d) 2.5 cc

27. The average milk yield in 305 days lactation of Holstein Friesian cow is :
(a) 5000 litres (b) 6150 litres
(c) 7250 litres (d) 7550 litres

28. Cockerel is the young male of which one:
(a) Dog (b) Sheep
(c) Cat (d) Fowl

29. Which one of the following breeds resemble with Gir breed :
(a) Sindhi (b) Deoni
(c) Haryana (d) Sahiwal

30. Which one of the following is the breed of sheep :
(a) Nili (b) Nali
(c) Murrah (d) Bhadawari

31. By the use of which hormone super ovulation can be achieved in cows and buffaloes during oestrus :
(a) Gonadotrophin (b) Adrenaline
(c) Progesterone (d) Oxytocin

32. Mutation was first discovered by :
(a) Wright (1719)
(b) Muller (1927)
(c) Devries (1900)
(d) Stadler (1928)

33. In which breed of buffalo the dewlap and udder are well developed :
(a) Murrah (b) Nili
(c) Bhadawari (d) Jafarabadi

34. The term gene was coined by :
(a) Johannson (1905) (b) Morgan (1910)
(c) Mendel (1866) (d) Jenner (1900)

35. Leghorn breed of poultry is :
(a) Asiatic (b) English
(c) Mediterranean (d) American

36. The best and only basis for selecting the young untried bull is :
(a) Pedigree
(b) Type and conformation
(c) Disposition
(d) Breed

37. Mendel's laws were overlooked for over:
(a) 16 years (b) 34 years
(c) 20 years (d) 40 years

38. To improve the Indian buffaloes the right policy of breeding is :
(a) Selective breeding (b) Inbreeding
(c) Cross-breeding (d) None of these

39. When an animal is selected on the basis of its external characteristics, colour etc; this method of selection is known as :
(a) Selection on the basis of heredity and environment
(b) Individual selection
(c) Pedigree selection
(d) Show-ring selection

40. When a horned cow is crossed with a polled bull, polled offspring is obtained. Hornedness is which one of the following characters :
(a) Dominant character
(b) Partial-dominant character
(c) Recessive character
(d) Partial-recessive character

41. α-s casein is what type of milk protein among the following :
(a) Fraction of â-casein
(b) Calcium insensitive casein
(c) Calcium sensitive casein
(d) Fraction of ã-casein

42. Which one of the following bacteria produces diacetyl flavour :
(a) *S. lactis* (b) *S. diacetilactis*
(c) *B. lequefaciens* (d) *P. fluorescence*

43. Identify the sugar present in milk :
(a) Sucrose (b) Lactose
(c) Mannose (d) Fructose

44. Which one of the following is fat with low iodine number:
(a) Lard (b) Tallow
(c) Soya bean oil (d) Butter

45. The optimum temperature for the growth of thermoduric bacteria is :
(a) 20°C (b) 37°C
(c) 45°C (d) 55°C

46. Khoa is which type of milk product among the following:
(a) Dried milk product
(b) Fermented milk product
(c) Coagulated milk product
(d) Concentrated milk product

47. Psychrophilic bacteria grow at temperature of :
(a) 2 to 3°C
(b) 5 to 7°C
(c) 10 to 15°C
(d) 18 to 21°C

48. What type of adulteration is detected by Hansa test :
(a) Adulteration of water in milk
(b) Adulteration of vanaspati in ghee
(c) Adulteration of starch in milk
(d) Adulteration of cow milk in buffalo milk

49. When raw milk contains less than 2 lacs bacteria/ml., which one of the following grade will be awarded to this sample :
(a) Very good
(b) Good
(c) Fair
(d) Poor

50. For what purpose in a chilling unit, milk is chilled and stored at 5°C :
(a) To kill all microorganisms
(b) To check the growth of microorganisms
(c) To remove the microorganisms
(d) To reduce the number of microorganisms

51. The disease transmitted through milk to man is :
(a) Mastitis
(b) Metritis
(c) Typhoid fever
(d) Milk fever

52. Ghee can be prepared by any one method from the following. In which method 3 layers of the contents are formed before final clarification :
(a) Cream method
(b) Creamery butter method
(c) Pre-stratification method
(d) Indigenous method

53. Some of the bacteria grow very well at room temperature in milk. They are called :
(a) Psychrophilic bacteria
(b) Mesophilic bacteria
(c) Thermophilic bacteria
(d) Thermoduric bacteria

54. The fat percentage of Ayrshire breed of cow milk is :
(a) 3.5 per cent
(b) 4.0 per cent
(c) 4.5 per cent
(d) 5.5 per cent

55. Developed acidity in milk is due to :
(a) Citric acid
(b) Lactic acid
(c) Casein
(d) Citrate and phosphate

56. Minimum PFA standard for milk fat of cow milk in Punjab state is :
(a) 3.5 per cent
(b) 4.0 per cent
(c) 4.5 per cent
(d) 5.0 per cent

57. On an average how much lactose is present in mother's milk :
(a) 3.5 per cent
(b) 4.5 per cent
(c) 5.8 per cent
(d) 6.8 per cent

58. The taste of cow khoa is
(a) Salty (b) Slightly salty
(c) Sweet (d) Slightly sweet

59. A constituent found in milk but not in blood is :
(a) Globulin (b) Glucose
(c) Minerals (d) Casein

60. Faeces is a good source of :
(a) Yeast (b) Coli form bacteria
(c) Lipolytic bacteria (d) Chromogenic bacteria

61. The causal organism of ropiness in milk is :
(a) *Lactococcus lactis* (b) *Proteus vulgaris*
(c) *Pseudomonas fragi* (d) *Alcaligenes viscosus*

62. In U.H.T. sterilization milk is heated at the temperature of :
(a) 110 to 120°C for 30 seconds
(b) 135 to 150°C for few seconds
(c) 108 to 111°C for 25 minutes
(d) 72°C for 15 seconds

63. Sweet curdling of milk is caused by :
(a) Renin enzyme (b) Amylase enzyme
(c) Lipase enzyme (d) Protease enzyme

64. What is fat percentage in whipping cream :
(a) 20-25 per cent (b) 30-40 per cent
(c) 40-50 per cent (d) Above 50 per cent

65. Direct microscopic count method is not suitable for :
(a) Raw milk (b) Clean milk
(c) Pasteurized milk (d) None of the above

66. The specific gravity of solid not fat of milk is :
(a) 1.00 (b) 1.04
(c) 1.20 (d) 1.60

67. 100 g average cow milk furnishes energy value :
(a) 50 calories (b) 75 calories
(c) 100 calories (d) 200 calories

68. Name the most common disease transmitted to human through raw cow's milk :
(a) Smallpox (b) Malaria
(c) Milk fever (d) Tuberculosis

69. Where enzyme invertase is found among animals :
(a) Illeum (b) Stomach
(c) Esophagus (d) Mouth cavity

70. The ideal moisture percentage of hay making is :
(a) 12-15 per cent
(b) 15-18 per cent
(c) 20-25 per cent
(d) 25-30 per cent

71. Slipped tendon disease of poultry bird is caused by :
(a) Magnesium deficiency
(b) Selenium deficiency
(c) Manganese deficiency
(d) Sulphur deficiency

72. The term biological value was first applied to protein by :
(a) William Prout (b) Carl Thomas
(c) Neshein and Scott (d) Stokstad

73. Crude protein content of groundnut straw is :
(a) 4.5 per cent (b) 5.5 per cent
(c) 3.0 per cent (d) 8.3 per cent

74. Indicate which feed is highest in energy content among the following :
(a) Maize (b) Groundnut meal
(c) Cottonseed meal (d) Sal seed meal

75. Deficiency of iron in piglets causes :
(a) Swine fever (b) Rickets
(c) Polyneuritis (d) Anaemia

76. Digestible crude protein requirement for milk production with 5% milk fat is :
(a) 0.03 kg/kg milk yield
(b) 0.05 kg/kg milk yield
(c) 0.07 kg/kg milk yield
(d) 0.09 kg/kg milk yield

77. The other name of animal starch is :
(a) Starch (b) Dextrin
(c) Maltose (d) Glycogen

78. Kellener's feeding standard is based on :
(a) TDN (b) SE
(c) NE (d) 'Hay' equivalent

79. Indicate laxative feed among the following :
(a) Crushed maize (b) Crushed barley
(c) Crushed gram (d) Wheat bran

80. Green fodder is best source of :
(a) Gat soluble vitamin (b) Protein
(c) Water soluble vitamin (d) Lipid

81. The biological value of rumen microbial protein is :
(a) 65-70 per cent (b) 75-80 per cent
(c) 85-90 per cent (d) 90-100 per cent

82. Muscular dystrophy in animal can be corrected by feeding :
(a) Iron salt (b) Vitamin A
(c) Protein (d) Vitamin E

83. The colour of good silage should be :
(a) Green (b) Red
(c) Brown (d) Light brown

84. In which of the following, crude fibre is digested in rumen :
(a) Cow (b) Horse
(c) Poultry (d) Pig

85. Which one of the following animals should not be fed urea :
(a) Bull
(b) Cow
(c) Heifer
(d) New-born calves of cow

86. Which one of the following is most dietary essential vitamin for Indian zebu cattle :
(a) Vitamin B_2 (b) Vitamin D
(c) Vitamin A (d) Vitamin E

87. Which one of the following cake is fed to buffaloes to make the ghee granular white :
(a) Mustard cake (b) Groundnut cake
(c) Cottonseed cake (d) Linseed cake

88. Cobalt is the element of which vitamin :
(a) B_1 (b) B_2
(c) B_6 (d) B_{12}

89. Oxidation of 1 g of glucose results into :
(a) 0.60 ml metabolic water
(b) 0.56 ml metabolic water
(c) 0.77 ml metabolic water
(d) 0.42 ml metabolic water

90. Calcium and phosphorus ratio suitable for farm animals other than poultry is :
(a) 2 : 1 (b) 1 : 3
(c) 1 : 2 (d) 3 : 1

91. In which of the following condition nitrogen balance will be positive :
(a) Fasting (b) Growth
(c) Prolonged illness (d) None of these

92. The per cent amount of every nutrient in any feed which is actually digested inside the body is known as :
(a) Digestion trial
(b) Metabolic trial
(c) Digestion coefficient
(d) Digestible energy

93. Vitamin B_{12} is also called :
(a) Thiamin (b) Riboflavin
(c) Cobalamin (d) Cynocobalamin

94. The pH of good silage is :
(a) 3.5-4.2 (b) 4.2-4.5
(c) 4.5-4.8 (d) above 4.8

95. If mustard cake sample contained 5 % nitrogen then its crude protein content should be :
(a) 11.25 per cent (b) 21.25 per cent
(c) 31.25 per cent (d) 41.05 per cent

96. When an animal is suffering from thin faeces mixed with mucous, blood or blood clots and has marked straining, which may be the disease among the following:
(a) Coccidiosis (b) Anthrax
(c) Babesiosis (d) Trypanosomiasis

97. 'Hold up' of milk is caused by :
(a) Oxytocin (b) Renin
(c) Progesterone (d) Adrenalin

98. On a pig farm, certain animals are showing fever, and loss of appetite, constipation, diarrhea and skin over belly shows dark red colour. Which may be the disease among the following :
(a) Infectious dysentery
(b) Swine plague
(c) Hog cholera
(d) Swine Erysipelas

99. How much semen per ejaculate is given by a boar :
(a) 75-125 ml (b) 150-175 ml
(c) 200-250 ml (d) 300-325 ml

100. Which part of the G.I.T. of ruminants resembles true stomach :
(a) Rumen (b) Reticulum
(c) Omasum (d) Abomasum

101. Ketosis is also called :
(a) Uremia
(b) Actemia
(c) Acetonemia
(d) Ketourea

102. Which one of the following diseases is a protozoan disease :
(a) Fowl pox
(b) Coccidiosis
(c) Ascariasis
(d) Fowl cholera

103. Meat is a poor source of :
(a) Protein
(b) Calcium
(c) Iron
(d) Fat

104. Bottle Jaw condition in cattle is the symptom of which of the following disease :
(a) Fascioliasis
(b) Ascariasis
(c) Amphistomiasis
(d) None of the above

105. Thick colourless discharge from the vagina of cow indicates :
(a) Pyometra
(b) Mastitis
(c) Vaginitis
(d) Heat cycle

106. What is the cause of Haemorrhagic Septicaemia in cattle:
(a) *Mycobacterium*
(b) *Pasteurella multocida*
(c) *Bacillus anthracic*
(d) *Actinobacillus*

107. Which is the most widely used vaccine against Marek's disease :
(a) R-2 B strain vaccine
(b) Tissue culture vaccine
(c) Herpes virus of Turkey
(d) Freeze dried vaccine

108. Hormone Androgen is synthesized in which gland :
(a) Ovary
(b) Testes
(c) Pituitary gland
(d) Thyroid gland

109. Which hormone is responsible for ovulation :
(a) F.S.H.
(b) Oxytocin
(c) A.C.T.H.
(d) L.H.

110. When a disease spreads in a large area in a large number of animals, this disease is termed as :
(a) Sporadic
(b) Exotic
(c) Enzootic
(d) Epizootic

111. Which one of the following is immune to anthrax :
(a) Sahiwal cow
(b) Murrah buffalo
(c) Man
(d) Algerian breed of sheep

112. Generally calves should be vaccinated at the age of :
(a) 1-2 months
(b) 4-6 months
(c) 1-2 years
(d) 2-4 years

113. Body temperature of cow suffering from milk fever is :
(a) 100°F or less
(b) 104°F
(c) 107°F
(d) 110°F

114. What is the incubation period of naturally spreading fowl pox disease :
(a) 1-5 days
(b) 4-10 days
(c) 10-15 days
(d) 15-30 days

115. Which medicine you will recommend for treatment of tympanitis in cattle :
(a) Carminative (b) Astringent
(c) Antizymotic (d) Purgative

116. Which disease is suspected when negri bodies are found in the brain cells of dog :
(a) Distemper (b) Hepatitis
(c) Leptospirosis (d) Rabies

117. Which of the following is the antifungal drug :
(a) Rifampicin (b) Penicillin
(c) Tetracycline (d) Amphotericin

118. In which disease drug Bayer's-205 is used for the treatment :
(a) Trypanosomiasis (b) Brucellosis
(c) babesiosis (d) Anaplasmosis

119. Which of the following disease is transmitted by tick *Margaropus annulatus* in cattle :
(a) Trypanosomiasis (b) Babesiosis
(c) Burcellosis (d) Pasteurellosis

120. At what age Marek's disease most commonly affects chicken :
(a) Day 1 to 6 weeks (b) 6 to 12 weeks
(c) 12 to 24 weeks (d) 24 to 30 weeks

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TEST SERIES - 8

(Based on memory of U.P.P.C.S..-1998)

1. In layer ration the percentage of crude fiber should not exceed :
(a) 6 % (b) 8 %
(c) 10 % (d) 12 %

2. The D.C.P. requirement per kg of milk with 4% fat is :
(a) 20 gm (b) 30 gm
(c) 45 gm (d) 60 gm

3. Taylor's iodine reduction test is used for the diagnosis of :
(a) Swine erysipelas
(b) Vesicular exanthema
(c) Swine fever
(d) Swine pox

4. In the treatment of cystic ovary we use:
(a) Prostaglandins (b) LTH
(c) Estrogens (d) LH

5. Most important symptom of tympanitis is:
(a) Inflammation of tympanic membrane
(b) Accumulation of gas in rumen
(c) Doughy content and hard rumen
(d) Corrugated inflammation in rectum

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6. The effect of vaccination in the animal body is to produce:
(a) Antibodies (b) Antigen
(c) Both (a) and (b) (d) None of these

7. Animals are vaccinated :
(a) For treatment of infection
(b) For protection against infection
(c) For acting as carrier
(d) None of these

8. Water used for drinking should be :
(a) Pure chemical water (b) Stagnant water
(c) Distilled water (d) Wholesome water

9. Calving pen in tropical region should be :
(a) Well ventilated (b) Restricted air flow
(c) Humid hot (d) Dry hot

10. According to ISI feeding standard, the requirement of metabolizable energy for a laying bird is :
(a) 2400 k cal/kg (b) 2800 k cal/kg
(c) 3200 k cal/kg (d) 3600 k cal/kg

11. The ration for broilers from 0 to 4 weeks of age should contain minimum crude protein :
(a) 17% (b) 19%
(c) 21% (d) 23%

12. Which one of the following vitamins is not required in cattle feed :
(a) Vit. A (b) Vit. D
(c) Vit. E (d) Vit. B

13. Narrow nutritive ratio of a feed indicates:
(a) Richness of energy
(b) Richness of protein
(c) Richness of vitamin
(d) None of these

14. As per I.C.A.R. recommendation, a pig grower ration should contain crude protein at a level of :
(a) 18 % (b) 16 %
(c) 14 % (d) 12 %

15. The requirement of digestible crude protein (DCP) for production of 1 kg milk is about :
(a) 150 gm (b) 100 gm
(c) 50 gm (d) 10 gm

16. Which deleterious factor is present in salseed cake :
(a) Gossypol (b) Tannin
(c) Mymosine (d) Mowrine

17. Which of the following bacteria produce acetic acid from sugar during preparation of silage :
(a) E. coli (b) Lactobacillus sp.
(c) Clostridium sp. (d) None of these

18. In viral infections, broad spectrum antibiotics are given:
(a) To kill the virus
(b) To weaken the virus
(c) To check secondary bacterial infection
(d) None of the these

19. Which of the following is a hereditary disease :
(a) Tuberculosis
(b) Cowpox
(c) Umbilical hernia in horses
(d) Foot and mouth disease

20. Chemical used for cleaning dairy utensils are called :
(a) Sanitizers (b) Purifier
(c) Detergent (d) Pasteurizer

21. Identify the process used for increasing self life of milk:
(a) Pasteurization
(b) Homogenization
(c) Tonning
(d) Standardization

22. Identify a drug used for doping horses :
(a) Tannin (b) Saponin
(c) Theobromine (d) Xanthine

23. What sample is collected for detecting doping drug in the body of horse :
(a) Saliva, urine or blood
(b) Feed and dung
(c) Poll hair
(d) Tail hair

24. A drug used for controlling captive deer in zoo is called:
(a) Euthanasia (b) Analgesic
(c) Tranquillizer (d) Narcotic

25. Identify, the quarantine measure :
(a) Treatment of the procured animals before mixing in the herd
(b) Physical examination of the procured animals before mixing in herd
(c) Vaccination of procured animals before mixing in herd
(d) Observations of procured animals in isolation for 3-4 weeks before mixing in herd

26. Prevention of "Food Adulteration Act" was first introduced in India in the year :
(a) 1985 (b) 1975
(c) 1955 (d) 1961

27. Faulty management is responsible for :
(a) Nymphomania in females
(b) Cystic ovary in females
(c) Formation of identical twins
(d) Mastitis in dairy cows

28. How much feed a layer may consume during one year of laying :
(a) 40 kg (b) 100 kg
(c) 65 kg (d) 75 kg

29. Persistent corpus luteum in females may lead to :
(a) Abortion
(b) Anoestrous
(c) Haemophilia
(d) Nymphomania

30. Main components of bone are :
(a) Zinc and magnesium
(b) Iron and copper
(c) Calcium and phosphorus
(d) None of these

31. In ruminants cellulose is mainly digested in :
(a) Large intestine (b) Rumen
(c) Reticulum (d) Omasum

32. An ideal calf starter contains total digestible nutrient :
(a) 50 % (b) 60 %
(c) 70 % (d) 80 %

33. Aflatoxin is produced by :
(a) Bacteria (b) Fungi
(c) Mould (d) Algae

34. Which one of the following products is prepared by partial drying of the whole milk :
(a) Khoa (b) Paneer
(c) Butter (d) Ghee

35. The sweet curdling of milk is caused by :
(a) Streptococcus cremoris
(b) Bacillus subtilis
(c) Lactobacillus bulgaricus
(d) Pseudomonas fragi

36. In the process of uperization, milk is heated with direct steam for a fraction of second at :
(a) 150°C (b) 138°C
(c) 110°C (d) 100°C

37. Which test should be conducted to determine the extent of bacterial contamination in milk :
(a) Ethanol-test (b) Alcohol-Alizarin test
(c) C.O.B. test (d) M.B.R. test

38. How much covered area is required for 3 to 6 months old calf :
(a) 1.25 to 2.0 sq. meters
(b) 2.25 to 4.0 sq. meters
(c) 3.15 to 4.0 sq. meters
(d) 4.25 to 5.0 sq. meters

39. Normally the pH of abomasum is :
(a) 1.0-1.3 (b) 2.0-3.0
(c) 3.0-4.0 (d) 4.0-5.0

40. The average milk yield of Jersey cow in 305 days of lactation is :
(a) 3,000 liters (b) 4,000 liters
(c) 4,500 liters (d) 5,000 liters

41. Which breed of cow has sharp pointed horns :
(a) Hallikar (b) Kangayam
(c) Kenketha (d) Hariana

42. The force head of which breed of cow is dish-shaped :
(a) Hariana (b) Kankrej
(c) Tharparkar (d) Malvi

43. The colour of Deoni cow is :
(a) Black (b) White
(c) Black and White (d) Grey

44. Judicial and superior approach for the diagnosis of paratuberculosis in cattle is to conduct :
(a) Fluorescent antibody technique
(b) Intradermal Johnin test
(c) C.F.T. test
(d) Rectal biopsy test

45. In cows, important venereal disease for herd infertility is :
(a) Brucellosis (b) Vibriosis
(c) Trichomoniasis (d) All of the above

46. Most important advantages of artificial insemination in animal is :
(a) Tool for progeny testing
(b) Crippled animals may be inseminated
(c) Maximum utilization of germ plasm
(d) Elimination of hereditary disease

47. The causal organism of food poisoning is:
(a) Clostridium botulinum
(b) Streptococcus pyogenes
(c) Coxiella burnettii
(d) Leuconostoc citrovorum

48. The causal organism of septic sore-throat disease in mean is :
(a) Streptococcus diacetylactis
(b) Streptococcus agalactiae
(c) Bruella abortus
(d) Salmonella typhosa

49. Lactococcus lactis bacterium is a :
(a) Sweet curdling bacterium
(b) Gas producing bacterium
(c) Acid producing bacterium
(d) Protein fermenting bacterium

50. According to ISI feeding standard the minimum lysine content in layer ration should be :
(a) 0.1 % (b) 0.3 %
(c) 0.5 % (d) 0.9 %

51. According to ISI feeding standard the minimum calcium content in the layer ration should be :
(a) 0.75 % (b) 2.75 %
(c) 4.75 % (d) 6.75 %

52. According to ISI feeding standard layer ration should contain minimum crude protein as :
(a) 14 % (b) 16 %
(c) 18 % (d) 22 %

53. Which of the following feeding standard has been prepared for Indian cattle :
(a) Bose and Roy feeding standard
(b) Sen and Ray feeding standard
(c) Ranjan feeding standard
(d) Das and Khan feeding standard

54. Which of the following feeding standard is followed in India for poultry :
(a) N.R.C. feeding standard
(b) A.R.C. feeding standard
(c) Morrison feeding standard
(d) I.S.I. feeding standard

55. Digestible crude protein requirement of a cow weighing 400 kg body weight per day is :
(a) 2.54 kg (b) 0.254 kg
(c) 0.354 kg (d) 3.54 kg

56. "Stormont test" is done to diagnose :
(a) Rinderpest
(b) Tuberculosis
(c) Salmonellosis
(d) Anthrax

57. Ascoli's test is used for the diagnosis of :
(a) Anthrax disease
(b) Tuberculosis disease
(c) Haemorrhagic Septicaemia
(d) None of these

58. Which disease should be suspected, when a rapidly spreading respiratory disease of fowls is associated with paralytic symptoms :
(a) Fowl pox disease
(b) Marek's disease
(c) Newcastle disease
(d) Avian leucosis complex disease

59. The best time to inseminate cows during the oestrous cycle :
(a) Middle, of oestrous
(b) End of oestrous
(c) Six hours after the end of oestrous
(d) Start of oestrous

60. The best sign of oestrous in the cow is :
(a) Restlessness
(b) Frequent bellowing
(c) Clear mucous from the vulva
(d) Cow will stand while being mounted by other cattle

61. The percent triglycerides present in milk fat are :
(a) 98-99 % (b) 70-75 %
(c) 75-80 % (d) 30-40 %

62. The average yield of Khoa from buffalo milk is :
(a) 31.6 % (b) 15.0 %
(c) 16.5 % (d) 25.0 %

63. The efficiency of pasteurization is judged by :
(a) Resazurin test (b) Pasteurization test
(c) Phosphatase test (d) Turbidity test

64. Which one of the following compounds is used for neutralization of milk cream :
(a) Magnesium sulphate
(b) Calcium chloride
(c) Sodium hydroxide
(d) Sodium chloride

65. In poultry the brooder heat should be decreased regularly after the first week usually at the rate of about :
(a) 1°F (b) 8°F
(c) 5°F (d) 15°F

66. The most preferred method of detecting carriers of tuberculosis is :
(a) Single Intradermal test
(b) Double Intradermal test
(c) Stormont test
(d) Short thermal test

67. Normal follicular development and ovulation without the psychic signs of oestrus is known as :
(a) False heat
(b) Proestrus
(c) Mid-estrus
(d) Silent heat

68. When a hybrid is cored with another hybrid, the progeny show dominance :
(a) 65 % (b) 75 %
(c) 67.5 % (d) 50 %

69. Which one of the following hormones is not secreted from the anterior pituitary gland :
(a) A.C.T.H. (b) Prolactin
(c) F.S.H. (d) Relaxin

70. Give your diagnosis for the disease of birds in which all vital internal organs are enlarged and show tumorous growth :
(a) Avian leucosis complex disease
(b) Fowl pox disease
(c) Mare's disease
(d) Fowl cholera disease

71. The emphysematous, serohaemorrhagic swelling in the heavy muscles, especially of hind limbs is found in which disease of cattle :
(a) Anthrax
(b) Black leg
(c) Tetanus
(d) Haemorrhagic Septicaemia

72. Name the disease of cattle in which an animal shows high temperature, develops mouth lesions, shooting diarrhea and death :
(a) Haemorrhagic Septicaemia
(b) Anthrax
(c) Rinderpest
(d) Foot and mouth

73. Application of Mendel's laws to animals was made by :
(a) William Bateson (b) H.J. Muller
(c) Haldane (d) Heitz

74. Green fodder preserved in the form of hay should have:
(a) Less leaves and moisture less than 12 %
(b) Less leaves and moisture more than 12 %
(c) More leaves and moisture more than 12 %
(d) More leaves and moisture less than 12 %

75. Flushing (improved level of feeding) is used in ewes :
(a) Few weeks before the start of breeding season
(b) Few weeks after mating
(c) Few weeks after lambing
(d) Few weeks before lambing

76. Lysine content of the ration is increased by mixing which one of the following ingredients :
(a) Bone meal (b) Fish meal
(c) Groundnut cake (d) Mustard cake

77. Starch equivalent value were first determined by :
(a) Armsby (b) Blaxter
(c) Kellner (d) Morrison

78. In India, feeding standards published by ICAR for cows and buffaloes are based on :
(a) Mid-Morrison values
(b) Nutrition research Committee values
(c) Agricultural Research Council values
(d) National research Council Values

79. Pressure used for homogenization of milk is :
(a) 4000-5000 pound per square inch
(b) 1000-1500 pound per square inch
(c) 2000-2500 pound per square inch
(d) 6000-7000 pound per square inch

80. What is the average casein per cent in cow milk :
(a) 1.5 % (b) 2.5 %
(c) 3.5 % (d) 4.5 %

81. Which constituent of colostrums is responsible for inducing immunity in the new born calf :
(a) Casein (b) Globulins
(c) Albumins (d) Carotene

82. Which one of the following statements is correct for standardized milk :

(a) Milk fat 3.0 % and SNF 9.0 %
(b) Milk fat 4.0 % and SNF 8.5 %
(c) Milk fat 4.5 % and SNF 8.0 %
(d) Milk fat 5.0 % and SNF 9.0 %

83. What is the P.F.A. standards for toned milk :
(a) Milk fat 2.0 and SNF 9.0 %
(b) Milk fat 2.5 and SNF 8.5 %
(c) Milk fat 3.0 and SNF 8.5 %
(d) Milk fat 3.5 and SNF 9.0 %

84. Which group of bacteria is responsible for spread of the disease :
(a) Psychrophilic (b) Mesophilic
(c) Thermophilic (d) Thermoduric

85. Milk production in dairy cattle is one of the following type of character :
(a) Sex linked (b) Sex influenced
(c) Sex limited (d) Sex determined

86. The genetic progress per unit of time depends on :
(a) Heritability and selection differential
(b) Heritability and generation interval
(c) Heritability, selection differential and generation interval
(d) Heritability, repeatability and generation interval

87. When heritability of trait is high, we should practice :
(a) Individual selection (b) Family selection
(c) With-in family selection (d) Selection index

88. Survival of the fittest is a :
(a) Natural selection (b) Artificial selection
(c) Show-ring selection (d) Pedigree selection

89. When a non-descript cow is crossed by a pure bull, the percentage characteristics of the bull in the offspring will be :
(a) 100 % (b) 75 %
(c) 50 % (d) 25 %

90. Mating of unrelated animals within the same pure breed is called :
(a) Inbreeding (b) Cross breeding
(c) Close breeding (d) Out crossing

91. The feed conversion efficiency is highest in :
(a) Pig (b) Sheep
(c) Goat (d) Cattle

92. The character which appear in the first hybrid is called :
(a) Recessive (b) Dominant
(c) Epistasis (d) Homozygous

93. When fresh milk is frozen, it freezes at temperatures slightly lower than water. Which one of the following nutrients is responsible for lower freezing point of milk than water :
(a) Protein (b) Fat
(c) Vitamin (d) Lactose

94. The terms heritability and repeatability were given by :
(a) Sewall Wright (b) Robert Bakewal
(c) Francis Galton (d) J.L. Lush

95. The milk production in dairy cattle is mainly inherited through :
(a) Additive genetic effects (b) Dominance effects
(c) Epistatic effects (d)Environmental effects

96. What temperature should be maintained in poultry incubator :
(a) 21°F (b) 100°C
(c) 97°F (d) 100°F

97. HCN poisoning in animals is caused by ingestion of :
(a) Stunted grown jowar
(b) Fungi infested, groundnut cake
(c) Wilted Lucerne grass
(d) A dead body infected with clostridium organism

98. Pin point haemorrhage on the summit of the glands n the proventriculus of birds are pathognomonic of :
(a) Marek's disease
(b) Ranikhet disease
(c) Haemorrhagic syndrome
(d) Spirochaetosis

99. A breeding bull suffering from Brucellosis should be :
(a) Treated and then used for breeding
(b) Castrate and leave in the herd
(c) Nothing to bother
(d) Castrate and remove from the breeding herd

100. The principle carrier of primary genetic information in domestic animals is :
(a) R.N.A. (b) Ribosome
(c) D.N.A. (d) None of these

101. The correct method of hand milking of cow is :
(a) Knuckling (b) Stripping
(c) Full hand milking (d) None of these

102. Which one among the followings is a correct formula :
(a) TDN = % Dig. Protein + % Dig. Fat + % Dig. C.F. + % Dig. NFE
(b) TDN = % Dig. Protein + % Dig. Fat x 2.25 + % Dig. C.F. + % Dig. NFE
(c) TDN = % Dig. Protein + % Dig. Fat + % Dig. C.F. + % Dig. NFE x 2.25
(d) TDN = % Dig. Protein + % Dig. Fat x 2.25 + % Dig. NFE

103. Condition in which testes do not descend out of abdominal cavity in scrotum is called :
(a) Phimosis (b) Orchitis
(c) Cryptorchidism (d) Metritis

104. Identify sugar present in cow bull semen :
(a) Sucrose (b) Lactose
(c) Mannose (d) Fructose

105. Approximate age of cattle on replacement of first pair of milk incisor teeth is :
(a) One year (b) Two years
(c) Four years (d) Six years

106. Identify a bacterial disease of cattle :
(a) Haemorrhagic Septicaemia
(b) Glanders
(c) Rinderpest
(d) Trypanosomiasis

*****

TEST SERIES - 9

(Based on memory of U.P.P.C.S..-1998)

1. Deficiency of Vitamin E in the body of animal may cause:
(a) Infertility (b) Paralysis
(c) Sterility (d) Joint-ill

2. Indicate laxative feed among the following :
(a) Crushed maize (b) Crushed barley
(c) Crushed gram (d) Wheat bran

3. Which of the following is the first limiting amino acid in cereal, cereal by-product and oil-cake based poultry diet:
(a) Agrinine (b) Lysine
(c) Alanine (d) Tryptophane

4. Pure Beta Carotene is :
(a) White coloured (b) Yellow coloured
(c) Red coloured (d) Green coloured

5. The Pica disease in dairy cattle is primarily due to deficiency of :
(a) Calcium and Phosphorus
(b) Zinc and Magnesium
(c) Phosphorus
(d) Calcium and Vitamin D

6. Which is the best method for determining amino acid content in animal feed stuffs :
   (a) Crampton technique
   (b) Chromatographic technique
   (c) Vansoest technique
   (d) Weende technique

7. HCN poisoning in animals is caused by ingestion of :
   (a) Stunted growth of Jowar
   (b) Fungi infected groundnut cake
   (c) Wilted lucrene grass
   (d) A dead body infected with anthrax organism

8. The nutritive ratio of feed with 80 per cent TDN and 40per cent DCP is :
   (a) 1:1 (b) 1:2
   (c) 1:3 (d) 1:4

9. Green fodder is best source of :
   (a) Fat soluble vitamins
   (b) Proteins
   (c) Water soluble vitamins
   (d) Lipids

10. For making good quality hay the crop should be harvested at :
   (a) Pre-flowering stage (b) Post-flowering stage
   (c) 50% flowering stage (d) 75% flowering stage

11. Sal seed cake is incorporated in the ration of livestock feeding as :
   (a) Protein supplement (b) Energy supplement
   (c) Vitamin supplement (d) Mineral supplement

12. The average size of fat globule in cow milk is :
   (a) 2-3 micron (b) 4-6 micron
   (c) 6-8 micron (d) 8-10 micron

13. The specific gravity of pure cow milk is :
   (a) 1.208 (b) 1.038
   (c) 1.346 (d) 1.028

14. Match List I with List II and select the correct answer using the codes given below the lists :

List-I	**List-II**
A. Magnesium	1. Depraved
B. Iodine	2. Tetany
C. Phosphorus	3. Teartness
D. Molybdenum	4. Birth of hairless young one

Code :

	A	B	C	D
(a)	4	2	1	3
(b)	2	4	3	1
(c)	2	4	1	3
(d)	4	2	3	1

15. Muscular dystrophy in animal can be corrected by feeding :
   (a) Iron salt (b) Vitamin A
   (c) Protein (d) Vitamin E

16. Aflatoxni is produced by :
   (a) Bacteria (b) Fungi
   (c) Yeast (d) Algae

17. Increased rate of body weight gain and improved feed efficiency is, as a result of feeding of :
(a) Androgen (b) Estrogen
(c) Glucocorticoid (d) Thyroprotein

18. Egg white injury is caused by the deficiency of :
(a) Biotin (b) Folic acid
(c) Pantothenic acid (d) Tocopherol

19. When a micro-organism is inoculated into a nutrient medium, the maximum growth of bacteria occurs during
(a) Lag phase (b) Logarithmic phase
(c) Stationary phase (d) Phase of decline

20. Processed milk fat is more homogeneous than the unprocessed. It is because of the removal of :
(a) Fat soluble vitamins (b) Phospholipids
(c) Cholesterol (d) Triglycerides

21. Lactic acid and CO_2 gas is produced from the fermentation of lactose by the action of :
(a) Sterptococci (b) Lactobacilli
(c) Coliforms (d) Lypolytic bacteria

22. Identify the method that indirectly measures bacterial density of milk :
(a) Agar plate count
(b) Direct microscopic count
(c) M.B.R. Test
(d) No. a and b

23. Churning acidity of cream for butter making should be:
(a) 0.15 % (b) 0.25 %
(c) 0.35 % (d) 0.53 %

24. India will be world's top milk producer in 1998 with its output projected at :
(a) 58 million tonnes
(b) 62 million tonnes
(c) 78 million tonnes
(d) 84 million tonnes

25. In fresh churned butter, yeast and mold counts should not exceed :
(a) 20/gm (b) 50/gm
(c) 100/gm (d) 200/gm

26. The boiling point of milk is :
(a) 100°C (b) 102°C
(c) 100.17°C (d) 95.8°C

27. The common microorganisms found in mastitis milk are:
(a) Clostridium chauvei
(b) Streptococci
(c) Pasturella
(d) Salmonella

28. Which one of the following tests should be conducted to determine the extent of bacterial contamination in milk:
(a) M.B.R. test (b) C.O.B. test
(c) Alcohol test (d) Sediment test

29. Shrikhand is an indigenous milk product that belongs to which category :
(a) Frozen milk product
(b) Fermented milk product
(c) Concentrated milk product
(d) Dried milk product

30. The thermophillic bacteria in raw milk are :
(a) Bacillus subtilis (b) Staphylococci
(c) Lactobacilli (d) Coliform

31. Which of the following groups of diseases are communicable to man through the consumption of raw milk :
(a) Brucellosis, Trypanosomiasis, Tetanus
(b) Malta fever, Aids, Leptospirosis
(c) Sore throat, Diphtheria, T.B.
(d) Heptatitis, Erysipelas, Rabies

32. Enzyme whose presence in milk will indicate that it has not been properly pasteurized :
(a) Phosphatase (b) Catalase
(c) Peroxidase (d) Amylase

33. The number of bacteria/ml of very good quality raw milk should be :
(a) Less than 2 lakh
(b) 2 to 10 lakh
(c) 10 to 50 lakh
(d) More than 50 lakh

34. Undulant fever which can be transmitted through milk to man is caused by :
(a) Escherichia coli
(b) Salmonella typhi
(c) Brucella melitensis
(d) Corynebacterium renale

35. Prominent and zigzag milk vein in buffalo is indicative of :
(a) Better milk production
(b) Better fat production
(c) Better growth
(d) Better reproduction

36. Which one of the following groups of hormones is mainly involved in lactogenesis :
(a) Estrogen and Progesterone
(b) Prolactin and Adrenal corticoids
(c) Paratharmone and Insulin
(d) None of these

37. The homozygosity in animals increase through :
(a) Inbreeding
(b) Outbreeding
(c) Crossbreding
(d) Grading up

38. Knobbed defect of bull sperm is the defect of :
(a) Middle piece (b) Tail
(c) Acrosome (d) Head

39. The number of pair of chromosomes in sheep is :
(a) 30 (b) 27
(c) 23 (d) 19

40. Yellow colour of cow milk is due to :
(a) Casein (b) Carotene
(c) Riboflavin (d) Lactose

41. Minimum fat and S.N.F. content in double toned milk should be :
(a) Fat 3.0 % and SNF 9.0 %
(b) Fat 2.5 % and SNF 8.5 %
(c) Fat 1.5 % and SNF 9.0 %
(d) Fat 2.0 % and SNF 9.0 %

42. Recognize the milk enzyme that has some association with mastitic condition in milking cow:
(a) Phosphatase (b) Catalase
(c) Peroxodase (d) Amylase

43. Ascoli's test is used for detection of :
(a) Adulteration in milk
(b) Adulteration in ghee
(c) Anthrax indeed carcass
(d) Brucellosis in Jamunapari goat

44. Streptoccus cremoris belongs to :
(a) Pyogenic group (b) Viridans group
(c) Lactic group (d) Enterococcus group

45. Frozen semen is preserved in :
(a) Nitrogen gas
(b) Carbon dioxide
(c) Liquid nitrogen
(d) Ice

46. Heritability of milk-fat in cattle is :
(a) 0.2 (b) 0.5
(c) 0.4 (d) 0.1

47. What will be the genotypic frequency of Red Colour (R) cattle, if the gene frequency of p=0.8 and q=0.2 :
(a) 0.36 (b) 0.56
(c) 0.76 (d) 0.96

48. Pesudodomia is associated with :
(a) Translocation (b) Duplication
(c) Delection (d) Inversion

49. What is XX/XY condition in cattle known as :
(a) Hermaphrodite
(b) White heifer disease
(c) Crossing over
(d) Freemartinism

50. Name the breed of goat found in the eastern region of the country :
(a) Ganjam (b) Angora
(c) Barbari (d) Jamunapri

51. When sire index is estimated by averaging milk production of all the female offsprings of that particular sire, this index is called :
(a) American Index
(b) Regression Index
(c) Equal Perent Index
(d) Daughters Average Index

52. Which breed of buffalo possess copper coloured skin :
(a) Murrah (b) Jafarabadi
(c) Mchsana (d) Bhadawari

53. Poultry litter is a good source of :
(a) Vitamin B_2 (b) Vitamin B_{12}
(c) Vitamin E (d) Vitamin A

54. Match column I with column II and select the correct answer with the help of codes given below :

Column-I	**Column-II**
A. Jaffarabadi	1. Rohatak
B. Mehsana	2. Kathiawar
C. Murrah	3. Baroda
D. Nili	4. Firozepore

Code :

	A	B	C	D
(a)	4	3	2	1
(b)	3	2	1	4
(c)	2	3	4	1
(d)	2	3	1	4

55. The domestic buffalo has :
(a) 48 chromosomes
(b) 78 chromosomes
(c) 56 chromosomes
(d) 66 chromosomes

56. The act of mating in sheep is known as :
(a) Servicing (b) Coupling
(c) Tupping (d) Mating

57. If the selection of bull is made on the basis of the performance of their female relatives, it is called :
(a) Family selection
(b) Selection index
(c) Sib selection
(d) Sire index

58. Which one of the following characters is least affected by inbreeding :
(a) Body weight (b) Egg production
(c) Hatchability (d) Mortality

59. Which one of the following characters is sex linked :
(a) Albinism (b) Diabetes
(c) Haemophilia (d) Night blindness

60. How many sex chromosomes are found in the nucleus of a fertilized ovum :
(a) One (b) Two
(c) Four (d) Six

61. Zebroid is the result of :
(a) Grading up (b) Hybridization
(c) Crossbreeding (d) Out crossing

62. Castration in female calves is called :
(a) Sterilization (b) Teasur
(c) Spaying (d) Vasectimization

63. Angora breed of goat produces :
(a) Pashmina (b) Wool
(c) Mohair (d) Hair

64. Which method is used for judging the internal quality of an egg without breaking it :
(a) Albumen index
(b) Candling
(c) Haugh unit
(d) Yolk index

65. In a properly managed dairy farm the ratio of milking to dry cows should be :
(a) 3:1 (b) 2:1
(c) 5:1 (d) 1:1

66. Milk output accounts of GNP :
(a) 3.6 % (b) 4.6 %
(c) 5.6 % (d) 6.5 %

67. Where is pulse rate recorded in sheep :
(a) Maxillary artery (b) Digital artery
(c) Coccygeal artery (d) Femoral artery

68. Which breed of goat has Roman nose, long hairs on hind legs and developed udder :
(a) Barbari (b) Beetal
(c) Jamunpari (d) Sirohi

69. Which breed of swine has the golden red sin in colour :
(a) Berkshire
(b) Hampshire
(c) Tomworth
(d) Yorkshire

70. The best method of preservation of poultry and pig meat is :
(a) Cold storage
(b) Deep freezing
(c) Lime water
(d) Smoking

71. Consider the following events in calving:
1. Expulsion of foetus
2. Breaking of allanto-chorion
3. Expulsion of placenta
4. Breaking of umbilical cord

The correct sequence of these events is :

(a)	1	2	4	3
(b)	1	4	2	3
(c)	2	3	1	4
(d)	2	1	4	3

72. Match List I with List II and select the correct answer using the codes given below the lists :

List-I	List II
A. Anthelimintic	1. Rinderpest
B. Virus	2. Ectoparasites
C. Salmonella	3. Edoparasites
D. Acaricideses	4. Gastroenteritis

Code :

	A	B	C	D
(a)	1	2	3	4
(b)	4	3	2	1
(c)	2	4	1	3
(d)	3	1	4	2

73. In animal grooming is done for :
(a) Better milk production :
(b) Better digestion
(c) Better respiration
(d) Better blood circulation

74. Which organ in poultry is susceptible to colonization by salmonella bacteria :
(a) Gizzard (b) Proventriculus
(c) Caecum (d) Colon

75. Indicate the disease of newly born calves related with the infection of umbilical coed :
(a) Nephritis (b) Joint-ill
(c) Arthritis (d) Rickets

76. Indicate the age at first calving of a crossbred heifer:
(a) 20-24 months
(b) 24-30 months
(c) 36-40 months
(d) 40-50 months

77. The investment in animal husbandry and dairy development out of investment in agriculture sector is :
(a) 5 % (b) 10 %
(c) 15 % (d) 20 %

78. The contribution of buffaloes towards the total milk production of the country is :
(a) 30 % (b) 40 %
(c) 52 % (d) 63 %

79. Which one of the following is a metabolic disease :
(a) Diarrhoea (b) Tympanitis
(c) Milk fever (d) H.S.

80. Which one is protozoan disease among the following :
(a) Brucellosis
(b) Vibriosis
(c) Trichomoiasis
(d) Leptospirosis

81. The salient symptoms of Newcastle disease are :
(a) Tumour formation in liver
(b) Pinpoint haemorrhage proventriculus
(c) Imunsupression
(d) Bloody diarhoea

82. The best method for drying up a high producing cow is to:
(a) Stop milking
(b) Stop feeding
(c) Stop water supply
(d) Alternate milking

83. Presence of coliform bacteria indicates that the sample water is contaminated with :
(a) Faecal matter (b) Floor matter
(c) Mineral matter (d) Soil matter

84. The fur type wool is produced by which breed of sheep:
(a) Bhakarwal (b) Gaddi
(c) Gurej (d) Karakul

85. How much floor space is required for calving box :
(a) 12 sq.m. (b) 20 sq.m.
(c) 25 sq.m. (d) 30 sq.m.

86. Which of the following drugs contains Amitraz :
(a) Ectomin (b) Butox
(c) Takic (d) Neocidal

87. Eight-celled eggs are passed in the faeces of the best infested with :
(a) Strongylus (b) Trichris
(c) Coccidia (d) Nematodes

88. Thick creamy discharge from vaginia of cow is indicative of :
(a) Metritis (b) Pyometra
(c) Vaginitls (d) Mastitis

89. Colustrum feeding in newly-born calves is essential for:
(a) Natural passive immunity
(b) Active immunity
(c) Artificial passive immunity
(d) None of these

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90. Name the first scientist who made successful artificial insemination in cattle and sheep :
(a) Anfon van Leuwenhock (b) L. Spallanzani
(c) Hoffman (d) E.I. Ivanoff

91. Subnormal temperature of a freshly-calved cow is indicative of :
(a) Anaemia (b) Parturient Paresis
(c) Heart failure (d) Pericarditis

92. Penicillin was discovered by :
(a) Alexander Fleming (b) Mendel
(c) Morton (d) Horace Wells

93. Motility of semen should be observed at what temperature :
(a) 27°C (b) 42°C
(c) 40°C (d) 37°C

94. Which one of the following poultry diseases is caused by an RNA virus :
(a) Marek's disease
(b) Fowl pox
(c) Infections bursal disease
(d) Infections laryngotracheitis

95. Which medicine will recommend for treatment of tympanitis in cattle :
(a) Carminative
(b) Astringent
(c) Antizymotic
(d) Purgative

96. The infection Rabies in dog can be confirmed by detection of :
(a) Paralysis with salvation
(b) Negri bodies in brain
(c) Rabies virus in saliva
(d) Biting with aggressiveness

97. Degnala disease is caused by :
(a) Bacterial toxicity
(b) Virus toxicity
(c) Fungal toxicity
(d) Selenium toxicity

98. Indicate the main symptoms of Parvo infection in canines:
(a) H.G.E. with quick dehydration
(b) Pustules over abdomen with high temperature
(c) Convulsions with epileptic fats
(d) Vomiting with eating grass

99. Which of the following is the antifungal drug :
(a) Rifampicin (b) Penicillin
(c) Tetracycline (d) Amphotericin

100. The first dose of Rabies Vaccine should be given to dog at the age of :
(a) One year (b) 6½ months
(c) 9½ months (d) 3½ months

101. The drug used for controlling captive deer in zoo is called:
(a) Euthanasia (b) Analgesic
(c) Tranquilizer (d) Narcotic

102. Name the institute which has devised technique for detection of cancer virus in birds :
(a) Indian Veterinary Research Institute
(b) National Dairy Research Institute
(c) Central Drug Research Institute
(d) Central Avian Research Institute

103. Name the kit used for the detecting Avian Leucosis Complex virus in birds :
(a) Poultry kit (b) Ascoli kit
(c) Hansa kit (d) Cofal kit

104. Which organization provides best training to dogs for crucial services to the nation :
(a) I.V.R.I. (b) R.P.F.
(c) R.V.F.C. (d) B.S.F.

105. Which is the intermediate host of Fasciola in India :
(a) Limnaea acuminata (b) Limnaea pervia
(c) Limnaea viatrix (d) Limnaea stagnalis

106. Pessaries are meant for insertion in :
(a) Uterus (b) Ractum
(c) Mouth (d) Nose

107. What is the incubation period of naturally spreading fowl pox disease :
(a) 1-5 days (b) 4-10 days
(c) 10-15 days (d) 15-30 days

108. Glucagon hormone is secreted from :
(a) Anterior pituitary (b) Thyroid
(c) Pancreas (d) Adrenal gland

*****

TEST SERIES - 10

(Based on memory of Civil Services Exam.-1996)

1. Match List I with List II and select the correct answer using the codes given below in the lists :

List-I (*Cattle breed*)	List II (*Economic importance*)
A. Gir	1. Exotic
B. Kangayam	2. Dual
C. Ongole	3. Dairy
D. Red Dane	4. Draught

Codes :

(a)	A	B	C	D
	4	3	1	2
(b)	A	B	C	D
	3	4	1	2
(c)	A	B	C	D
	4	3	2	1
(d)	A	B	C	D
	3	4	2	1

2. Which one of the following has the greatest negative impact upon the health of plants, animals and man?
(a) Slush and effluents
(b) Contaminated water
(c) Environmental pollution
(d) Mosquito menace

3. Which one of the following is the greatest impediment

to adoption of mixed farming?
(a) Ecological imbalance
(b) Unfavourable weather condition
(c) Unfavourable cost-benefit ratio
(d) Socio-economic imbalance

4. Remarkable changes in the mixed farming system in India have taken place in the recent years due to
(a) Changes in social structure
(b) Changes in farmers' economic activities
(c) Innovation in technology and research
(d) Improved institution facilities

5. Central Cattle Breeding Farm is located at
(a) Hissar (b) Karnal
(c) Guntur (d) Suratgarh

6. Which one of the following has the greatest potential of minimizing the impact of malnutrition, poverty and unemployment of Indian farmers?
(a) Milk production
(b) Meat production
(c) Combining livestock with agriculture
(d) Combining family planning with agriculture

7. Consider the cattle available in the following regions of India:
1. Temperate Himalayan 2. Dry North-Western
3. Southern 4. Coastal
The correct sequence in descending order of these cattle in terms of their body size is
(a) 2, 3, 4, 1 (b) 2, 3, 1, 4
(c) 3, 2, 4, 1 (d) 3, 2, 1, 4

8. Which of the following conditions ensure maximum heterosis when two unrelated populations are mated?

1. Maximum difference in the gene frequency.
2. Maximum degree of dominance.
3. Directional dominance of the genes determining the trait.
4. Selective advantage of the genes.

Select the correct answer using the codes given below:
(a) 1, 2 and 3 (b) 2, 3 and 4
(c) 1, 3 and 4 (d) 1, 2 and 4

9. Line breeding is advocated in herds with
(a) Below average performance
(b) Above average performance
(c) Average performance
(d) Low heritability

10. Hissardale strain of sheep was evolved through cross breeding of
(a) Corriedale and Nilgiri
(b) Australian Merino ram and Bikaneri (Magra)
(c) Rambouillet and Gaddi
(d) Suffolk and Corriedale

11. Match List I with List II and select the correct answer using the codes given below the lists :

List-I (*Breeds of animals*)	**List II** (*Species to which they belong*)
A. Saanen	1. Sheep
B. Dorset	2. Poultry
C. Rhode Island Red	3. Rabbit
D. Soviet Chinchilla	4. Goat

Codes:

(a)	A	B	C	D
	1	4	3	2
(b)	A	B	C	D
	4	1	2	3

(c)	A	B	C	D
	4	1	3	2
(d)	A	B	C	D
	1	4	2	3

12. The main objective of cross-breeding is to :
(a) Conserve superior germplasm
(b) Prevent inbreeding
(c) Convert a nondescript population into a pure breed
(d) Incorporate desirable traits to two breeds in the cross

13. The following phases are involved in the oestrous cycle in a cow :
1. Oestrous 2. Diestrous
3. Metestrous 4. Proestrous
The correct chronological sequence of these phases is.
(a) 1, 4, 3, 2 (b) 4, 1, 3, 2
(c) 1, 4, 2, 3 (d) 4, 1, 2, 3

14. The following terms are used for groups of individuals:
1. Breed 2. Line
3. Species 4. Strain
The correct sequence in descending order of these groups on the basis of genetic closeness among the members within the group, is
(a) 2, 4, 1, 3 (b) 2, 4, 3, 1
(c) 4, 2, 1, 3 (d) 4, 2, 1, 3

15. mRNA is found in
(a) nucleus and cytoplasm
(b) cytoplasm and Golgi body
(c) Golgi body and nucleus
(d) nucleus only

16. Match List I with List II and select the correct answer using the codes given below in the lists :

List-I	List II
A. Central dogma	1. Uracil
B. Ribonucleic acid	2. Thymine
C. Adenine	3. Amino acid
D. Codon	4. Protein synthesis

Codes :

(a)	A	B	C	D
	4	1	3	2
(b)	A	B	C	D
	1	4	3	2
(c)	A	B	C	D
	4	1	2	3
(d)	A	B	C	D
	1	4	2	3

17. Which of the following are the advantages of using embryo transfer technology in animal production?
1. Exploitation of reproduction capacity of superior animals.
2. Introduction of new genes.
3. Gene conservation.
Select the correct answer using the codes give below:
(a) 1 and 2 (b) 2 and 3
(c) 1 and 3 (d) 1, 2 and 3

18. The level of expression of a transferred gene in transgenic animals is :
(a) Predictable in magnitude only
(b) Predictable in direction only
(c) Predictable both in magnitude and direction
(d) Unpredictable

19. Match List I with List II and select the correct answer using the codes given below the lists :

List-I (*Chromosomal aberration*)	**List II** (*Names*)
A. Transfer of parts between non homologous chromosomes.	1. Deficiency
B. One whole chromosome missing from one set.	2. Monosomic
C. Presence of more than two genomes	3.Translocation
D. A segment of chromosome missing	4. Polyploidy

Codes:

(a)	A	B	C	D
	2	3	4	1
(b)	A	B	C	D
	2	3	1	4
(c)	A	B	C	D
	3	2	4	1
(d)	A	B	C	D
	3	2	1	4

20. Which of the following statements regarding immune response are correct?
1. It is associated with major histocompatibility complex genes in many species.
2. It is associated with the ability of an animal to recognize and respond to certain antigens.
3. Control is exercised through T-lymphocytes.

Codes:

(a) 2 and 3 (b) 1 and 2
(c) 1 and 3 (d) 1, 2 and 3

21. Which one of the following statements regarding gene mapping is correct ?

(a) Family studies are needed for gene mapping.
(b) Most genes in the cattle genome have been mapped.
(c) Gene mapping is performed by direct sequencing of DNA transcripts.
(d) Gene mapping can be used to show genetic heterogeneity of any hereditary disease syndrome.

22. Which of the following pair(s) is/are correctly matched?
1. N.D.F - Cell contents
2. C.F.- Cellulose, certain, hemicelluloses and lignin
3. N.F.E. - Sugars, starches, pectin and soluble hemicelluloses

Select the correct answer using the codes given below:
(a) 1 alone (b) 1 and 3
(c) 2 and 3 (d) 1 and 2

23. Match List I with List II and select the correct answer using the codes given below in the lists :

List-I (*Feed*)	**List II** (*Major composition of feed*)
A. Air dry roughage	1. 60 to 80 % dry matter but under 7 % protein and zero fibre.
B. Silage	2. 25 to 40 % dry matter with some fibre and moderate carotene.
C. Mineral products	3. More than 8 0% dry matter but over 80 % ash.
D. Molasses	4. Over 80 % dry matter and more than 18 % crude

fibre but les than 60 % total digestible nutrients (TDN).

Codes :

(a)	A	B	C	D
	4	2	3	1
(b)	A	B	C	D
	2	4	3	1
(c)	A	B	C	D
	4	2	1	3
(d)	A	B	C	D
	2	4	1	3

24. Which one of the following is the main difference between balance trial and digestion trial?

(a) Feedstuff can be accurately evaluated through digestion trial but it cannot be evaluated through balance trial

(b) Balance trial method gives an overestimate of nutritive value, whereas digestion trial method gives an accurate nutritive value of feedstuff

(c) In balance trial excretions via faeces, urine, lungs and sometimes the skin may be included, so that a complete measure of intake and excretion is obtained, unlike that in digestion trial.

(d) Excretion of nutrients through all routes can be measured very accurately in digestion trial whereas in balance trial excretion through only faeces and urine can be measured

25. Which one of the following ratios of corn molasses (4.5 % CP) and urea (2.81 % CP equivalent) would make a 20 % CP molasses-urea mixture?

(a) 80.0 : 20.0

(b) 85.5 : 14.5

(c) 90.0 : 10.0

(d) 94.4 : 5.6

26. Match List I with List II and select the correct answer using the codes given below the lists :

List-I (*Ingredient*)	**List II** (*Maximum level of incorporation in pig's grower ration*)
A. Rice polish	1. 5 %
B. Oats	2. 14 %
C. Soyabean	3. 20 %
D. Brewer's yeast	4. 10 %

Codes :

(a)	A	B	C	D
	4	3	2	1
(b)	A	B	C	D
	3	4	2	1
(c)	A	B	C	D
	4	3	1	2
(d)	A	B	C	D
	3	4	1	2

27. Which of the following statements regarding trace elements supplementation are correct ?

1. Supplementation of livestock with copper @ 0.25 % to 0.50 % copper sulphate in trace mineralized salt is essential in copper deficient areas.
2. Supplementation of cobalt is easily provided to livestock by the use of trace mineralized salt containing 12.5 g cobalt sulphate per 100 kg of trace mineralized salt.
3. In hilly areas supplementation of livestock with iodine is accomplished by feeding iodized salt containing 0.01 % potassium iodide.

4. Iron supplementation in cattle ration is generally not warranted in India.

Select the correct answer using the codes given below :

(a) 2, 3 and 4 (b) 2 and 4
(c) 1 and 3 (d) 1, 2 and 3

28. Which one of the following when present in excess level in forages causes lesions on tail, ear tips, fore limbs knee and hind limbs below hocks?

(a) Molybdenum (b) Selenium
(c) Copper (d) Fluorine

29. Which of the following are sources of ammonia in the rumen?

1. Hydrolysis of dietary fatty acids in rumen.
2. De-amination of amino acids resulting from microbial proteolysis of dietary protein.
3. Breakdown of dietary NPN by ruminal micro-organisms.
4. Degradation of endogenous urea transferred through the rumen wall.

Codes :

(a) 1, 2 and 3 (b) 1, 2 and 4
(c) 2, 3 and 4 (d) 1, 3 and 4

30. Protein quality in ruminants is measured by :

(a) Nitrogen balance and biological value of protein
(b) Protein efficiency ratio and net protein utilization.
(c) Chemical score and net protein value
(d) Protein equivalent and digestible crude protein

31. Match List I with List II and select the correct answer using the codes given below the lists :

List-I		**List II**
A. Faucet	1.	Inspection chamber
B. Gully trap	2.	Prevention of sewer gas
C. Junctions	3.	Separation of solids
D. Siphon trap	4.	Spigot

Codes :

(a)	A	B	C	D
	3	4	1	2
(b)	A	B	C	D
	4	3	2	1
(c)	A	B	C	D
	3	4	2	1
(d)	A	B	C	D
	4	3	1	2

32. Match List I with List II and select the correct answer using the codes given below the lists :

List-I
(*Physical conditions*)
A. Culled rabbits
B. A young rabbit whose eyes are not yet open
C. A young rabbit below 20 weeks of age
D. 10 to 12 weeks old rabbits ready for market

List II
(*Associated term*)
1. Kit
2. Fryer
3. Roaster
4. Bunny

Codes :

(a)	A	B	C	D
	1	3	2	4
(b)	A	B	C	D
	3	1	4	2

(c)	A	B	C	D
	3	1	2	4
(d)	A	B	C	D
	1	3	4	2

33. Which one of the following is the most suitable age for breaking a camel?
(a) 2.5 to 3.0 years (b) 3.5 to 4.0 years
(c) 4.5 to 5.0 years (d) 5.5 to 6.0 years

34. The correct length of a double row face-out middle alleyed barn for 60 cows is :
(a) 25 m (b) 30 m
(c) 38 m (d) 45 m

35. Hardness of water is caused by :
(a) Chlorides of Na and K.
(b) Carbonates of Ca, Mg and Na.
(c) Carbonates and sulphates of Ca, Mg and Na.
(d) Chlorides and fluorides of Na.

36. Consider the following statements :
Dome-shaped milking pails are essential for clean milk production because
1. Number of bacteria noticed in such pails is very low compared to open milk pails.
2. Entry of dust in pail at the time of milking is minimum.
3. It is easier for the milker to hold the pail while milking.
4. Such pails are cheaper.
Which of the above statements are correct?
(a) 1 and 4 (b) 1 and 2
(c) 1, 2 and 3 (d) 2, 3 and 4

37. Which one of the following parameters is used by the

loan-giving agencies for deciding economic efficiency of a dairy farm?
(a) Profit per litre of milk produced
(b) Profit per unit of land used
(c) Profit per cow on the farm
(d) Net profit of the farm

38. Which one of the following pairs constitutes major gases of bio-gas resulting from fermentation of cow dung?
(a) Methane and nitrogen
(b) Methane and carbon dioxide
(c) Methane and hydrogen
(d) Methane and ammonia

39. Match List I with List II and select the correct answer using the codes given below the lists :

List-I (*Gestation period*)	**List II** (*Animal species*)
A. 336 days	1. Mare
B. 280 days	2. Cow
C. 63 days	3. Bitch
D. 150 days	4. Ewe

Codes:

(a)	A	B	C	D
	2	1	4	3
(b)	A	B	C	D
	1	2	4	3
(c)	A	B	C	D
	2	1	3	4
(d)	A	B	C	D
	1	2	3	4

40. The milk production capacity of dairy cow depends upon

the

(a) Shape and size of the udder
(b) Number of alveoli in the mammary gland
(c) Amount of Oxytocin present during the milking
(d) Amount of Prolactin and ACTH in blood

41. Match List I with List II and select the correct answer using the codes given below the lists :

List-I (*Parameter*)	**List-II** (*Months/day-cattle herd performance*)
A. Calving interval	1. 21 months
B. Age at maturing for breeding	2. 12 months
C. Age at first calving	3. 20 months
D. Mean gestation period	4. 280 days

Codes:

(a)	A	B	C	D
	1	2	3	4
(b)	A	B	C	D
	2	1	3	4
(c)	A	B	C	D
	1	2	4	3
(d)	A	B	C	D
	2	1	4	3

42. Consider the following statements :
Post-mortem examination of the carcass is done
1. To secure approval for human consumption.
2. To condemn totally for human consumption.
3. To condemn partially for human consumption.
Which of the above statements are correct?
(a) 1, 2 and 3 (b) 1 and 3
(c) 2 and 3 (d) 1 and 2

43. Hardening of the skeletal muscles during rigor mortis is due to:
(a) Freezing of muscle fibers
(b) Reduced muscle temperature
(c) Loss in muscle membrane permeability
(d) Cessation of cardiac contraction

44. Adulteration of goat meat cannot be easily detected by the available methods, if the goat meat is adulterated with the meat of :
(a) turkey (b) dog
(c) calf (d) sheep

45. Which one of the following pairs is not correctly matched?
(a) Refrigeration : Inhibits growth of organisms in meat
(b) Thermal processing : Kills spoilage and toxigenic micro-organisms
(c) Freezer burn : Due to decrease in pH of preserved meat
(d) Cold sterilization : Meat preservation by ionizing radiation

46. Preservation of meat by salt, sugar, vinegar or all three agents is called :
(a) canning (b) curing
(c) drying (d) processing

47. Which of the following characteristic are taken as standards for grading live poultry of all kinds and classes?
1. Health and vigour
2. Conformation
3. Freedom from defects
4. Feathering

Select the correct answer using the following codes:
(a) 1, 2 and 3 (b) 1, 3 and 4
(c) 2 and 4 (d) 1, 2, 3 and 4

48. Towards the end of the laying period, the shell texture of the egg decreases due to :
(a) Deficiency of Vitamin D
(b) Hot weather
(c) Fatigue of shell gland
(d) Age of bird

49. Which of the following quality factors can be improved through selective breeding?
1. Health and vigour
2. Conformation
3. Freedom from defects
Select the correct answer using the codes given below :
(a) 2 and 3 (b) 1 and 2
(c) 1 and 3 (d) 1, 2 and 3

50. Which one of the following statements regarding laying-hen is correct?
(a) The liver contains more than twice the concentration of lipid found in that of immature birds' liver and almost in the form of triglycerides
(b) The increase in liver lipid does not coincide with the increase in blood lipids
(c) The liver triglycerides concentration is almost equal to that of cock and there is no difference in the cholesterol contents
(d) There is no change in the concentration of liver lipid on administration of estrogen in immature birds

51. Which of the following pair(s) is/are correctly matched?
1. Sodium chloride : Improves flavour and body
2. Sugar : Improves testure and aroma
3. Poly-phosphate : Reduces cooking losses during smoking and improves texture
Select the correct answer using the codes given below :
(a) 1, 2 and 3 (b) 1 and 2
(c) 1 alone (d) 3 alone

52. Nitrates are used in the curing solution mainly to :
(a) Increase water holding capacity
(b) Retard microbial growth
(c) Improve colour
(d) Increase emulsifying capacity

53. Which of the following viruses are present in nature with strains differing in virulence and antigenicity ?
1. Rabies virus
2. Rinderpest virus
3. Ranikhet virus
4. Foot and mouth disease virus
Select the correct answer using the codes given below :
Codes :
(a) 1, 2 and 3 (b) 1, 2 and 4
(c) 3 and 4 (d) 2, 3 and 4

54. Which one of the following pairs is not correctly matched?
(a) Foot and mouth disease : Solipeds
(b) St. Louis encephalitis : Horse
(c) Louping ill : Sheep
(d) Egg drop syndrome 76 : Poultry

55. Which of the following contagious diseases requires careful management?

1. Blue Tongue
2. Avian pneumoencephalitis
3. Cattle plague
4. African horse sickness

Select the correct answer using the codes given below:

(a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 1 and 3

56. Which one of the following pairs is not correctly matched?
(a) Brucella abortus strain 19: Protection of heifers
(b) Hog cholera : Cell culture vaccine
(c) Goat tissue vaccine: Protection of pure-bred cows against rinderpest.
(d) F_1 and R_2B strains of RD vaccine : Protection of day-old chicks and adult layers respectively

57. Which of the following post-mortem findings suggest a case of Johne's disease?
1. Thickening of intestinal wall up to 3 to 4 times that of normal.
2. Corrugation of the intestinal mucosa.
3. Ileocaecal valve normal
4. Mesenteric and Ilecocacal lymph nodes enlarged and edematous.

Select the correct answer using the codes given below:

Codes:

(a) 1 and 3 (b) 1, 2 and 3
(c) 3 and 4 (d) 1, 2 and 4

58. Which one of the following pathogenic animal viruses is transmitted even through frozen semen?
(a) Cow pox virus
(b) Foot and mouth disease virus
(c) Rinderpest virus
(d) Rabies virus

59. A parasite competes with the host for food which develops into a specific deficiency in the host as in case of *Diphyllobothrium latum*. In this case the host suffers from?
(a) Vitamin A deficiency
(b) Vitamin B deficiency
(c) Vitamin B_{12} deficiency
(d) Vitamin D deficiency

60. Which one of the following serological tests is most reliable for detection of Avian Leucosis complex in a parent stock?
(a) Agglutination test
(b) Haemagglutination inhibition test
(c) Complement fixation test
(d) ELISA test

61. Which one of the following pairs is not correctly matched?
(a) Ionophores : monensin
(b) Quinolones : salinomycin
(c) Pyridines : clopidol
(d) Guanidines : robenidine

62. Tapeworm infestation in poultry is treated with :
(a) Tin compounds and phenothiazine
(b) Niclosamide and piperazine
(c) Phenothiazine and piperazine
(d) Tin compounds and Niclosamide

63. Laying of shell-less eggs and/or eggs with abnormal shell surface is seen in which of the following conditions?
1. Infectious bronchitis
2. Egg drop syndrome 76.
3. Calcium deficiency
4. Fowl cholera

1. Blue Tongue
2. Avian pneumoencephalitis
3. Cattle plague
4. African horse sickness

Select the correct answer using the codes given below:

(a) 1 and 2 (b) 2 and 3
(c) 3 and 4 (d) 1 and 3

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1. Infectious bronchitis
2. Egg drop syndrome 76
3. Calcium deficiency
4. Fowl cholera

Select the correct answer using the codes given below:
(a) 1, 2 and 4 (b) 1 and 3
(c) 1, 2 and 3 (d) 2, 3 and 4

64. Pregnancy toxaemia in sheep is associated with the disturbance in metabolism and is related to :
(a) calcium deficiency (b) ketosis
(c) vitamin E deficiency (d) uremia

65. Following the standard treatment of hypomagnesaemia in cows with magnesium salts, there may be occurrence of which of the following intolerance effects?
1. Defaecation and sweating
2. Defaecation and urination
3. Respiratory distress of failure
Select the correct answer using the codes given below:
(a) 1, 2 and 3 (b) 1 and 2
(c) 2 and 3 (d) 1 and 3

66. Green stick fracture and pressure distortions of long bones is a common outcome in :
(a) Osteodystrophia fibrosa (b) rickets
(c) osteoporosis (d) periostitis

67. In calves, white muscle disease occurs due to :
(a) Zinc deficiency
(b) Phosphorus deficiency
(c) Vitamin E deficiency
(d) Thiamine deficiency

68. Consider the following conditions :
1. Active erythropoiesis
2. Regenerative stage of anaemia
3. Deficiency and splenic functions
Presence of Howell-jolly bodies indicates

(a) 1, 2 and 3 (b) 1 and 2
(c) 2 and 3 (d) 1 and 3

69. Hybridoma technology was invented by :
(a) Gilbert and Maxam (b) Kohler and Milstein
(c) Kary Mullis (d) Temin and Baltimore

70. T-helper cells are recognized by which one of the following sets of surface markers?
(a) CD_4, TCE and MHC class II
(b) CD_8, TCR and MHC class I
(c) CD_{16} and CD_2
(d) Ig, CD_{21} and CD_{23}

71. Rinderpest vaccination leads to
(a) Lifelong immunity
(b) Short duration of immunity
(c) Breakdown of immunity
(d) Innate immunity

72. Consider the following diseases :
1. Contagious bovine pleuropneumonia
2. Rabies
3. Rinderpest
4. Foot and mouth disease
The correct sequence in descending order of quarantine periods of these diseases is
(a) 2,1,3,4 (b) 2,1,4,3
(c) 1,2,3,4 (d) 1,2,4,3

73. The legislation on quarantine restricts animal movement:
(a) Both internationally and nationally
(b) Internationally alone
(c) Within the State
(d) From one State to another

74. Consider the following statements :
In India, epidemics of Japanese encephalitis coincide with
1. The period following the rains.
2. Periods of high mosquito prevalence.
3. The summer.
4. Periods of high house-fly prevalence.
Which of the above statements are correct ?
(a) 1 and 2 (b) 3 and 4
(c) 1and 4 (d) 2, 3 and 4

75. Which one of the following pairs is not correctly matched?
(a) Anthrax : Ascoli test
(b) Scarlet fever : Agglutination test
(c) Brucellosis : Rose Bengal plate test
(d) Tuberculosis : Intradermal test

76. Match List I with List II and select the correct answer using the codes given below the lists :

List-I (*Milk-borne disease*)	**List-II** (*Causative agent*)
A. Q-fever	1. Cow pox virus
B. Malta fever	2. *Caxiella burnetii*
C. Milker's nodule	3. *Staphylococcus aureus*
D. Enterotoxication	4. *Brucella melitensis*

Codes :

(a)	A	B	C	D
	2	4	3	1
(b)	A	B	C	D
	4	2	3	1
(c)	A	B	C	D
	2	4	1	3
(d)	A	B	C	D
	4	2	1	3

77. A dark brown to black pigmentation of the kidneys and liver in sheep occurring without any clinical manifestation of the disease is due to accumulation of :
(a) Bile pigments on liver and kidneys
(b) Sodium taurocholate and melanin pigments on liver and kidneys
(c) Cerebromelanosides on liver and kidneys
(d) Lipofuscin pigment at various stages of oxidation of liver and kidneys

78. Which of the following are milk-borne diseases?

Code	**Disease**
1.	Haemonchosis
2.	Trichinellosis
3.	Tuberculosis
4.	Leishmaniasis
5.	Brucellosis
6.	Campylobacteriosis

Select the correct answer using the codes given above:
(a) 1, 2 and 3 (b) 2, 3 and 4
(c) 3, 4 and 5 (d) 3, 5 and 6

79. What is the vector of Kyasanur Forest Disease among the forest workers of Kerala, Karnataka and Tamil Nadu?
(a) Mosquito (b) Tick
(c) Mite (d) Sand fly

80. Which one of the following occupational diseases is transmitted through birds?
(a) Anthrax (b) Chagas' disease
(c) Psittacosis (d) Contagious ecthyma

81. Match List I with List II and select the correct answer using the codes given below the lists :

List-I (*Occupational*)	List-II (*Lesions*)
A. Veterinary obstetrician	1. Cercarial dermatitis
B. Washerman	2. Bubonic plague
C. Sweeper	3. Malignant carbuncle
D. Skin and hide handler	4. Erythema brucellum

Codes :

(a)	A	B	C	D
	1	4	2	3
(b)	A	B	C	D
	1	4	3	2
(c)	A	B	C	D
	4	1	2	3
(d)	A	B	C	D
	4	1	3	2

82. Pralidoxime, as a cholinesterase reactivator, is effectively used in the treatment of :
(a) Organophosphorus insecticide poisoning
(b) Carbamate insecticide poisoning
(c) Chlorinated hydrocarbon insecticide poisoning
(d) Oganomercurial fungicide poisoning

83. Match List I with List II and select the correct answer using the codes given below the lists :

List-I
(*Antimicrobial drugs used in animals*)
A. Streptomycin
B. Tetracycline
C. Quinolones

List II
(*Specific toxic / side effects of*)
1. Deposited in growing teeth and bones as a bright yellow fluorescent complex

2. Causes arthropathic effect in young animals (horses and dogs)
3. An ototoxic, and can cause defects in both hearing and balance functions

Codes:

(a)	A	B	C
	3	2	1
(b)	A	B	C
	2	1	3
(c)	A	B	C
	3	1	2
(d)	A	B	C
	1	3	2

84. Drug metabolizing enzymes are present in the liver in
(a) ribosome (b) microsomes
(c) cytoplasm (d) reticuloendothelial system

85. Which one of the following pairs is correctly matched?
(a) Antiadrenergic drug : Amphetamine
(b) Anticholinergic drug : Furosemide
(c) Diuretic : Ephedrine
(d) Non-steroidal anti-inflammatory drug : Flunixin

86. Which one of the following is an active metabolite of chloral hydrate in the body?
(a) Trichloroacetic acid
(b) Trichloroethanol
(c) Trichloroethanol gluconic acid
(d) Chloroform

87. Which of the following opiate receptor antagonists also have slight agonistic activity?
1. Naloxone 2. Naltrexone
3. Nalorphine 4. Diprenorphine

Select the correct answer using the codes given below:
(a) 1 and 2 (b) 1 and 4
(c) 2 and 3 (d) 3 and 4

88. Fresh milk
(a) Turns blue litmus to red
(b) Does not change the colour of litmus
(c) Turns red litmus to blue
(d) Turns blue litmus to red and red litmus to blue

89. Xanthine oxidase content in milk correlates with the content of:
(a) Molybdenum (b) Chromium
(c) Selenium (d) Manganese

90. Consider the following protein components available in cow milk :
1. Lactalbumin
2. Lactoglobulin
3. Casein
The correct sequence in descending order in terms of percentage of these components is
(a) 1,2,3 (b) 2,1,3
(c) 3,2,1 (d) 3,1,2

91. Milk of all the following species contains fat :
1. Dog 2. Buffalo
3. Cow 4. Ewe
The correct sequence in descending order of the fat content of the milk of these species is:
(a) 1, 4, 2, 3 (b) 1, 4, 3, 2
(c) 4, 3, 2, 1 (d) 4, 3, 1, 2

92. A milk sample is suspected to be adulterated. On analysis, its fat content and lactometer reading at 20°C are found to be 5.5% and 33 respectively. The milk

sample is most likely to be :
(a) Buffalo milk mixed with cow milk
(b) Buffalo milk adulterated with water
(c) Cow milk adulterated with thickening agents
(d) Partially skimmed buffalo milk

93. Which of the following tests would be necessary to check the quality of milk on the receiving platform and for the payment of milk?
1. Fat
2. Specific gravity
3. Clot on boiling
Select the correct answer using the codes given below
(a) 1, 2 and 3 (b) 1 and 2
(c) 2 and 3 (d) 1 and 3

94. Match List I with List II and select the correct answer using the codes given below the lists :

List-I
(Metals)
A. Iron
B. Copper
C. Tin
D. Aluminium

List II
(*Factors going against the use of the these metals in dairy equipment etc.*)
1. Taint
2. Too soft
3. Corroded by alkali

Codes:

	A	B	C	D
(a)	1	-	2	3

(b)	A	B	C	D
	1	-	3	2
(c)	A	B	C	D
	-	1	2	3
(d)	A	B	C	D
	-	1	3	2

95. Consider the following statements :
Stainless steel is mainly used in the fabrication of dairy utensils and equipment because of its
1. high conductivity which promotes heat transfers.
2. high resistance to corrosion by acids and alkalis used in cleaning operations.
3. high durability
4. attractive appearance and amenability to easy cleaning
Which of the above statements are correct?
(a) 1 and 2 (b) 1, 2 and 3
(c) 2, 3 and 4 (d) 1, 3 and 4

96. Which of the following pairs of processes and scientists are correctly matched?
1. Homogenization : August Gautin
2. Cream Separation : De Lavel
3. Determination of fat : Louis Pasteur
Select the correct answer using the codes given below:
(a) 1, 2 and 3 (b) 1 and 3
(c) 1 and 2 (d) 2 and 3

97. Heating milk at 60°C and then holding it for 15 minutes destroys following important pathogenic organisms :
1. Bacillus dysenteriae
2. Bacillus typhosus
3. Mycobacterium tuberculosis
4. Diphtheria bacilli

The correct sequence of the destruction of these bacteria is:
(a) 3, 2, 1, 4 (b) 4, 3, 2, 1
(c) 2, 4, 1, 3 (d) 4, 2, 1, 3

98. Consider the following methods of milk pasteurization:
1. H.T.S.T. 2. L.T.L.T.
3. U.H.T. 4. Stassanization
The correct sequence of these methods in terms of the increasing order of the pasteurization temperature, is
(a) 1, 2, 3, 4 (b) 2, 1, 4, 3
(c) 2, 3, 4, 1 (d) 4, 2, 1, 3

99. Which one of the following methods gives maximum yield of ghee?
(a) Desi method
(b) Direct cream method
(c) Creamery butter method
(d) Pre-stratification method

100. Without any loss of fat in buttermilk, 7.5 kg of butter is produced from 10 kg of 60 % cream. What would be the overrun in butter if it contained 0.5 % curd and 2 % salt?
(a) 14.1 % (b) 20 %
(c) 30 % (d) 40 %

101. The following sequence of various processes involved namely, pasteurization, and cooling is recommended for the production of homogenized milk because it
(a) Saves cost of operation
(b) Prevents the formation of cream layer
(c) Avoids rancidity of milk
(d) Renders milk more palatable

102. During the course of freezing of ice-cream in freezing chambers, the constituents of the mix follow specific sequence of freezing.
The correct sequence in which the constituents freeze is
(a) Fat, sugar, protein and water
(b) Water, sugar, protein and fat
(c) Protein, fat, water and sugar
(d) Sugar, protein, fat and water

103. Which of the following micro-organisms produce lactic acid and gases in milk and are considered undesirable?
1. *L. bulgaricus* 2. *E. coli*
3. *B. subtilis* 4. *Aerobacter aerogenes*
Select the correct answer using the codes given below:
Codes:
(a) 1 and 2 (b) 2 and 3
(c) 2 and 4 (d) 3 and 4

104. Which of the following is/are the reason(s) for the difficulty in the isolation of infectious hepatitis virus from milk?
1. Non-availability of suitable laboratory host.
2. Extremely short incubation period of disease.
3. Extremely long incubation period of disease.
Select the correct answer using the codes given below:
Codes:
(a) 1 and 3 (b) 1 and 2
(c) 2 alone (d) 3 alone

105. The growth curve of *Lactobacillus bulgaricus* in yoghurt consists of the following phases :
1. Stationary 2. Log
3. Death 4. Lag
The correct chronological order of these phases is

(a) 4, 2, 3, 1 (b) 2, 4, 1, 3
(c) 4, 2, 1, 3 (d) 2, 4, 3, 1

106. Which one of the following hormones causes let-down of milk in a cow?
(a) Adrenaline (b) Estrogen
(c) Oxytocin (d) Thyroxin

107. The hormones secreted by pituitary include
(a) FSH and ACTH
(b) FSH and Cortisone
(c) ACTH and Progesterone
(d) ACTH and Cortisone

108. Consider the following parts of mammary gland of a cow :
1. Alveoli
2. Teat cistern
3. Gland cistern
4. Main duct
5. Branch duct
The correct sequence of these parts from the exterior is
(a) 2, 4, 5, 3, 1 (b) 2, 3, 4, 5, 1
(c) 3, 2, 5, 4, 1 (d) 5, 3, 2, 4, 1

Directions :
The following twelve (12) items consist of two statements, one labeled the 'Assertion A' and the other labeled the 'Reason R'. You are to examine these two statements carefully and decide if the Assertion A and the Reason R are individually true and if so, whether the Reason is correct explanation of the Assertion. Select your answers to these items using the codes given below and mark your answer sheet accordingly.

Codes :

(a) Both A and R are true and R is the correct explanation of A
(b) Both A and R are true but R is not a correct explanation of A
(c) A is true but R is false
(d) A is false but R is true

109. Assertion (A) : Heterosis is opposite to inbreeding depression.
Reason (R) : Inbreeding increases the frequency of lethal diseases.

110. Assertion (A) : Appropriate moisture content for making silage from most forage crops is 60-65 %
Reason (R) : Forage containing more than 60-65 % moisture will produce slimy, putrid, highly acidic silage and there will be seepage of juices.

111. Assertion (A) : Standardization of lactation yield is carried out using correction factors taking 300 days as the standard lactation period in cattle.
Reason (R) : Fortnightly recording of milk is sufficient for estimating lactational yield of cows.

112. Assertion (A) : Buffaloes are more prone to physiological distress in summer than Zebu cattle.
Reason (R) : Buffaloes have poor cutaneous evaporative cooling mechanism as compared to Zebu cattle.

113. Assertion (A) : Dark cutting meat is a condition in which the lean meat is darker than normal in colour.
Reason (R) : Sugar content is lower in the lean meat at the time of slaughter.

114. Assertion (A) : Newly-hatched chicks can be shifted over long distances without food and water for 3-4 days.
Reason (R) : The yolk is drawn into the body of the chicks just before they hatch. It is highly nourishing and provides necessary nutrients to the chicks.

115. Assertion (A) : Lactation tetany occurs in all ruminants, but reaches its highest incidence in lactating cows.
Reason (R) : Lactating cows are more prone to the attack of *Clostridium tetani*.

116. Assertion (A) : Foot and mouth disease is an extremely contagious acute disease of all cloven-footed animals.
Reason (R) : Foot and mouth disease is characterized by fever and vesicular eruption in the mouth and on the feet.

117. Assertion (A) : *Toxoplasma gondii* is an intestinal coccidian with an unusually wide range of intermediate hosts including humans and birds.
Reason (R) : In humans, Toxoplasmosis cannot be acquired in-utero.

118. Assertion (A) : Cell-mediated immunity occurs particularly in infections by micro-

organisms that enter and grow within tissue cells.

Reason (R) : In humoral antibody response T-lymphocytes play an important role.

119. Assertion (A) : Cow milk chhana is preferred for rasogulla preparation since it is soft bodied and smooth textured.

Reason (R) : Cow milk chhana contains lesser fat percentage than buffalo milk chhana.

120. Assertion (A) : Utensils often are serious sources of contamination and have a great influence upon the keeping quality of milk.

Reason (R) : Use of hot water and chlorine solution for cleaning the utensils will not reduce the contamination.

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TEST SERIES - 11

(Based on memory of U.P.P.C.S..-1996)

1. Which among the following countries of the world has the largest cattle population :
   (a) China (b) Russia
   (c) India (d) U.S.A.

2. Which one of the following is found in milk only but not in blood :
   (a) Glucose (b) Calcium
   (c) Vitamin-K (d) Casein

3. The study of genetically determined variation revealed by the effect of drug is termed as :
   (a) Medical genetics
   (b) Eugenetics
   (c) Population genetics
   (d) Pharmaco genetics

4. The disease transmitted from animal to man through milk is :
   (a) Black Quarter (b) Dysentery
   (c) 'Q' fever (d) Septic sore-throat

5. In which breed of buffalo the dewlap and udder is well developed :
   (a) Murrah (b) Nili
   (c) Jafarabadi (d) Bhadawari

6. Which one of the following breeding system is useful when a drastic change in the seed stock of the same breed is desired :
(a) Crossing in breed lines (b) Grading up
(c) Out crossing (d) Hybridization

7. The best dual purpose breed of goat is :
(a) Beetal (b) Jamunapari
(c) Black Bengal (d) Marwari

8. Correct place for depositing semen in genetalia of cow is :
(a) Fallopian tube (b) Uterus
(c) Mid Cervix (d) Vagina

9. Egg shell in hens is formed in :
(a) Infundibulum (b) Uterus
(c) Magnum (d) Ovary

10. Which one of the following statement is correct :
(a) Inbreeding : is mating of two animals of same breed
(b) Inbreeding : is mating of two different breeds
(c) Inbreeding : is mating of two species
(d) Inbreeding : is use of bull of a pure breed on a non-descript breed

11. For getting maximum advantage both from male and female genotypes, which practice should be adopted :
(a) Natural mating
(b) Synchronization of estrus
(c) Embryo transfer
(d) Artificial insemination

12. How much foetal growth occurs during the last three months of gestation period in cows :
(a) One-third (b) Half
(c) Two third (d) Three fourth

13. In animals lethal factors may be brought to light by :
(a) Criss-Crossing
(b) Triple-Crossing
(c) Close breeding
(d) Hybridization

14. The gestation period in swine is :
(a) 114 days (b) 145 days
(c) 270 days (d) 310 days

15. Which one of the following is responsible for sudden genetic change in animals :
(a) Environment (b) Variation
(c) Sire index (d) Mutation

16. The inbreeding coefficient of progeny obtained by mating half brother and sister is :
(a) 0.25 (b) 0.125
(c) 0.50 (d) None of these

17. Crude protein content of groundnut straw is :
(a) 4.5 percent (b) 5.6 percent
(c) 8.3 percent (d) 3.0 percent

18. Green maize is suitable for :
(a) Silage making (b) Hay making
(c) Kadbi making (d) Wastlage making

19. Metabolic-water produced from 100 gm protein is :
(a) 60 g (b) 107 g
(c) 40 g (d) 56 g

20. One gram of T.D.N. is equivalent to D.E. amounting to:
(a) 4.4 Kcal (b) 3.56 Kcal
(c) 2.14 Kcal (d) 1.00 Kcal

21. Indicate the oil cake containing maximum crude protein :
(a) Mustard (b) Linseed
(c) Groundnut (d) Cottonseed

22. An ideal example of 'heteroglycan' is :
(a) Cellulose (b) Starch
(c) Lignin (d) Hemicellulose

23. Microbial digestion in non-ruminant animals occurs in:
(a) Small intestine (b) Large intestine
(c) Stomach (d) None of the above

24. The most essential dietary vitamin for Indian Zebu is :
(a) Vitamin 'A' (b) Vitamin 'D'
(c) Vitamin 'B' (d) Vitamin 'E'

25. A teaser bull is maintained for :
(a) Keeping the herd moving
(b) Detecting heat in females
(c) Protecting weak animals
(d) Insemination

26. What is the fat and S.N.F. percentage prescribed for Buffalo milk in prevention of food adulteration act in U.P. State:
(a) 3.0 and 8.5 respectively
(b) 3.5 and 8.5 respectively
(c) 4.5 and 9.0 respectively
(d) 6.0 and 9.0 respectively

27. What is the daily dry matter requirement of crossbred cow per 100 kg body weight:
(a) 1.0 to 1.5 kg
(b) 2.5 to 3.0 kg
(c) 3.5 to 4.5 kg
(d) 5.0 to 7.0 kg

28. Pellagra in jowar eaters is associated with high content of:
(a) Leucine (b) Isoleucine
(c) Lysine (d) Threonine

29. One gram urea is equivalent to how many grams of protein :
(a) 0.46 (b) 4.60
(c) 0.29 (d) 2.90

30. How many feeders of 1.5 metre in length will be required for 500 birds over 13 weeks of age :
(a) 8 (b) 13
(c) 18 (d) 25

31. Homeothermy refers to maintenance of :
(a) Body weight (b) Body temperature
(c) Feed in take (d) Energy balance

32. Milk queen of the goat in the world is called as :
(a) Alpine (b) Toggenberg
(c) Anglonubean (d) Saanen

33. On an average a crossbred cow requires a covered space of :
(a) 2.5 square metres (b) 3.5 square metres
(c) 4.5 square metres (d) 5.5 square metres

34. How much covered area will be required for a down calver cow :
(a) 15 sq.m. (b) 12 sq.m.
(c) 10 sq.m. (d) 8 sq.m.

35. The most popular fine wool producing sheep in the world is:
(a) Rambouillet (b) South down
(c) Merino (d) Lincon

36. Which one of the following is used as poison to kill cattle:
(a) Sodium chloride
(b) Potassium chloride
(c) Mercuric chloride
(d) Calcium chloride

37. K-casein is what type of protein from the following :
(a) Calcium sensitive casein
(b) Calcium insensitive casein
(c) Fraction of â casein
(d) Fraction of ã casein

38. Which one of the following is an important constituent of fat globule membrane and contributes to the richness

of flavour of milk and milk products :
(a) Riboflavin (b) Carotene
(c) Lecithin (d) Cholesterol

39. When fresh milk is titrated against standard alkali, it gives acidic reaction. This is on account of which of the following:
(a) Lactic acid (b) Fatty acid
(c) Calcium carbonate a (d) Acid phosphates

40. At what temperature alkaline phosphatase enzyme present in milk is inactivated within 15 seconds :
(a) 61.1°C (b) 62.2°C
(c) 71.1°C (d) 72.2°C

Note : From question number 41 to 45 match column I against II and select the correct combination from the code given under each question :

41.

Column-I		**Column-II**
A. Exotic disease	1.	Spread in certain type of species only
B. Epizootic	2.	Appear rarely
C. Enzootic	3.	Come along with imported animals
D. Sporadic disease	4.	Spread in large area simultaneously in large number of animals

Code :

	A	B	C	D
(a)	3	4	1	2
(b)	3	1	4	2
(c)	2	3	1	4
(d)	4	2	3	1

42.

Column-I	Column-II
A. Anthrax	1. Mycobacterium tuberculosis.
B. Johnes disease	2. Bacillus anthracis
C. Brucellosis	3. Mycobacterium paratuberculosis
D. Tuberculosis	4. Brucella abortus

Code :

	A	B	C	D
(a)	4	1	2	3
(b)	1	2	3	4
(c)	2	3	4	1
(d)	3	4	1	2

43.

Column-I (Animal)	Column-II (Gestation period)
A. Cow	1. 310 days
B. Mare	2. 150 days
C. Goat	3. 340 days
D. Buffalo	4. 280 days

Code :

	A	B	C	D
(a)	1	2	3	4
(b)	2	3	4	1
(c)	3	4	1	2
(d)	4	3	2	1

44.

Column-I (Animal)	Column-II (Semen)
A. Cow Bull	1. 210-250 ml
B. Buck	2. 75-125 ml
C. Boar	3. 0.7-0.8 ml
D. Stallion	4. 3-5 ml

Code :

	A	B	C	D
(a)	1	2	3	4
(b)	2	3	4	1
(c)	4	3	1	2
(d)	3	1	2	4

45.

Column-I	Column-II
A. Bacterial disease	1. Cow Pox
B. Viral disease	2. Milk fever
C. Metabolic disease	3. Black Quarter
D. Parasitic disease	4. Mange

Code :

	A	B	C	D
(a)	3	1	2	4
(b)	1	3	4	2
(c)	2	4	1	3
(d)	4	2	3	1

46. The duration of quarantine may, at the discretion of the veterinary officer be extended to a maximum period of:
(a) 120 days
(b) 90 days
(c) 60 days
(d) 30 days

47. Perosis disease in birds in caused by :
(a) Calcium deficiency
(b) Magnesium deficiency
(c) Manganese deficiency
(d) Iron deficiency

48. Anaemia in pigs is caused due to deficiency of which vitamin :
(a) Vitamin 'C' (b) Vitamin 'B_6'
(c) Biotin (d) Choline

49. Counting of sperm is done by :
(a) Micrometer (b) Haemocytometer
(c) Spherometer (d) Barometer

50. For dressing ear, the tray used is called :
(a) Dressing tray (b) Ear tray
(c) Galli pot (d) None of these

Note : From Question No. 51 to 55 read the assertion (A) and the reasons (R) as per the following scheme code :
A) Both A and R are true and R is the correct explanation of A.
B) Both A and R are true but R is not the correct explanation of A.
C) Both A is true but R is false.
D) Both A is false but R is true.

51. Assertion (A) : Average Indian cattle do not need any essential amino acids
Reason (R) : The rumen microorganisms can convert dietary nitrogenous compounds into good quality protein

52. Assertion (A) : Milk sugar differs from other sugars
Reason (R) : It contains glucose which can be synthesized only by mammary glands.

53. Assertion (A) : Cow holds up milk on frightening.
Reason (R) : Hormone adrenaline is released.

54. Assertion (A) : Animals should not be given green fodder.
Reason (R) : It supplies carotene.

55. Assertion (A) : Cow should be milked within 7 minutes.
Reason (R) : It results into maximum yield.

56. Specify the normal body temperature of sheep :
(a) 100.4-100.8°F (b) 101.8-102.4°F
(c) 101.3-103.8°F (d) 105.0-107.0°F

57. Metritis is inflammation of :
(a) Anus (b) Vulva
(c) Fallopian tube (d) Uterus

58. Droplet infection is seen in :
(a) Marek's disease (b) Tuberculosis
(c) Sterility (d) Fowl pox

59. There are three types of tubercle bacilli, among these which two are closely related to each other :
(a) Avian and bovine
(b) Avian and human
(c) Human and bovine
(d) None of these

60. Name the disease which is diagnosed by the examination

of rectal mucous membrane for acid fast organisms :
(a) Tuberculosis disease
(b) Johne's disease
(c) Anthrax disease
(d) Black Quarter disease

61. The condition of persistent carpus luteum in cows can be corrected by :
(a) Feeding balance ration
(b) Diethyl stilbo-esterol injection
(c) Dinoprost Tromathamine injection
(d) Gentamycin injection

62. Immunity produced by antiserum is called :
(a) Active (b) Inherited
(c) Acquired (d) Passive

63. Haemorrhagic Gastro-Enteritis is the other name of :
(a) Black Quarter
(b) Salmonellosis
(c) Parvovirus infection
(d) Contagious abortion

64. In which disease of cattle from all natural orifices usually exude dark, tarry blood which does not clot :
(a) Haemorrhagic Septicaemia
(b) Anthrax
(c) Black Quarter
(d) Rinderpest

65. The best meat for medicinal use is :
(a) Pork (b) Mutton
(c) Beef (d) Chicken

66. Which of the following disease spreads by virus :
(a) Actinomycosis (b) Coccidiosis
(c) Corona infection (d) Tuberculosis

67. Which organism is responsible for gas gangrene in cattle:
(a) Salmonella (b) Cl. chauvoei
(c) Pasteurella (d) Brucella

68. Which disease of cattle is characterized by the formation of vesicles in mouth and feet and some times on the skin of udder and teats :
(a) Cow Pox (b) Foot and mouth
(c) Rinderpest (d) Mange

69. Name the disease of cattle in which posterior part of the large colon shows dark red transverse stripes designated as "Zebra Markings" :
(a) Anthrax
(b) Johne's disease
(c) Foot and mouth disease
(d) Rinderpest

70. Abortion in bangs disease occurs :
(a) After 6 months of pregnancy
(b) After 4 months of pregnancy
(c) After 3 months of pregnancy
(d) After 2 months of pregnancy

71. Hook bone is a part of :
(a) Pelvic girdle (b) Scapula
(c) Femur (d) Tibia

72. Normal pulse rate per minute in pig is :
(a) 30-40 (b) 70-80
(c) 90-100 (d) 100-120

73. Which type of medicine should be given to the animal during diarrhoea :
(a) Laxative (b) Astringent
(c) Analgesic (d) Irritant

74. Vitamin 'C' is helpful in checking :
(a) Gumgivitis (b) Arthritis
(c) Diarrhoea (d) Conjunctivitis

75. The number of sperms found per c.c. of semen of ram is:
(a) 7 lacs (b) 8 lacs
(c) 10 lacs (d) 15 lacs

76. Which one of the following symptoms is exhibited when poultry birds are suffering from A.L.C. :
(a) Bloody diarrhoea
(b) Difficulty in breathing
(c) Small blister like spots on the face
(d) Partial paralysis of the legs and wings

77. Grazing of cattle on very succulent pasture, immature rapidly growing legumes in the pre-bloom stage is major cause of :
(a) Impaction of Rumen
(b) Bloat
(c) Diarrhoea
(d) Indigestion

78. In the majority of cattle, the head, dew lap, neck and tongue become swollen and tongue protrudes out of the mouth when suffering with disease :
(a) Rinderpest
(b) Foot and mouth
(c) Black Quarter
(d) Haemorrhagic Septicaemia

79. The cause of death of animal in frothy bloat is :
(a) Suffocation
(b) Hunger
(c) Thirst
(d) Indigestion

80. Give your diagnosis, if a bird shows warts like nodules on the unfeathered parts of the body and occasional discharge form nose and eyes :
(a) Avian leucosis complex
(b) Infectious coryza
(c) Fowl cholera
(d) Fowl pox

81. Indicate the positive titer of blood serum agglutination test for contagious abortion disease in cattle :
(a) 1 in 100 (b) 1 in 75
(c) 1 in 50 (d) 1 in 25

82. The etiological agent of caecal coccidiosis in chickens is:
(a) Eimeria tenella
(b) Eimeria scabra
(c) Eimeria zurnii
(d) Eimeria Magna

83. At what age most commonly Marek's disease affects chicken :
(a) Day old chicks
(b) 2 to 4 weeks old chicks
(c) 4 to 6 weeks old chicks
(d) 12 to 24 weeks old chicks

84. Cystic ovary problem in cows can be corrected by using which one of the following :
(a) F.S.H
(b) Human chorionic gonadotrophin
(c) Oxytocin
(d) Estrogen

85. Methylene blue reduction test for semen quality indicates:
(a) pH of semen.
(b) Normal and abnormal spermatozoa.
(c) Concentration of motile spermatozoa.
(d) Fertilizing capacity of spermatozoa.

86. How much is the temperature of liquid nitrogen :
(a) – 150°C (b) – 196°C
(c) – 79°C (d) – 92°C

87. Which is the causal organism of hog cholera :
(a) Bacteria (b) Protozoa
(c) Filterable virus (d) fungi

88. Which one is immune to Anthrax :
(a) Man (b) Cattle
(c) Angora goat (d) Algerian sheep

89. The cause of peculiar smell of semen is :
(a) Secretion of Cowper's gland
(b) Prostratic secretion
(c) Secretion of epididymis
(d) Secretion of vas deferens

90. The use of chloroform for anaesthesia was introduced by :
(a) Spencer Wells (b) Mary Johnson
(c) Robert Lister (d) James Simpson

91. As a result of separation of 100 liters of milk with 5 % fat the amount of 40 % cream likely to be obtained will be :
(a) About 12.5 kg
(b) About 16.0 kg
(c) About 20.0 kg
(d) About 25.0 kg

92. For cheddar cheese-making casein/fat ratio is maintained. Select the correct ratio from the following :
(a) 0.5 (b) 0.7
(c) 0.9 (d) 1.2

93. Many sweets are made from khoa. What type of khoa from the following is used for making gulabjamun :
(a) Dhap (b) Pindi
(c) Danedar (d) Pindi + Danedar

94. What is the unit for measuring surface tension of milk :
(a) Dyne (b) Poise
(c) Ohm (d) Mho

95. The milk fat percentage is lowest in which of the following animals :
(a) Buffalo (b) Cow
(c) Goat (d) Mare

96. Good quality dahi has clean acid taste and mild pleasant smell. Which one of the following is responsible for pleasant smell of dahi :
(a) Lactic acid
(b) Free fatty acid
(c) Diacetyl
(d) Calcium lactate

97. When cow milk is coagulated at 70°C with the help of citric acid and watery portion is removed, the product obtained is called :
(a) Surati Paneer (b) Chakka
(c) Khurchan (d) Chhana

98. What should be the minimum protein per cent in infant milk food :
(a) 5.0 (b) 18.0
(c) 20.0 (d) 8.5

99. What should be B.R. reading at 40°C under AGMARK for good quality ghee :
(a) 40-43 (b) 45-50
(c) 35-38 (d) 32-35

100. Adulteration of cow milk with buffalo milk is detected by:
(a) Nitrate test
(b) C.O.B. test
(c) Bromocresol purple test
(d) Hansa test

101. Protein content of Ewes milk is :
(a) 6.7 percent (b) 5. 5 percent
(c) 4.7 percent (d) 3.5 percent

102. Average energy value of 100 gms cow milk is :
(a) 50 k. calorie (b) 75 k. calorie
(c) 100 k. calorie (d) 125 k. calorie

103. In L.T.L.T. method of pasteurization milk is heated at 63°C for :
(a) Momentarily (b) 15 seconds
(c) 30 minutes (d) One hour

104. The specific gravity of solids not fat of milk is :
(a) 1.032 (b) 0.930
(c) 1.366 (d) 1.616

105. Milk is bactofuged at a speed of :
(a) 12000 rpm (b) 20000 rpm
(c) 2100 rpm (d) 1100 rpm

106. Milk cans are generally fabricated with :
(a) Aluminium and its alloy
(b) Iron and its alloy
(c) Nickel and its alloy
(d) Chromium and its aloy

107. The test of cow khoa is :
(a) Saltish
(b) Slightly saltish
(c) Sweet
(d) Slightly sweet

119. For best results the ratio of forage and grain in the ration of dairy animals should be :
(a) 85 : 15 (b) 65 : 35
(c) 45 : 55 (d) 25 : 75

120. Anthrax spore vaccine produces immunity :
(a) Life long (b) 24 months
(c) 12 months (d) 6 months

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TEST SERIES – 12

(Based on memory of U.P.P.C.S..-1995)

1. Which of the following hormones act as a fetal signal induction of parturition in cattle
a) Estrogen b) Glucocorticoids
c) Oxytocin d) Relaxin

2. Reproduction without nuclear genetic contribution from female is called
a) Gynogenesis b) Androgenesis
c) Parthenogenesis d) None of the above

3. Prostaglandins are derivatives of
a) Malonic acid b) Arachidonic acid
c) Benzoic acid d) None of the above

4. Early abortion is evident in which of the following.
a) Tuberculosis b) Brucellosis
c) Vibriosis d) None of the above

5. Casting of wethers is the commonly used term for
a) Cervicovaginal prolapse
b) Expulsion of placenta
c) Expulsion of water at parturition
d) All of the above.

6. Handling of milk in Co-operative milk unions was first established on a small scale in
   a) Worli 1905 b) Madras 1910
   c) Allahabad 1913 d) Lucknow 1918

7. Milk is an excellent source of
   a) Calcium and phosphorous
   b) Vitamin D
   c) Vitamin A
   d) All of the above

8. Disease transmitted by milk by direct contamination of milk by human being
   a) Scarlet b) Paratyphoid fever
   c) Gastroenteritis d) All of the above

9. The term pasteurization of milk referrs to the process of heating every practices of milk to at least
   a) 63^0 C for 30 minutes b) 72^0 C for 15 minutes
   c) 145^0 F for 15 minutes d) Any of the above

10. Kumis's culture consist of mainly
    a) Lactobacillus acidophilus or bulgaricus
    b) Str. lactis
    c) Betabacterium caucasium
    d) Streptococcus thermophilus

11. Dry whole milk is a good source of
    a) Vitamin A
    b) Calcium and Phosphorous
    c) Riboflavin
    d) All of the above

12. The usual range for milk powder is
    a) 20 - 40 % fat b) 40 - 60 % fat
    c) 40 -70 % fat d) 60 -80 % fat

13. Objectives of agmark were.
    a) Per tested of agmark were
    b) High grade product
    c) Eliminating malpractices
    d) All of the above

14. Rheology is a branch of knowledge with direct application not only to butter and cheese making but to other dairy products ie.
    a) Ice cream b) Condensed milk
    c) Khoa rabri d) All of the above

15. Father of the process of milk condensing
    a) Henry Neestle b) Gail Borden
    c) Grimwade d) Hanesen

16. Term Immunization was coined by
    a) J. Lister b) L. Pasteur
    c) E. Jenner d) None

17. Comma shaped bacteria
    a) Spirilla b) Spirochaeta
    c) Vibrio d) None

18. Teichoic acid is present in
    a) Gram + ve bacteria b) Gram – ve bacteria
    c) Both d) None

19. Vaccines against Fowlcholera, Rabies, Anthrax were first developed by
a) Pasteur b) Jenner
c) Schutz d) None

20. Which one involves Bacteriophage
a) Conjugation b) Transduction
c) Transformation d) None

21. On nutrient Agar, *B. anthracis* produces which type of colony
a) Strings of pearls b) Medusa head
c) Dewdrop like d) None

22. Stock yard disease is
a) H. S. b) FMD
c) Brucellosis d) None

23. Vallee's vaccine is used to prevent
a) Paratuberculosis b) Tuberculosis
c) Brucellosis d) None

24. Swarming phenomenon is shown by
a) Proteus b) Salmonella
c) E coli d) Shigella

25. Adrenaline increases blood pressure due to
a) Alfa effect b) Beta 2 effect
c) Alfa and Beta both d) None

26. Clonidine is a
a) Centrally acting antihypertensive agents
b) Locally acting antihypertensive agents

c) Beta – Adrenergic agonist
d) None

27. Cholinesterase inhibitors are used for the treatment of
a) Glaucoma b) Paralytic ileus
c) Rumen atony d) All of the above

28. Cats are especially susceptible to NSAIDs toxicity because
a) Lack of glucuronyl transferase
b) Lack of MAO
c) Both
d) None

29. Reduced form of Testosterone is
a) Dihydrotestosterone **b) Dinitrotestosterone**
c) Dialkyl testosterone d) None

30. The ground substance of protoplasm is called
a) Cytoplasm b) Syncytium
c) Hyaloplasm d) Inclusions

31. Numerous irregular shaped particles which takes blue stain present in nucleus are
a) Chromatin **b) Linin**
c) Plasmosome **d) Karyosmome**

32. The glands in which the secretion collects inside the cell and are discharged only when the cell dies or degenerates are called
a) Apocrine b) Epicrine
c) Mesocrine d) Holocrine

33. Weaver – finch feather test is an bioassay for
a) Progesterone b) FSH
c) LH d) HCG

34. The steroid hormones have
a) Nuclear receptors
b) Cytoplasmic receptors
c) Receptors on plasma membrane
d) None of the above

35. Vacuole filled with immunoglobulin in a plasma cell is called
a) Heinz body b) Negri body
c) Russell body d) None of the above

36. Howell – Jolly bodies are found in
a) Lymphocytes b) RBC
c) Granulocytes d) Monocytes

37. The glycoprotein erythropoietin, which stimulates eythropoiesis, is formed by the action of
a) ACTH b) Vasopresin
c) Oxytocin d) All of the above

38. The formula plasma volume $X \frac{100}{100 - (0.87 \times \text{Hematocrit})}$ Lives
a) Erythrocyte count b) Leucocyte count
c) Blood resume d) None of the above

39. Indoles are derived from the bacterial action on amino acid
a) Tryptophan b) Tyrosine
c) Alanine d) All of the above

पुस्तक खराब करु नये.

40. Number of needle teeth present in swine
a) 1 pairs b) 2 pairs
c) 3 pairs d) 4 pairs

41. Piglet born in the last will be weak and it is called
a) Thush b) Weakner
c) Orphan d) Runt

42. Placenta of sow will be expelled with in
a) 10 hrs. b) 8 hrs.
c) 6 hrs. d) 2 hrs.

43. Critical temperature in new born pig is
a) 10^0 C b) 15^0 C
c) 20^0 C d) 30^0 c

44. Largest number of pig breeding farms are located in
a) Goa b) Kerala
c) Bihar d) Meghalaya

45. The most reliable method of early pregnancy diagnosis in swine is
a) Vaginal biopsy
b) Ultrasonic Scanning
c) Palpation
d) Blood progesterone / Estrogen

46. The area which cannot be subjected to scientific study is
a) Origin of pig and breed
b) Swine behavior
c) Care of litter
d) Myth on pigs

47. Five regional poultry breeding farms were started in
a) IInd five year plan b) First five year plan
c) Fifth five year plan d) Sixth five year plan

48. The baby birds from day old to two month of age, is known as
a) Chicks b) Pullet
c) Grower d) Frayer

49. Which part of ovary and oviduct of chicken is functional
a) Left b) Right
c) Lower right d) Lower left

50. Germ cell of infertile egg is known as
a) Blastoderm b) Blastodisc
c) Yolk d) Albumin

51. The ration, given to broiler for first 3-4 weeks, is called as
a) Starter ration b) Finisher ration
c) Grower ration d) Layer ration

52. The gross energy value of fat is
a) 9.4 k. cal. / kg b) 12.6 k. cal / gm
c) 5-6 k. cal. / gm. d) None

53. Name the breed of duck, which are reared for egg production and originated from England
a) Khaki campbell b) Indian runner
c) Roven d) Muscovy

54. Muscular stomach of Poultry is known as
a) Gizzard b) Crop
c) Proventriculous d) Liver

55. BBLW is a variety of
a) Turkey b) Chicken
c) Duck d) Quail

56. Snood is present in
a) Turkey b) Chicken
c) Duck d) Quail

57. Blood meal is rich in
a) Lysine b) Methionine
c) Orginine d) None

58. Which enzyme is never present in chicken
a) Renim b) Isomaltase
c) Salivaramylase d) Carboxypaptidase –A

59. Laying is maximum over the temperature range
a) $55^0 - 75^0$ F b) $65^0 - 85^0$ F
c) 75^0 -95^0 f d) None

60. Crop milk is produced in
a) Pigeon b) Chicken
c) Turkey d) Quail

61. Giblets consist of
a) Gizzard, heart & liver
b) Gizzard, lung & liver
c) Liver, lung & leg portion
d) Liver, lung and proventriculus

62. Colour of egg- shell in poultry is due to presence of
a) Porphyrin b) Cholesterol
c) Calciferol d) All

63. Chromosomes number in chicken (2n) is
a) 78 b) 76
c) 74 d) 82

64. Crop is enlargement of
a) Oesophagus b) Abomasum
c) Gizzard d) Larynx

65. Unsexed chicks of both sexes is known as
a) Straight run b) Clutch
c) Stag d) Capon

66. Castor seed contains poisonous material naturally, known as
a) Ricin b) Vitamin E
c) Aflatoxin d) Glycoside

67. Marek's Disease is caused by
a) Herpes virus b) Pox – virus
c) Corona virus d) Reo virus

68. Coryza in chicken is caused by
a) *Haemophillus gallinarum*
b) *Salmonella Dublin*
c) *Mycoplasma synoviae*
d) *Strongylus vulgaris*

69. The growth rate of Mithun usually depends on
a) Climate factor b) Environmental factor
c) Age d) All of the above

70. Helicopter disease is synonym for
a) Reo virus disease b) Pox virus disease
c) Adeno virus disease d) herpes virus

71. The dermoid cyst contains –
a) Saliva b) Hair
c) Serous fluid d) Pus

72. The Urachus pervious is related to -
a) Blood b) Saliva
c) Synovia d) Urine

73. Elephantiases in human being is caused by –
a) Hook worm b) Filarial worm
c) Kidney worm d) Eye worm

74. The negri bodies in brain are found in animal which died due to –
a) T.B. b) Anthrax
c) Rabies d) All above

75. The Koch blue body in lymphocytes of cattle are found in–
a) Babesiosis b) Theilariosis
c) Trypanosomosis d) None of the above

76. The snails act as intermediate host for –
a) Haemonchosis b) Filariosis
c) Taeiasis d) Fascioliosis

77. The general combine ability is due to –
a) Epistasis b) Dominance
c) Additive gene action d) None of the above

78. Which type of mating should be preferred for the improvement of non-descript animals –
a) Inbreeding b) Line breeding
c) Upgrading d) All of the above

79. The alkali disease in cattle is –
a) Salt poisioning b) Ureas poisioning
c) Selenium toxicity d) None of the above

80. The Chick's growth factor is –
a) B_{12} b) B_6
c) B_1 d) None of the above

81. The thickness of blood smear depends upon –
a) Size of drop b) Angle of spinder
c) Both d) None of the above

82. Summer mastitis is usually caused by –
a) Bact pygenes
b) Staph aureus
c) E. coli
d) Mycobacterium tuberculosis

83. The slipped tendon or persis in poultry is caused by –
a) Manganese deficiency
b) Copper deficiency
c) Anatonical abnormality
d) None of the above

84. Piglet anaemia is caused by deficiency of-
a) Copper b) Cobalt
c) Iron d) None of the above

85. Phenotype reflects genotype more precisely when heritability is –
a) Low b) High
c) Medium d) All of the above

86. The requirement of fat in ration of pig is–
a) 5 – 9 % b) 10 – 12 %
c) 2 – 5 % d) 1 – 3 %

87. The parturition in bitch is known as –
a) Pupping b) Whelping
c) Farrowing d) 1&2 both

88. Milk production in cows is example of –
a) Sex-linked inheritence
b) Sex-influenced inheritence
c) Sex-limited inheritence
d) None of them

89. The chief energy source of cattle ration is–
a) Protein b) Carbohydrate
c) Mineral d) All of the above

90. The gestation period of the camel is –
a) 9 months b) 10 months
c) 24 months d) 13 months

91. One-host tick in cattle is -
a) Hyalomma b) Boophilus
c) Haemophylasis d) Dermacentor

92. Parakerations is caused by –
a) Zn deficiency b) Cu deficiency
c) Se toxicity d) None of these

93. Facial ecozema is caused by –
a) Pithomyces sp. b) Streptomyces sp.
c) Brucella sp. d) None

94. In ketosis, level of ketomne bodies in milk is increased upto –
a) 40-60 mg % b) 5-10 mg %
c) 20-30 d) None

95. Cause of death in postparturient haemoglobinuria –
a) Anemic anoxia b) Circulatory failure
c) Anorexia d) Dehydration

96. Urine of horse suffering paralytic myoglobinuria is characterized by –
a) Increased specific gravety
b) Presence of myoglobin
c) Presence of casits
d) All of above

97. Daily requirement of magnesium in lactating cow is –
a) 20 gm/day b) 50 gm/day
c) 5 gm/day d) None

98. Identify the non-sporting "Utility group" breed in the following
a) Alsatians b) Boxer
c) Dalmatian d) Great Dane

99. Indian desi dogs are the descendants of the
a) Dingo b) Indian barking wolf
c) Pariah d) All of the above

100. What is the name for 20 weeks age young rabbit
a) Lamb b) Kid
c) Bunny d) None of the above

101. A mature male rabbit used for breeding is called as.
a) Buck b) Ram
c) Bota axb d) None of the above

102. What is the country of origin for Soviet chinchilla
a) Russia b) U.K.
c) Europe d) India

103. Which type of Angora breed has white fine quality wool
a) German Angora b) Russian Angora
c) British Angora d) Crossbred Angora

104. Wild relatives of Mithun are
a) Gaur b) Banting
c) Kouprey d) All of the above

105. The female hybrid of Mithun is called
a) Cow b) Jatsamin
c) Jatsa d) Mithun cow

106. The male hybrid of Mithun is called as
a) Jatsa
b) Bull
c) Jatsamin
d) Bullock

107. Bull Ergot alkaloids inhibit release of
a) ACTH
b) Prolactin
c) GnRH
d) None

108. Human chorionic gonadotropin is produced by
a) Human placenta
b) Human ovary
c) Human hypothalamus
d) None

109. Aspirin relieve pain inflammation by
a) Inhibiting cyclooxygenase
b) Inhibiting leukotrienes
c) Both
d) All of the above

110. $PGF_{2\ alfa}$ is used for
1. Synchronisation of estrous
2. induction of parturition
3. Luteolysis
4. All of the above

111. Eicosanoids are derived from
1. Membrane lipids
2. Membrane protein
3. Cytoplasm
4. None

112. Triple response is produced by intradermal injection of
1. Histamine
2. Lidocaine
3. Ethyl chloride
4. None

113. Neuroleptanalgesia is produced by
1. Droperidiol + opiates
2. Azaperone + opiate
3. Diazepam + Droperidol
4. None

114. Atropine is used for treatment of
1. Spasmodic colic
2. Organophosphate poisoning
3. Carbamate poisoning
4. All of the above

115. Ketanserin is a
1. 5 – HT antagonist
2. 5 – HT agonist
3. Beta 2 – antagonist
4. None

116. MAO is
a. Monoamine oxidase
b. Methylated ammonium oxide
c. Morphine anhydrous oxide
d. None

117. Adrenaline increases blood pressure due to
a. Alfa effect
b. Beta 2 effect
c. Alfa and Beta both
d. None

118. The feeding behavior of Mithun is
a) Grazing b) Browsing
c) Nippling d) 1 and 2

119. F factor is
1. DNA 2. tRNA
3. rRNA 4. mRNA

120. Father of bacteriology is
1. Rous 2. Pasteur
3. Koch 4. None

*****

TEST SERIES - 13

(Based on memory of Civil Services Exam.-1994)

1. Which of the following is the zoological name of rabbit:
1. *Gallus domesticus*
2. *Melearis gallopava*
3. *Oryctolagus cuniculus*
4. *Capra hircus*

2. Glucocorticoids should not be used in
1. Late pregnancy
2. Corneal ulcers
3. Diabetes mellitus
4. All of above

3. Egg production is economically viable in chicken up to the age of
1. 72 weeks 2. 60 weeks
3. 84 weeks 4. 94 weeks

4. On nutrient Agar, *B. anthracis* produces which type of colony
1. Strings of pearls 2. Medusa head
3. Dewdrop like 4. None

5. Glucocorticoids promote
1. Gluconeogenesis 2. Lipolysis
3. Growth 4. All of above

6. Meat of buffalo known as:
   1. Beef
   2. Carabeef
   3. Mutton
   4. Chevon

7. $T_3 + T_4$ are
   1. Thyroxine and Triiodothyronine
   2. Thyronin and Triidothyronin
   3. Thyroglobins
   4. None

8. Longest part of oviduct in hen is
   1. Magnum
   2. Isthmus
   3. Uterus
   4. Vagina

9. Retained corpus luteum cannot occur in which of the following states:
   1. Normal non-pregnant uterus not associated with uterine infection in near past
   2. Pyometra
   3. Mummified fetus
   4. Fetal maceration

10. First vaccine against fowl cholera was developed by
    1. L. Pasteur
    2. E. Jenner
    3. Leeuwenhock
    4. None

11. Progesterone suppresses
    1. Uterine milk secretion
    2. Ovulation
    3. Both
    4. None

12. Left fore foot and right foot touch the ground at same time followed by right fore foot and left hind foot in:
    1. Walking
    2. Packing
    3. Trotting
    4. Canter

13. Best alignment of rectangular houses for poultry is
    1. East to west
    2. North to south
    3. South to north
    4. Any direction

14. Nature of staphylococcal toxin is
    1. Dermonecrotoxin
    2. Hemolysin
    3. Enterotoxin
    4. All

15. Depigmentation in shank occur first on its
    1. Anterior side
    2. Posterior
    3. Lateral
    4. Dorsal

16. Which structure is situated in cortex of kidney:
    1. Bowman's capsule
    2. Blood capillaries
    3. Proximal convoluted tubules
    4. All of the above

17. Early signs of thyroid toxicity is / are
    1. Arrhythmia
    2. Osteoporosis
    3. Restlessness
    4. All of the above

18. Black tongue appears in bird due to deficiency of
    1. Niacin
    2. Riboflavin
    3. Ascorbic acid
    4. Vitamin C

19. Estrogens are
1. Luteolytic in cow
2. Luteotropic in sow
3. Epitheliotropic
4. All of the above

20. In India domestication of Mithun started firstly along
1. Indo-Pak border
2. Indo-Myanmar border
3. Indo-Bangladesh border
4. None

21. Haugh unit is a measurement to know the
1. Albumen index
2. Yolk index
3. Height of yolk
4. None

22. Hypoparathyroidism in dog is treated by
1. Calcium borogluconate
2. Dexamethasone
3. Lugol's solution
4. None

23. Castor seed contains poisonous material naturally, known as
1. Ricin
2. Vitamin E
3. Aflatoxin
4. Glycoside

24. Endomitosis refers to
1. Division of cytoplasm
2. Division of nucleus
3. Division of chromosomes
4. Division of chromosomes without division of nucleus

25. There is no established infectious agent of abortion in
1. Mare
2. Sow
3. Bitch
4. Queen cat

26. Which of the following is quantitative trait in poultry:
1. Comb type
2. Plumage colour
3. Persistency
4. All of the above

27. Moulting is renewal of old feather and occurs generally in
1. Poor layer
2. Good layer
3. Brooding hen
4. None

28. Babes ernst granules are
1. Polymetaphosphate
2. Reserve
3. Both
4. None

29. Glucagon and insulin is produced in pancreas by
1. Alfa cells and beta islets respectively
2. Beta islets and alpha cells respectively
3. Delta cells and beta islets respectively
4. None

30. Pituitary hormone having antigonadal activity is:
1. Follicle stimulating hormone
2. Vasopressin
3. Prolactin
4. Luteinizing hormone

31. Gizzard is an organ of
1. Grinding
2. Absorption
3. Excretion
4. Digestion

32. Cystic ovaries is basically a disease of:
1. Dairy cattle
2. Beef cattle
3. Both (a) and (b)
4. None of the above

33. In arterial blood, concentration of O_2 and CO_2, respectively are:
1. 14.4 % and 5.5 %
2. 20.9 % and 0.3 %
3. 19 % and 48 %
4. 14 % and 52 %

34. The organ used in the production of vocal
1. Syrinx
2. Chalaza
3. Gizzard
4. Caeca

35. The usual lairage space required for a slaughter house is:
1. Three days' supply of cattle and two days' supply of sheep
2. Five days' supply of cattle and three days' supply of sheep
3. Seven days' supply of cattle and five days supply of sheep
4. None of the above

36. Salivary glands in poultry are
1. 8 no. in group
2. 9 no. in group
3. 10 no. in group
4. 15 no. in group

37. Metrorrhagia is observed in which of the following stages of oestrus cycle:
1. Estrus
2. Met estrus
3. Proestrus
4. Diestrus

38. Nesting behavior of bird is under the influence of
1. Hormone
2. Estrogen
3. Progesterone
4. Oxytocin

39. Bird should be kept off fed for ..... hours before slaughter
1. 6 hours
2. 8 hours
3. 10 hours
4. 12 hours

40. Agar solidifies at
1. 45° C
2. 50° C
3. 25° C
4. None

41. Excreta of birds is generally known as
1. Dropping
2. Litters
3. All of the above
4. None

42. FSH release is inhibited by
1. Gastrin
2. Calcitriol
3. Inhibin
4. None

43. Smoking done for the meat of:
1. Pork
2. Beef
3. Mutton
4. Chevon

44. Chicken can fly for not more than
1. 13 Sec.
2. 10 Sec.
3. 5 Sec.
4. To its wish

45. Pasteurization and bottling of milk on large scale for organized distribution was started first at
1. Delhi 1959
2. Bombay 1950
3. Aarey 1950
4. Bihar 1960

46. The main immunoglobulin responsible in the protection of the host against intestinal parasite infection is:
1. Immunoglobulin A
2. Immunoglobulin B
3. Immunoglobulin M
4. All of the above

47. The relative humidity during brooding should be
1. 50 -60 %
2. 75-80 %
3. 85 %
4. Below 50 %

48. Rigor mortis is not occurred in carcass died due to:
1. Foot and Mouth disease
2. Anthrax
3. Rinderpest
4. All of the above

49. In which of the following species Cervicovaginal prolapse is most common in procstrus:
1. Cattle
2. Buffalo
3. Mare
4. Bitch

50 Which is not an extra embryonic membrane
1. Yolk sac
2. Amnion
3. Chorion
4. All

51. 16 weeks old duck of either sex is known as
1. Roaster
2. Fryer
3. Broody cockrail
4. None

52. Volatile fatty acid responsible for milk fat synthesis in cow:
1. Propionic acid
2. Acetic acid
3. Butyric acid
4. None of the above

53. The highest milk producing country in the world is
1. U. K
2. Germany
3. U. S. S. R.
4. U. S. A.

54. More than 10 % of dietary carbohydrate fed in ruminant diet:
1. Reduce microbial activity of rumen
2. Increase microbial activity of rumen
3. Does not effect microbial activity of rumen
4. None of the above

55. Feathers of bird are
1. Epidermal structure
2. Endodermal
3. Mesodermal
4. None of these

56. Substance that promotes growth, maintenance, function and reproduction is known as:
1. Lipid
2. Nutrition
3. Carbohydrate
4. Protein

57. Hormone relaxin is secreted from:
1. Gonads
2. Uterus
3. Anterior pituitary
4. Posterior pituitary

58. Nutritive substance that are added to diet to make it balanced is also known as:
1. Nutrient
2. Additive
3. Ration
4. Feed supplements

59. Per year per capita consumption of egg in India is:
1. 33
2. 43
3. 300
4. 400

60. The number of cervical vertebrae in fowl is
1. 13
2. 15
3. 11
4. 21

61. Physiological zero is
1. 70^0 F
2. 50^0 F
3. 90^0 F
4. 0^0 F

62. A dense thick connective tissue capsule, in bovine, which radiates to the mediastinum testes to form the lobules of the testes, is
1. Tunica vaginalis propria
2. Tunica vaginalis communis
3. Tunica albuginia
4. Dartos

63. Which of the following is the hormone of mammogenesis
1. Estrogen
2. Progesterone
3. Both 1 and 2
4. Prolactin

64. Duration of heat in sow
1. 21 hrs.
2. 18 hrs.
3. 21 days
4. 3 days

65. The colour of egg shell of egg laid by brown leghorn bird is
1. Brown
2. White
3. Reddish black
4. Cherry

66. Average gestation period of goat is:
1. Less than sheep
2. Higher than sheep
3. Equal to sheep
4. Depend upon breed

67. Enlargement of hock joint, shortening of bone and poor feather developed is due to deficiency of
1. Zn
2. Ca
3. P
4. Se

68. Which type of Angora breed has white medium fine quality wool
1. Russian Angora
2. Crossbred Angora
3. Both
4. None of the above

69. The protein composition of the buffalo milk is
1. 1.8
2. 2.5
3. 3.5
4. 3.9

70. The job of an extension worker in extension education is to create an effective:
1. Social atmosphere
2. Desirable situation
3. Learning situation
4. Planning situation

71. Retention cyst under tongue is called:
1. Platitis
2. Ganthitis
3. Gingivitis
4. Ranula

72. These are strictly pet animals and kept in their house either loose (or) tied are
1. Yard dogs
2. House dogs
3. House yard dogs
4. None of the above

73. Hydrolysed feather meal is deficient in
1. Lysine
2. Methionine
3. Histidine
4. All

74. Parasite, which is completely dependent on host during a segment or all of its lifecycle is known as:
1. Endoparasite
2. Obligate parasite
3. Ectoparasite
4. All of the above

75. Which of the following is transmitted via carrier also
1. IB
2. NCD
3. Salmonellosis
4. All

76. Maintaining of the internal environment of cell in relation to outside is termed as:
1. Haemostasis
2. Equilibrium
3. Homeostasis
4. Maintenance

77. Which breed of pig is used for cross breeding to improve the meat quality-
1. Landrace
2. Hampshire
3. Berkshire
4. Middle white York Shire

78. Milk is heavier than
1. Ice
2. Water
3. Solid
4. Salt

79. 'Potato soup' like pus from uterus of cow is seen in the case of:
1. Brucella
2. Trichomonas
3. IBR-IPV
4. Tuberculosis

80. Prostate gland has only two excretory ducts opening into pelvic urethra in:
1. Boar
2. Stallion
3. Dog
4. Bull

81. Luteolytic factor in cow causes:
1. Formation of corpus luteum
2. Regression of corpus luteum
3. Regression of follicle
4. All of the above

82. Ghori pigs are distributed in
1. U.P., Bihar and M. P.
2. Karnataka, T. N. and Maharashtra
3. Andaman Island
4. Manipur, Assam and Sikkim

83. The North Temperate Region station, Garsa for development of wool type rabbits are located in
1. Jammu & Kashmir
2. Arunachal Pradesh
3. Himanchal Pradesh
4. Uttaranchal

84. The sigmoid flexure is prescrotal in:
1. Bull
2. Ram
3. Boar
4. Stallion

85. Pterylace is
1. Feather tracks
2. Feather count
3. Feather length
4. Feather strength

86. Agents which produce loss of sensation to any part or whole body is known as:
1. Narcotics
2. Anaesthetics
3. Analgesic
4. Sedative

87. From the side of the129. In case of diaphragmatic hernia in bovine, the abdominal viscera pass from abdominal cavity via:
1. Muscular portion of diaphragm
2. Tendenous portion of diaphragm
3. Hiatus esophagi
4. From the side of the diaphragm

88. Main reason for the piglet's mortality is
1. Deficiency of Iron and Cupper
2. Mastitis
3. Less number of teats
4. Sow stampede

89. In India, Community development projects were started in:
1. 1953
2. 1952
3. 1949
4. 1957

90. Androstenedione is the major androgen in:
1. Bull
2. Boar
3. Ram
4. Stallion

91. Ornamental ducks is
1. Indian runner
2. Pekin
3. Crested white
4. Khaki Campbell

92. Left and right halves of udder are separated by:
1. Intermammary groove
2. Intermammary ligament
3. Intermammary tendon
4. None of the above

93. Spermiogenesis is under the control of which of the following hormones:
1. FSH
2. LH
3. Testosterone
4. LH and testosterone

94. What is the country of origin for Dutch
1. Russia
2. U.K.
3. Europe
4. India

95. Glucose is:
1. Less sweet than sucrose
2. More sweet than sucrose
3. As sweet as sucrose
4. None of the above

96. Subpubic tendon does not exist in which one of the following species:
1. Cow
2. Mare
3. Ewe
4. All of the above

97. Which of the following content in egg is known as proteolytic inhibitor or trypsin inhibitor
1. Canalbumen
2. Ovomucoid
3. Lysozyme
4. All of the above

98. Order of permanent incisors eruption in case pig as follows
1. I, II, III pairs
2. III, II, I pairs
3. II, III, I pairs
4. III, I, II pairs

99. The abnormal sperm with strongly coiled, folded or split tial have which of the following abnormalities:
1. Corkscrew sperm defect
2. Stumped tail
3. Dag defect
4. None of the above

100. Vitellogenesis is the process of:
1. Formation of vitelline membrane around the egg cell
2. Formation of yolk sac membrane around the yolk mass during the development
3. Synthesis of yolk and its deposition within the growing oocyte
4. None of the above101. Indian desi dogs are the descendants of the
1. Dingo
2. Indian barking wolf
3. Pariah
4. All of the above

102. No of needle teeth present in swine
1. 1 pairs
2. 2 pairs
3. 3 pairs
4. 4 pairs

103. Name the species of animal which is in a group of animal known as 'clowder'
1. Rabbit
2. Goat
3. Cat
4. Horse

104. What is the country of origin for white Giant
1. U.K.
2. India
3. Russia
4. German

105. Warming the Vagi inflation of lung is
1. Haldane effect
2. Bohr effect
3. Paradoxical effect
4. None of the above

106. Which one is not a breakdown product of haemoglobin
1. Biliverdin
2. Haematoidin
3. Melanin
4. All of the above

107. Spore of *Cl. tetani* has shape of
1. Drumstick
2. Boomerang
3. Oval
4. None

108. Father of bacteriology is
1. Rous
2. Pasteur
3. Koch
4. None

109. Membrane bound organelles are absent in
1. Bacteria
2. Virus
3. Virions
4. All of the above

110. Unipara is synonyms to
1. Primipara
2. Pluripara
3. Monotocous
4. Polytocous

111. The placenta in cow is
1. Syndesmochorial
2. Cotyledonary
3. Haemochorial
4. None of the above

112. Milk is considered as an ideal food since it supplies
1. Body building proteins
2. Bone forming minerals
3. Energy giving lactose
4. All of the above

113. The true constituents of milk
1. Milk fat
2. Casein
3. Lactose
4. All of the above

114. Oocytes are capable of getting fertilized upto
1. 8-12 h after ovulation 2. 6 h after ovulation
3. 24 h after ovulation 4. None of the above

115. The following is / are comparatively more common in multiparous animals
1. Superfetation and super fecundation
2. Superfetation, superfecudnation and telegony
3. Twins and super fecundation
4. All of the above

116. The gestation period of Indian Elephant is
1. 615-625 days 2. 420-436 days
3. 510-523 days 4.496-513 days

117. Growth rate of bacteria is zero in
1. Lag phase 2. Log phase
3. Stationary phase 4. None

118. Anthrax is also known as
1. Splenic fever 2. Wool sorters disease
3. Charbon 4. All

119. The term physiology was introduced by
1. Hippocrates 2. Jean Fernel
3. Dale and Evans 4. J. W. Philips

120. The structural and functional unit of compact bone is
1. Osteoclast 2. Osteoblast
3. Osteocytes 4. Osteon

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TEST SERIES – 14

(Based on memory of U.P.P.C.S. Exam.-1994)

1. The Crude Protein percentage in pig grower ration must be:
1. 8 2. 16
3. 24 4. 32

2. The weight of foetus in multipara at the time of birth should ..... % of weight of post partum dam
1. 1-3 2. 3-6
3. 6-9 4. 9-10

3. Colostrum coagulates on heating due to higher concentration of:
1. Albumin and globulin 2. Fat
3. Carbohydrate 4. Carotene

4. In met-hemoglobin, Iron remain in the form of
1. Fe^{+} 2. Fe^{++}
3. Fe^{+++} 4. All of the above

5. Best source of Phosphorus supplement in poultry:
1. Meat meal 2. Fish meal
3. Wheat bran 4. Bone meal

6. A bullock of 500Kg body weight while pulling a load on a plain road for 15 Kms, perform mechanised work equivalent to 3421 Kcal. Taking net efficiency of bullock for draft as 31.3 %, the net energy needed for the work of draft would be:
1. 10.93 Mcal 2. 12.50 Mcal
3. 15.60 Mcal 4. 20.25 Mcal

7. Endometrial cups, formed due to invasion of fetal trophoblast cells into endometrium, appears in mare during
   1. Third month of pregnancy
   2. Seventh month of pregnancy
   3. Earlier part of second month of pregnancy
   4. Late par of fifth month of pregnancy

8. The empirical formula of carbohydrates is:
   1. $C_n(H_20_2)_n$
   2. $C_n(H_20)_n$
   3. $C_{2n}(H_20)_n$
   4. $C_{n-1}(H_20_2)_n$

9. The third heart sound is produced by
   1. Closure of A-V valve
   2. Rush of atrial blood into ventricles
   3. Opening of aortic valve
   4. None of the above

10. Following is categorised as 'Rabi Fodder'
    1. Oat
    2. Bajra
    3. Maize
    4. Guar

11. Cyesiognosis is the term used for
    1. Diagnosis by per rectal examination
    2. Pregnancy diagnosis by per rectal examination
    3. Pregnancy diagnosis
    4. Pregnancy diagnosis by ultrasonography

12. Synthesis of glucose is also known as
    1. Glycolysis
    2. Glycogenesis
    3. Glucogenesis
    4. Glycogenolysis

13. Turkey egg appearance of kidney is an important feature

of ..... disease in swine
1. Swine fever
2. Glasser's disease
3. Both 1 and 2
4. African Swine Fever

14. An eliptical erythrocyte is called:
    1. Ovalocyte
    2. Spherocyte
    3. Leptocyte
    4. Normocyte

15. For the preparation of good quality of hay:
    1. Green fodder should not be exposed to the sun for a longer period without proper turning
    2. The fodder should not be exposed to rain
    3. Rapid sun drying helps in formation of Vitamin D_2 and conservation of Carotene
    4. All of the above

16. The superstitious belief that offspring from one sire may derive characteristics from a sire to which the same dam has previous borne offspring is called
    1. Superfetation
    2. Superfecundation
    3. Telegony
    4. None of the above

17. Average egg weight of quail is:
    1. 10 gm
    2. 15 gm
    3. 20 gm
    4. 25 gm

18. Pace maker of the heart is
    1. A. V. node
    2. S. A. node
    3. Bundle of His
    4. None of the above

19. Requirement of brooding space per chick is:
    1. 28 sq. inches
    2. 21 sq. inches
    3. 14 sq. inches
    4. 7 sq. inches

20. Almond shaped ovary is found in
1. Cow
2. Ewe
3. Both (a) and (b)
4. None of the above

21. Gumboro infection causes suppression of immunity development by destroying the function of:
1. T-cells
2. B-cells
3. Suppression in the production of immunoglobulin
4. Interferes with the work of lymphocytes

22. Bulging muscles of race horses are example of:
1. Cellular injury
2. Necrosis
3. Cellular adaptation
4. Gangrene

23. The embryo of dogs and cats reaches uterus after
1. 2 – 4 days
2. 1 – 2 days
3. 8 – 10 days
4. 5 – 8 days

24. Largest and longest bone of bird and also known as drumstick:
1. Femur
2. Humerus
3. Scapula
4. Tibia

25. Which of the following pituitary hormone is predominantly controlled for its secretion by an inhibitory factor rather than a releasing factor:
1. Progesterone
2. Prolactin
3. ACTH
4. STM

26. Dirty egg can be cleaned with washing with
1. 1 % NaOH
2. Warm water
3. Both 1 and 2
4. Cold water

27. The ova remain viable for twelve to twenty four hours in domestic animals except _____ where it remains viable for about four days
1. Sow
2. Mare
3. Bitch
4. Queen cat

28. Necrotic dermatitis of feet of poultry is caused by:
1. Fluorine deficiency
2. Zinc deficiency
3. Vitamin deficiency
4. None of the above

29. Which of the following is known as milk vein:
1. Subcutaneous abdominal vein
2. External pudic vein
3. Perineal vein
4. Saphaneous vein

30. The degenerating, avascular, nonfunctional corpus luteum is called
1.Corpus haemorrhagicum
2.Corpus luteum verum
3.Corpus luteum spurium
4.Corpus luteum albicans

31. Curding of milk by admixture of acid in milk is:
1. Sweet curding
2. Sour curding
3. Milk curding
4. None of the above

32. Loose housing system is better for:
1. Small herd of animal
2. Large herd of animal
3. Both 1 and 2
4. None of the above

33. Pheromones secreted in the saliva of which species attracts females and induces immobilization reflex
1. Horse
2. Bull
3. Dog
4. Boar

34. Thrombi composed of platelet, fibrin, R.B.C and W.B.C and observed in veins is:
1. Laminated thrombus
2. Red thrombus
3. White thrombus
4. Mixed thrombus

35. In beef breeds of cattle the average body weight at puberty should be
1. 50 % of the mature body weight
2. 400 kg
3. 30 – 50 % of mature body weight
4. All of the above

36. Total number of Veterinary Universities in India are:
1. 3
2. 4
3. 5
4. 6

37. The glands in which the secretion collects inside the cell and are discharged only when the cell dies or degenerates are called
1. Apocrine
2. Epicrine
3. Mesocrine
4. Holocrine

38. Biological half life of drug is more if drug has:
1. More protein binding
2. Less protein binding
3. Higher rate of biotransformation
4. Higher rate of excretion

39. Krishi Vigyan Kendra's are sponsored by
1. UGC
2. IARI
3. ICAR
4. State Government

40. When an extension worker approaches vast and heterogenous mass of people spread over a large area for disseminating new important production

technologies, then it is called:
1. Group communication
2. Public communication
3. Mass communication
4. Unidirectional communication

41. Age of puberty of queen cat is
1. 7-12 months
2. 10-24 months
3. 2-6 months
4. 16-24 months

42. Technical guidance for development programme at district level is provided by:
1. Head of Technical department
2. District Planning Officer
3. District Development Officer
4. District Collector

43. An Extension worker helps farmers to attain desirable changes in his:
1. Temperament
2. Behaviour
3. Health
4. All of the above

44. The democratic decentralisation was recommended by the Committee headed by:
1. M.L. Mehta
2. B.R. Mehta
3. Spencer Hatch
4. Mahatma Gandhi

45. Bulletins, leaflets, circular letters, posters, radio, television, exhibition are the media of
1. Public communication
2. Official communication
3. Group communication
4. Mass communication

46. The skeletal muscles are developed from
1. Perimysium
2. Myotomes
3. Epimysium
4. None of the above

47. If there is one seller of product in market, the situation is known as:
1. Monopoly
2. Oligopoly
3. Multipoly
4. None of the above

48. A combination of crop production with a significant amount of livestock raising is called:
1. specialised farming
2. diversified farming
3. mixed farming
4. dry farming

49. Marketable surplus is:
1. Total production – total consumption
2. Total production – total family requirement
3. Total production – total cost
4. Total production – marginal cost

50. Which of the following is not the fixed cost item in a dairy business:
1. Depreciation on implement
2. Insurance of dairy animals
3. Wages of permanent labour
4. Expenditures on cattle feed

51. The coiled portion of chromatin in interphase nucleus is also called
1. Hetrochromatin
2. Euchromatin
3. Negatively hetropyknotic
4. Kinetochore

52. The process of budgeting in which we estimate cost, returns and net income on particular enterprises is called:

1. Full budgeting
2. Total budgeting
3. Partial budgeting
4. Complete budgeting

53. In mixed farming, the contribution of livestock to gross farm income is:
1. At least 10%
2. At least 30%
3. At least 40 %
4. More than 50 %

54. Nissl bodies are found in
1. Centrosome
2. Nerve cells
3. Lysosomes
4. Nucleus

55. Pioneer of "Operation Flood' in India:
1. Dr. A.P.J. Abdul Kalam
2. Dr. M.S. Swaminathan
3. Dr. Amrita Patel
4. Dr. Verghese Kurien

56. Ketosis is biochemically characterised by:
1. Hyperglycaemia
2. Hypoglycaemia
3. Ketonuria
4. Both 2 and 3

57. The Prostatic secretion is of the following nature:
1. Alkaline
2. Acidic
3. Neutral
4. Acidic or alkaline

58. Salivary glands are derived from the ..... (type of germ layer)
1. Endoderm
2. Mesoderm
3. Ectoderm
4. All of the above

59. The main use of mithun is for
1. Draught purpose / agricultural purpose
2. Meat purpose
3. Milk purpose
4. Sacrificial values

60. Pregnancy toxaemia commonly occurs in ewes during:
1. Early pregnancy
2. Mid pregnancy
3. At the time of parturition
4. Last month of pregnancy

61. The optimum equilibration period used for freezing of bull semen is:
1. 2 h
2. 6 h
3. 3 h
4. 4 h

62. Skin scrapings are treated with one of the following for better demonstration of mange/mites:
1. 10 % H_2SO_4
2. 10 % HNO_3
3. 10 % KOH
4. 10 % Kh_2PO_4

63. Vel ethamate is the active ingredient of:
1. Estrumate
2. Progynon Depot.
3. Epidosin Vet
4. None of the above

64. Causative organism of B.Q:
1. *Clostridium chauvoei*
2. *Clostridium septicum*
3. *Clostridium noyvi*
4. *Clostridium botulinum*

65. Morphine is not used in
1. Strychnine poisoning
2. Tetanus
3. Epilepsy
4. All of the above

66. Anamnesis is otherwise called as:
1. Clinical examination of animal
2. Diagnosis of disease
3. History of animal
4. Prognosis of animal

67. 9 + 2 is the arrangement of fibrils in which of the following parts of sperm.
1. Tail
2. Midpiece
3. Both tail and midpiece
4. None of the above

68. Liptic test is used to diagnose:
1. Abosamal displacement
2. Traumatic reticulo pericarditis
3. Diaphragmatic hernia
4. None of the above

69. Histamine is
1. A biogenic amine
2. Alcoholic compound
3. Enzyme
4. None

70. The process by which the molecules are engulfed into the cell but the vacuole containing them moves across the cell and discharge its contents onto another surface of the same cell is
1. Cytopemphis
2. Reverse pinocytosis
3. Rhopheocytosis
4. Phagocytosis

71. Inguinal hernia is also known as:
1. Omphalocele
2. Bubanocele
3. Oscheocele
4. None of the above

72. Cimetidine is
1. H_2 antagonist
2. H_1 antagonist
3. Alfa agonist
4. All of the above

73. Purse string suture is used in:
1. Rectal prolapse
2. Atresia coli
3. Diaphragmatic hernia
4. All of the above

74. Which one of the following is anovulatory cyst:
1. Follicular cyst
2. Luteal cyst
3. All of the above
4. None of the above

75. Progesterone suppresses
1. Uterine milk secretion
2. Ovulation
3. Both
4. None

76. Signs of inflammation are:
1. Redness and swelling
2. Redness, swelling and heat
3. Redness, swelling, heat and pain
4. Redness, swelling, heat, pain and loss of function

77. Nucleus was discovered by
1. Brown
2. Robert Hooke
3. Jean Fernel
4. Evan & Dale

78. Prostaglandins are
1. Hypotensive in general
2. Hypotensive in general
3. Analgesic
4. None

79. Best result is obtained when embryo transfer is done by non-surgical technique at:
1. Morulla stage
2. Early blastocyst stage
3. Hatching blastocyst stage
4. All of the above

80. Clear, colourless and mucoid fluid is found in:
1. Allantois
2. Amnion
3. Chorion
4. Both a and b

81. Estrogens are
1. Luteolytic in cow
2. Luteotropic in sow
3. Epitheliotropic
4. All of the above

82. For behavioural sign of heat, the hormonal profile of the cow should be:
1. Low progesterone and low estrogen
2. High progesterone and low estrogen
3. Low progesterone and high estrogen
4. High progesterone and high estrogen

83. Gastric Prostaglandins inhibit
1. Secretion of acid
2. Mucus secretion
3. Both
4. None

84. An emaciated carcass has a water:protein ratio of:
1. 76.5:22
2. 80:19
3. 75:24
4. 74:25

85. Lazzaro Spallanzani pioneered in which of the following aspects:
1. Artificial Insemination
2. Embryo transfer
3. In vitro fertilization
4. Infertility

86. Taurine is a byproduct of the following amino acids:

1. Acidic amino acid
2. Basic amino acid
3. Heterocyclic amino acid
4. Sulphur amino acid

87. Pneumovagina is more common in:
1. Female calves
2. Heifers
3. Older cows
4. All of the above

88. Testosterone is used to treat
1. Mammary carcinoma
2. Male infertility
3. Aloepecia in castrated dog
4. All of the above

89. Definitive host of Toxoplasma gondii is:
1. Man
2. Dog
3. Cat
4. Bird

90. Prepubic deshmorrhexis is rare in cows due to:
1. Additional support of Subpubic tendon
2. Strong Prepubic tendon
3. Both of the above
4. None of the above

91. The association in which parasite does not injure the host upto the extent where lesions are producsed is known as:
1. Parasitiasis
2. Parasitosis
3. Parasitoids
4. Both 2 and 3

92. Meclofenamic acid antagonizes effect of
1. Bradykinin
2. Histamine
3. Kallikrein
4. None

93. Most pathogenic lung worm of cattle is:
1. *Dioctophyma renale*
2. *Trichostrongylus axei*
3. *Dictyocaulus viviparus*
4. *Syngamus trachea*

94. Grapes like cluster of translucent cysts on villi of placenta which are expelled with placenta is called
1. Cystic placental mole
2. Hydatiform mole
3. Caruncles
4. None of the above

95. Oxytocin is stored in
1. Hypothalamus
2. Posterior pituitary
3. Anterior pituitary
4. None

96. Oxyuris equi in horse is found in:
1. small intestine
2. caecum and colon
3. caecum, colon and rectum
4. oesophagus

97. Which of the following is not a NSAID
1. Aspirin
2. Naproxen
3. Meclofenamic acid
4. Cimetidine

98. Inflammation of grey matter in spinal cord is known as
1. Pachymeningitis
2. Leptomeningitis
3. Polioencephalitis
4. Poliomyelitis

99. Somatostatin is produced in
1. Hypothalamus
2. D cells of pancreas
3. GI mucosa
4. All of the above

100. Cirrhosis of liver is characterised by
1. fibrosis
2. degeneration
3. hyperplasia of hepatic cells
4. All of the above

101. hCG is a
1. Glycoprotein
2. Glycolipid
3. Protein
4. None

102. The route of drug administration is governed mostly by
1. Physical and chemical character of the drug
2. The intensity of the action desired
3. The completeness of absorption of the drug
4. All of the above

103. Suturing of cervical lacerations after calving is called
1. Cervicorrhaphy
2. Trachelorrhaphy
3. Cervicoplasty
4. None of the above

104. Immediate type hypersensitivity is antibody mediated and the antibody involved is:
1. Immunoglobin G
2. Immunoglobin M
3. Immunoglobin A
4. Immunoglobin E

105. Match List I with List II and select the correct answer using the codes given below the lists :

List-I
(*Chromosomal aberration*)
A. Transfer of parts between non homologous chromosomes.
B. One whole chromosome missing from one set.
C. Presence of more than two genomes
D. A segment of chromosome missing

List II
(*Names*)
1. Deficiency
2. Monosomic
3. Translocation
4. Polyploidy

Codes:

(a)	A	B	C	D
	2	3	4	1
(b)	A	B	C	D
	2	3	1	4
(c)	A	B	C	D
	3	2	4	1
(d)	A	B	C	D
	3	2	1	4

106. Which of the following conditions ensure maximum heterosis when two unrelated populations are mated?
1. Maximum difference in the gene frequency.
2. Maximum degree of dominance.
3. Directional dominance of the genes determining the trait.
4. Selective advantage of the genes.

Select the correct answer using the codes given below:
1. 1, 2 and 3
2. 2, 3 and 4
3. 1, 3 and 4
4. 1, 2 and 4

107. Without breaking the egg, the internal quality of egg is determined by which of the following methods :
1. Yolk index
2. Albumen index
3. Haugh unit
4. Candling

108. Main character for identification of Hariyana cow is :
1. Long and broad face
2. Long and narrow face
3. Small and narrow face
4. Small and broad face

109. The most essential dietary vitamin for Indian Zebu is :
1. Vitamin 'A'
2. Vitamin 'D'
3. Vitamin 'B'
4. Vitamin 'E'

110. In animals lethal factors may be brought to light by :
1. Criss Crossing
2. Triple Crossing
3. Close breeding
4. Hybridization

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TEST SERIES - 15

(Based on memory of U.P.P.C.S..-1993)

1. The conversion of trypsinogen to active trypsin is carried out by
1. Peptidase
2. Maltase
3. Gastrin
4. Enterokinase

2. Which of the following animals has average gestation period of three months, three weeks and three days
1. Cat
2. Sheep
3. Bitch
4. Sow

3. Time of ovulation in cow is:
1. 10-15 hrs. after end of estrus
2. 10-15 hrs. after start of estrus
3. 20-24 hrs. after end of estrus
4. 20-24 hrs. after start of estrus

4. Osborn index is used for
1. Selection of birds
2. Quality of egg
3. Carcass quality
4. None

5. Pepsinogen is activated to pepsin by the action of
1. Rennin
2. Mucous
3. Gastric lipase
4. HCl

6. The viron consist essentially of:
   1. A nucleic acid surrounded by protein coat
   2. Protein molecule surrounded by nucleic acid
   3. Only capsid is present
   4. Only nucleic acid is present

7. Gastric lipase is secreted in
   1. Pyloric zone
   2. Fundic zone
   3. Cardiac zone
   4. All of the above

8. Leguminous fodder are:
   1. Rich in fibre
   2. Rich in protein
   3. Rich in fat
   4. None of the above

9. Zymogen granules are the precursors of
   1. Gastric juice
   2. Intestinal secretions
   3. Salivary enzymes
   4. None of the above

10. Viral disease "Psittacosis" transmitted to man from
    1. Sparrow
    2. Peacock
    3. Quail
    4. Parrot

11. Indicate one most important factor responsible for improvement of a breed
    a. Generation Interval
    b. Choice of environment
    c. Growth rate
    d. Heritability

12. Which of the following is a ruminant animal
    1. Elephant
    2. Hippopotamus
    3. Pig
    4. Bison

13. Hormone Villikinin is secreted from
    1. Lower small intestine
    2. Large intestine
    3. Stomach
    4. Upper small intestine

14. Act of parturition in cat is known as:
    1. Kidding
    2. Queening
    3. Kindling
    4. Foaling

15. The endocrine gland which regulate the secretion of other endocrine gland is known as
    1. Anterior Pituitary
    2. Adrenal
    3. Thyroid
    4. Gonad

16. Concept of Attenuation was given by
    1. Pasteur
    2. Jenner
    3. Schutz
    4. None

17. Castrated male of horse is known as
    1. Gelding
    2. Wedder
    3. Bullock
    4. Steer

18. The area required under slatted flooring is
    1. Greater than solid flooring
    2. Equal to solid flooring
    3. Independent to all above
    4. Lesser than solid flooring

19. Act of mating in sheep:
    1. Tupping
    2. Serving
    3. Covering
    4. Coupling

20. Smallest size of caecum is seen in
1. Horse 2. Dog
3. Sheep 4. Goat

21. Prolonged use of antibiotic in lower doses can lead to the discolouration of teeth and retarded skeletal growth
1. Penicillin 2. Gentamycin
3. Chloramphenicol 4. Tetracycline

22. The normal level of fertility in W. L. H. should not be less than ———— for better hatchability
1. 95 % 2. 90 %
3. 85 % 4. 100 %

23. Correct method to dispose off the solid refuse from animal house is:
1. Manure preparation
2. Conversion into energy
3. Both 1 and 2
4. Throw in river

24. Initially the project coordinator's office of AICRP was located at
1. APAU – Tirupathi 2. JNKV – Jabalpur
3. AAU – Kanapara 4. IVRI, Izatnagar

25. Meat of which animal called as black gold of India
1. Cow 2. Sheep
3. Buffalo 4. Black Bengal goat

26. Fluid mosaic model is a model for
1. Cell wall 2. Cytoplasm
3. Cell structure 4. None

27. Dressing percentage of swine is:
1. 40-45% 2. 65-80%
3. 20-35% 4. None of the above

28. Chalky white, coarse hair like fibre found around hind quarters of sheep are known as:
1. Dead wool
2. Kemp
3. Both 1 and 2
4. None of the above

29. The ———— helps haem to keep iron in ferrous form –
1. Globin 2. Haemosiderin
3. Ferritin 4. All of the above

30. The worldwide spread of a disease through food is:
1. Sporadic 2. Pandemic
3. Epidemic 4. Endemic

31. White belt encircling the body is breed characteristic of
1. Wessex saddle back
2. Berkshire
3. Tamworth
4. Hampshire

32. When in a dihibrid cross, 12:3:1 ratio is obtained, then the gene interaction will be:
1. Complementary gene interaction
2. Supplementary gene interaction
3. Dominant Epistasis
4. Recessive Epistasis

33. Live embryo can be detected at the time of candling on 5th day of incubation by
1. Radiating blood vessels
2. Pink ring
3. Absence of blood vessels
4. Size of Air-cell

34. Drug used for increasing blood pressure:
1. Reserpine
2. Digitalin
3. Santonin
4. Senna

35. Comma shaped bacteria
1. Spirilla
2. Spirochaeta
3. Vibrio
4. None

36. Globus minor is the synonym of the:
1. Caput epididymis
2. Corpus epididymis
3. Cauda epididymis
4. None of the above

37. Chromosomes with morphologically and genetically identical arms are:
1. Heterochromosomes
2. Isochromosomes
3. Euchromosomes
4. Chromocenters

38. First vaccine against fowl cholera was developed by
1. L. Pasteur
2. E. Jenner
3. Leeuwenhock
4. None

39. Submucosa of duodenum contains
1. Brunner's gland
2. Mucous gland
3. Payer's patches
4. All of the above

40. Reconstituted milk is heated at a temperature of
1. 35^0 C – 37^0 C
2. 38^0 C – 43^0 C
3. 40^0 C – 45^0 C
4. 42^0 C – 47^0 C

41. In the middle piece of bovine spermatozoa arrangement of fibers and tubules is:
1. 9+9+2
2. 9+2+2
3. 9+2+3
4. 9+0+2

42. Artificial light is needed mainly to increase
1. Egg production
2. Meat production
3. Feather development
4. Comb and wattle development

43. Energy released during aerobic respiration is more than energy released during anaerobic respiration, how many times more energy is released in the former than later:
1. 18 times
2. 15 times
3. 12 times
4. 8 times

44. In human being blood platelets are increased in
1. Hodgkin's disease
2. Anaemia
3. Thrombocytopenic purpura
4. All of the above

45. A dihybrid ratio of 1:4:6:4:1 is obtained instead of 9:3:3:1 in case of:
1. Supplementary gene
2. Complementary gene
3. Polygenic inheritance
4. Monogenic inheritance

46. The heating temperature of recombined milk is
1. 32^0 C – 35^0 C
2. 36^0 C - 40^0 C
3. 38^0 C - 49^0 C
4. 48^0 C – 52^0 C

47. The increased level of performance as compared to the average of the parental types is known as:
1. Inbreeding depression 2. Prepotency
3. Heterosis 4. Breeding value

48. Which of the following methods is not a preservation method
1. 38 Drying 2. Curing
3. Freezing 4. Frying

49. Gestation period in pig is
1. 114 ± 5 days 2. 158 days
3. 90 days 4. 60 days

50. Mating of more closely related individual than average of population known as:
1. Inbreeding 2. Out breeding
3. Cross breeding 4. Out crossing

51. Identify the non-sporting "working group" breed in the following
1. Bulldog 2. Dalmatian
3. Dachshund 4. German Shepherd

52. A revolutionary concept in Biology was projected by Charles Darwin in the "Origin of Species", has been discussed as:
1. Germplasm theory
2. Use and Disuse of organs
3. Gene mutations
4. Natural selection leading to survival of the fittest

53. The erythrocytes of camel are
1. Sickle-shaped 2. Discoid
3. Elliptical 4. Biconcave

54. Aneuploidy is the term applied for:
1. Gene mutation
2. Chromosomal mutation
3. Chromosal mutation involving the addition of one or more complete set of chromosome
4. None of the above

55. The percentage of casein and calcium
1. 2 % casein & 0.05 Ca %
2. 2.5 % casein & 0.13 Ca %
3. 3 % casein & 0.50 Ca %
4. 3.5 % casein & 0.75 Ca %

56. Hormone essentially required along with estrogen to elicit estrus:
1. Progesterone 2. Prolactin
3. ACTH 4. Corticosteroids

57. The mediterranean class birds produce
1. White shelled egg
2. Brown shelled egg
3. Dark coloured egg
4. None

58. The mammalian acrosome contains enzymes ....., essential for penetration of zona of the oocyte:
1. Hyaluronidase
2. Proacrosin
3. Estrases
4. All of the above

59. Which among the following dogs ie. mostly preferred for managing farm animals on pastures and ranges
1. Polar dogs
2. Shepherd dogs
3. Hound dogs
4. Terrier dogs

60. Genes transfer techniques make it possible to produce
1. Animals with desired production traits
2. Disease resistant animals
3. Chimeras
4. All of the above

61. Comfortable temperature for optimal growth in chicken is
1. 55-65° F
2. 75-90° F
3. 40-50° F
4. 20-40° F

62. Prostaglandins are derivatives of:
1. Meloinic acid
2. Arachidonic acid
3. Benzoic acid
4. None of the above

63. Odour of cattle urine is faintly aromatic due to:
1. Urochrome
2. Uridine
3. Urinide
4. All of the above

64. The hatching of blastocyst in bovines normally occurs at:
1. day 5-6
2. day 6-7
3. day 4-8
4. day 8-10

65. Fortified milk are that milk in which there is addition of
1. Vitamin
2. Multi Vitamin
3. Mineral
4. All of the above

66. What is the yearly wool yield of German Angora
1. 400 -600 g / year
2. 700 – 1,000 g / year
3. 300 – 400 g / year
4. 500 – 600 g / year

67. Corpus luteum of pregnancy is known as:
1. Corpus luteum albicans
2. Corpus luteum verum
3. Corpus luteum spurium
4. Corpus luteum pregnancy

68. The maximum space for broiler production is provided
1. 1 sq. ft. / chicks
2. 7-8 sq. ft. / chicks
3. 1-2 sq. ft. / chicks
4. 2-2.5 sq. ft. / chicks

69. A high speed of freezing of meat tends to:
1. Enhance tenderness
2. Decrease tenderness
3. Neither enhance nor decrease tenderness
4. None of the above

70. The holding medium for embryo contain:
1. 1.0 % BSA
2. 4.0 % BSA
3. 0.1 % BSA
4. 0.4 % BSA

71. Ageing of ice-cream is done at the temperature of:
1. 0 to 4° C
2. 5 to 10° C
3. 10 to 15° C
4. Below 0° C

72. Milk is heavier than
1. Ice
2. Water
3. Solid
4. Salt

73. Dropping of birds are collected in dropping trays, which was fitted underneath each time in
1. Battery cage
2. California cage
3. Nesting system
4. None

74. Rennet is manufactured from:
1. Abomasum of suckling calf
2. Stomach of adult pig
3. Mucous membrane of intestine of suckling buffalo calf
4. None of the above

75. The dose of PMSG for superovulation in cattle is
1. 3000 – 4000 IU
2. 1000 – 2000 IU
3. 500 – 1000 IU
4. 2000 – 3000 IU

76. Posterior xiphoid lapratomy is conducted for:
1. Intestinal obstruction
2. Diaphragmatic hernia
3. Caesarean section
4. All of the above

77. Which of the following is used as flushing medium for embryo collection
1. Dulbecco's phosphate buffer saline
2. TALP
3. Hank's medium
4. Normal saline solution

78. Parasite which feed on solid tissue after liquefying them:
1. Chiggers
2. Filariasis
3. Strongyles
4. Ascarids

79. The glycoprotein erythropoietin, which stimulates erythropoiesis, is formed by the action of
1. ACTH
2. Vasopressin
3. Oxytocin
4. All of the above

80. The maximum SPC for pasteurized milk
1. 0/ml
2. 100/ml
3. 30000/ml
4. 1 lac/ml

81. Condition of characterized by the birth of dummy or bawler's calves is known as
1. Epitheliogenesis imperfecta
2. Ichthyosis congenita
3. Hypotrichosis congenital
4. Hydrocephalus

82. Sequence of meat cutting is:
1. Carcass – Primal cuts – Subprimal cuts – Retail cuts
2. Carcass – Retail cuts – Primal cuts – Subprimal cuts
3. Carcass – Subprimal cuts – Primal cuts – Retail cuts
4. Carcass – Retail cuts – Subprimal cuts – Primal cuts

83. Permitted level of NO_3 in curing of meat is:
1. 200 ppm
2. 300 ppm
3. 400 ppm
4. 500 ppm

84. Main advantages of early weaning are
1. Sows can rebred early
2. Weight loss during lactation is less
3. Better disease control
4. All of the above

85. Processing of carcass as soon as possible after slaughter without chilling is known as:
1. Hot processing
2. Hot boning
3. Problending
4. Comminuation

86. Site of semen deposition in mare
1. Vagina
2. Cervix
3. External os cervix
4. Uterus

87. Optimum growth temperature of thermophilus bacteria is:
1. Below 20^0 C
2. 20 - 45^0 C
3. Above 45^0 C
4. Above 90^0 C

88. Processed meat produced by dry salting is
1. Cherque
2. Biltong
3. Pickling
4. All of the above

89. Active bone marrow in the adult body is
1. 9-10 %
2. 3.5 -6.0 %
3. 6.5 -8.5 %
4. None of the above

90. Bleaching of the rabbit in the basket is known as:
1. Black beef
2. Green stick
3. Weasand
4. Heated beef

91. Giemsa staining is used for
1. Acrosome reaction test
2. Hypo osmotic swelling test
3. Live dead count
4. All of the above

92. Which of the following is the concept of oil treatment of egg:
1. Close pore of shell by thin film of oil
2. Coagulation of thin albumen just below shell membrane to close pore of shell
3. $CaCO_3$ deposit on shell to close pore
4. Silica layer deposit on egg to close pore

93. In which state rabbit meat production is more popular
1. Tamilnadu
2. Andhra Pradesh
3. Kerala
4. All of the above

94. The most common form of spoilage on cured meat is due to:
1. Bacteria
2. Yeasts
3. Moulds
4. Parasites

95. From microbiological point of view, the critical temperature for milk is:
1. 4^0 C
2. 5^0 C
3. 10^0 C
4. 15^0 C

96. The best method of semen collection in bull is
1. Artificial vagina method
2. Massage method
3. Electroejaulation method
4. Vaginal aspiration method

97. Greening in sausages is caused by
1. Lactobacillus
2. Aspergillus
3. Salmonella
4. Shigella

98. Howell – Jolly bodies are found in
1. Lymphocytes
2. RBC
3. Granulocytes
4. Monocytes

99. "Curled toe paralysis" in chicks is due to deficiency of:
1. Pyridoxine
2. Riboflavin
3. Pantothenic acid
4. Biotin

100. The amount of metabolic water produce per gm of protein is:
1. 0.1 gm
2. 0.12 gm
3. 0.4 gm
4. 0.8 gm

101. For one litre of milk production, (4% fat) the TDN rquired by cow will be:
1. 0.10 Kg
2. 0.25Kg
3. 0.32Kg
4. 0.50 Kg

102. The average pH of bull semen is
1. 7.4
2. 5.6
3. 6.8
4. 8.2

103. The increases in amino acid flux with increased supply of dietary energy and protein is mainly due to:
1. Increased level of gastro-intestinal hormones
2. Increased level of glucocorticoids
3. Increased rate of insulin and thyroxine secretion
4. None of the above

104. The RQ value for fat is:
1. 0.5
2. 0.7
3. 0.9
4. 1.0

105. Oxalate in high amount is present in:
1. Paddy straw
2. Jawar Kadbi
3. Cow-pea hay
4. Oat fodder

106. The occurrence in an individual of two or more cell populations or tissues each with a different chromosome complement derived from a single Zygote is called
1. Chimerism
2. Mosaicism
3. All of the above
4. None of the above

107. Lignin is associated with ..... in plants
1. Cellulose
2. Silica
3. Pectin
4. All of the above

108. Dry matter requirement for the buffalo of 400 Kg body weight would be:
1. 8 Kg
2. 10 Kg
3. 12Kg
4. 14 Kg

109. A plasma cell is
   1. Differentiated neutrophil
   2. Differentiated â lymphocyte
   3. Differentiated eosinophil
   4. Differentiated basophil

110. What steroid hormone stimulates the production of prostaglandin F2a from the uterine endometrium during the estrous cycle to cause CL regression?
   1. Progesterone
   2. Testosterone
   3. Estrogen
   4. Corticosteroid

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APPENDIX

Table : Common physiological values of various domesticated livestock

Particulars	Cattle	Buffalo	Sheep	Goat	Pig	Horse	Dog	Cat	Camel	Elephant	Fowl
Rectal Temp° F	101.5	101.0	103.0	103.0	102.6	100.4	101-102	101	99.6	97.6	107
Normal pulse/ min	60-90	40-50	70-90	70-90	60-90	36-42	70-130	100-130	30-50	25-35	120-160
Normal Resp./ min	20-30	10-20	20-30	20-30	10-20	8-16	16-30	30-40	10-12	8-10	15-50
Duration of heat	6-30 hrs	6-48 hrs	1-2 d	2-3 d	3-4 d	6 day	11-18 d	7-10 d	5 d	–	–
Age at first Service (month)	15-18	24-27	8-12	8-12	8-10	16-18	6-12	6-15	–	–	–
Gestation Period (days)	273-294 (283)	300–309 (304)	140–160 (150)	147–155 (150)	109–125 (115)	305–400 (340)	55–70 (63)	55–70 (56)	365-410 (370)	20 month	21 day hatching

Table : Sites for pulse recording

Horse	Lower jaw, where the external maxillary artery is continued across the face as facial artery.
Cattle	Coccygeal artery on either side of the under aspect of tail.
Sheep, Goat, Dog, Cat	Femoral artery inside the hind limb, more than half way between stifle & hip joint.
Fowl	Wing artery on the inner aspect of the wing

Table : Livestock Identification

Sr	Method	Materials needed	Remarks
1.	Tattooing	Thin needles in the form of letters and numbers to form codes, Tattooing forceps, ink.	Applied on clear and light skin, like- inner aspect of pinna, under root of tail, escutcheon, gum. Applicable on white/ pink skin only (not in buffaloes). Good for calves, sheep & goat.
2.	Ear tagging	Metal Ear tags Plastic ear tags (Applicators, Pins)	
3.	Ear notching	Notching forceps	Requires skill and uniform coding system. Good for Pigs, sheep & goat.
4.	Branding (Hot & Cold)	Long iron bars with protected handle having letters and numerals at tip.	It may be hot (red hot – furnace) and cold (liquid nitrogen: -196°C) branding. Not to be practiced in monsoon.

Table : Classification of teeth

Type of teeth		Horse	Cattle, Buff., Sheep & Goat
INCISORS (Monocuspid)	Location	Anterior part of both jaws	Anterior part of lower jaw.
	Kind	Temp. & Permanent	Temp. & Permanent
	No.	6 Upper (Central, lateral, corner) 6 Lower (Central, lateral, corner)	Dental pad – Upper jaw 8 Lower (Central, medial, lateral, corner)
	Uses	Biting & Cutting	Biting & Cutting
CANINES (Monocuspid)	Presence	Only in male horse. (Known as *Tush in equines & Tusk in pigs)* Nearer to incisors in lower jaw than upper jaw.	Absent
	No.	2 in upper jaw 2 in lower jaw	-
	Kind	Always permanent	-
	Uses	Tearing	-
CHEEK TEETH Temp. & Permanent (Bicuspid)		Kind	Temp. & Permanent
	1st,2nd,3rd (Premolar)	6 in upper jaw 6 in lower jaw	6 in upper jaw 6 in lower jaw
	4th,5th,6th (Molars)	6 in upper jaw 6 in upper jaw	6 in lower jaw 6 in lower jaw
	Uses	Grinding the food	Grinding the food
WOLF TEETH	Rudimentary	Anterior to premolars. Occasionally found.	-

Teeth Eruption and Age Determination
Table : Horse

Age	Incisors	Canine	Cheek teeth
Up to 1 week	2. Temp. Centrals	-	-
2 – 4 weeks	2 Temp. Laterals	-	1st, 2nd, 3rd Temp.
7 – 9 months	2 Temp. Corners	-	4th Perm.
18-20 months	-	-	5th Perm.
2.5 years	2 Perm. Centrals	-	1st, 2nd Perm.
3.5 years	2 Perm. Laterals	-	3rd Perm.
4.0 years	-	All 4	6th Perm.
4.5 years	2 Perm. Corners	-	-

ERUPTION TABLE FOR CATTLE

Age	Incisors	Cheek teeth
Up to 1 month	All Temp.	1st, 2nd, 3rd Temp.
6 months	-	4th Perm.
1.5 years	-	5th Perm.
2.0 years	Central Pair Perm.	1st, 2nd, 6th Perm.
2.5 years	-	3rd Perm.
3.0 years	Medial Pair Perm.	-
4.0 years	Lateral Pair Perm.	-
5.0 years	Corner pair Perm.	-

ERUPTION TABLE FOR BUFFALO

Age	Incisors	Cheek teeth
Up to 1 month	Central and medial Temp.	-
1.5 month	Lateral Temp.	1st, 2nd, 3rd Temp.
4.0 month	Corner Temp.	
6.0 month	-	4th Perm.
1.5 year	-	5th Perm.
2.0 year	-	1st, 2nd, 6th Perm.
3.0 year	Central Perm.	3rd Perm.
3.5 year	Medial Perm.	-
4.5 year	Lateral Perm.	-
5.5 year	Corner Perm.	-

TABLE FOR SHEEP & GOAT

Approx. age	Sheep	Goat
First year	One pair of central permanent incisors	Front teeth are small and sharp
Second yearing	Two pairs (central, medial) permanent incisors.	Central pair of incisors are replaced by permanent teeth
Third year	Three pairs (central, medial, lateral) permanent incisors.	One tooth on either side of the central ones are replaced by

	permanent teeth.	
Fourth year	Four pairs (central, medial, lateral, corner) permanent incisors.	Six permanent incisors appear.
Fifth year	- do -	All permanent incisors appear.
Six year onwards	Broken mouth condition may occur, that may later lead to Gummer condition.	

Table : Breeds of Camel

Name	Origin	Salient Features	Utility
Bikaneri	Bikaner	"STOP" and "Jheepras" present. Have > 50 % polulation	Riding & as Pack animal
Jaiselmeri	Jaiselmer	Streamlined body, shorter, lighter with no "STOP".	Riding
Mewari	Mewar	Short, stouter and have coarse body hair.	Pack animal in hilly areas.
Sindhi	Lower parts of Indus	Dark brown coat and can walk in marshy areas.	Pack animal
Tharparkar	Sindh	Well marked "STOP"	Riding
Kutchi	Kutch	Small	Riding and as pack

Table : India's AGRO-CLIMATIC ZONES AND LIVESTOCK PRODUCTION

Zones	Regions	Rainfall	Land & Climate	Main livestock
Himalayan	J&K, HP, Uttranchal	>100 cm	Pastures available	S- Gurej, Karnah, Bhakarwal, Gaddi G- Chamba, Gaddi, Kashmiri, Chegu C&B-Non-descript.
Dry north-western Delhi, Raj., Gujarat	West UP, Punjab, Haryana,	< 75	Highly favourable for AH, wheat growing	C- Sahiwal, Red-Sindhi, Kankrej Tharparkar, Haryana, Nagori, Malvi, Gir, B- Murrah, Nili-Ravi, Surti, Jafrabadi, Mehsana S- Bikaneri, Kathiawari, G- Jamunapari, Beetal, Marwari, Kathiawari,, Barbari. Camel-Bikaneri, Jaisalmeri.
Eastern humid	East. UP, Bihar, Jharkhand, Orissa, Gangetic Bengal, coastal (AP & TN)	100-180	Paddy growing	C- Bachaur, Kherigarh, Panwar G- Black Bengal.
Central plateau	MP, inner MS, AP, Kar., TN	< 100	Jowar/ bajra growing	S- Mandya, Nellore, Deccani C-Amritmahal, Bargaur, Hallikar, Kangyam, Khillari, Malvi, Nimari, Deoni B- Nagpuri G- Berari, Surti, Deccani
Eastern heavy monsoon	NE states, Sub-Himalayan Bengal	>150 highly humid	Paddy growing	Animals are non-descript, short stature and low productive.
Western heavy monsoon	Coastal (MS, Kar), Daman, Diu, Kerala	>180 highly humid	Paddy growing	Animals are non-descript, short stature and low productive.

Note : C-Cattle; B- Buffalo; S- Sheep; G- Goat

APPENDIX

BREEDS OF HORSES

Sl.	Name	Origin	*Salient features*	Utility
1.	Kathiawari	Gujarat	*Sickle hocks, Ears inclined to meet at tips.*	Well known for pace (draft) and speed (race).
2.	Marwari	Rajasthan	*Handsome, Majestic, tough, sturdy with easy pace.*	Well known for riding skills.
3.	Spiti	Jammu and Kullu valley	*Well developed quarters. Legs covered with hair.*	Pack, Riding
4.	Bhutia	Himalayan ranges	*Surefooted, round quarters, coarse & hairy legs.*	Can walk long distances. Known for their intelligence, used for polo, racing & as pack animal.
5.	Manipuri	Manipur	*Surefooted, well proportioned body.*	Known for elegance and speed. Military, Transport.
6.	Zanskari	Ladakh	*Well suited for snow bound areas.*	Well adapted in high altitudes as pack animal.

BREEDS OF PIGS

(Based on their colours, size, ear carriage, temperament and carcass quality)

Sl.	Name	Origin	Colour	Utility
1.	Yorkshire - Large White - Middle white	England	White - Have black spots – freckles - No spots	Bacon - Bacon - Pork
2.	Chester white	Pennsylvania, US	White	Lard
3.	Landrace	Denmark	White	Bacon
4.	Hampshire	Kentucky	Black and some white (belt)	Lard
5.	Berkshire	England	Black and some white	Lard
6.	Poland China	Ohio	Black and some white	Lard
7.	Spot	Indiana	Black & White	Mixed
8.	Duroc	New York, New Jersey	Red	Lard
9.	Tamworth	England	Red	Bacon
10.	Hereford	Missouri, US	Red with some white	Pork

TABLE : POULTRY BREEDS

Sl.	Name	Origin	Salient Features	Utility
I.	**American class:** Yellowish skin, clean shank, red ear lobe, brown shelled eggs.			
A.	Rhode Island Red	New England	Back flat and breast is carried well forward	Meat
B.	Plymouth Rock	America	Excellent Flesh, Single comb (whole white)	Dual
C.	Newhampshire	England	Chestnut red plumage, Single comb	Dual
II.	**Asiatic Class:** Yellow skin, red ear lobes, brown shelled eggs and feathered shank			
A.	Brahma	India	Massive, well feathered and pea comb	Dual
III.	**English Class:** Excellent flesh, white skin, red ear lobes, brown shelled eggs, clean shank			
A.	Sussex	England	Excellent flesh, single comb and coloured beak	Meat
B.	Australop	Australia	Single comb, black body and lustrous greenish black plumage	Dual
C.	Orpington	England	Well rounded and loose feathered	Dual
IV.	**Mediterranean Class:** Yellow/ white skin, white ear lobes, white shelled eggs and high egg production			
A.	Leg hom	Italy	World's No. 1 egg producer, small, active, neatest, single comb and stylish carriage	Egg
B.	Minorca	Spain	Largest and heaviest Mediterranean breed	Egg

TABLE : DIFFERENCES BETWEEN ZEBU AND EXOTIC CATTLE

Particulars	Zebu	Exotic
1. Genus & Species	*Bos indicus*	*Bos taurus*
2. Distribution	Tropics	Temperate zones
3. Heat tolerance	More	Less
4. Ectoparasitic tolerance	More	Less
5. Type	Milch, Draft, Dual	Milch, Beef
6. Draft power	More	Less

7. Maternal instincts	More pronounced	Less
8. Roughage digestibility	Better	Moderate
9. General appearance		
a. Colour patterns	Limited	Varied
b. Major body colours	White, Brown, Red	Black, white, brown
c. Hair coat	Soft, hairy, all-over the body	Coarse, longer
d. Hump	Present	Absent
e. Horns	Large	Small
f. Ears	Large, highly mobile	Small, less mobile
g. Navel flap	Prominent	Not prominent
h. Dewlap	Prominent	Absent
o. Gait	Active and fast	Slow
q. Dung	Tight	Loose
10. Milk	Yellowish	More yellowish
11. Estrus behaviour	More pronounced	Less pronounced

TABLE : WOOL FIBRE PARAMETERS

Indian wool fibre	Mean fibre diameter (mm)	% of India Production
North India Superior clothing white	0.032	4.9
North India clothing white	0.03 – 0.042	44.7
North India rug white	0.042 – 0.046	12.4
North India carpet white	0.046 and above1	0.0
South India blanket type	0.042 – 0.046	23.5
South India Tannery type	0.046 above	4.5

NEW BREEDS/ STRAINS DEVELOPED IN INDIA

Sl.	Breed/ Strain	Location	Composition	
			Exotic	Indigenous
1.	HISSARDALE	Hissar	Merino	Bikaneri
2.	BHARAT MERINO	CSWRI, Avikanagar	Rambouillet Merino	Chokla Nali
3.	AVIVASTRA	CSWRI, Avikanagar	Rambouillet Merino	Chokla Nali
4.	AVIKALIN	CSWRI, Avikanagar	Rambouillet	Malpura
5.	AVIMANNS	CSWRI, Avikanagar	Dorset Suffolk	Malpura Sonadi
6.	INDIAN KARAKUL	CSWRI	Karakul	Marwari, Malpura
7.	SANDYNO (NILIGIRI SYNTHETIC)	SRRS, TANUVAS, Sandynallah	Merino	Niligiri
8.	PATANWADI SYNTHETIC	GAU, SK Nagar	Rambouillet Merino	Patanwadi
9.	KASHMIR MERINO	J & K State	Delaine Merino, Rambouillet, Soviet, Merino	Sonadi, Gaddi. Bhakarwal

TABLE : BUFFALO BREEDS OF INDIA

S.No.	Name	Origin/tract
1.	Murrah	Rohtak, Jind, Patiala
2.	Bhadavari	Agra, Etawah, Gwalior
3.	Jaffrabadi	Gujarat
4.	Surti	Gujarat
5.	Mehsana	Gujarat
6.	Nagpuri	Nagpur region
7.	Niliravi	Punjab
8.	Godavari	Godavari delta
9.	Toda	Nilgiri hills

10.	Parle Khemundi	Orissa
11.	Tarai	Tarai area (U.P., Uttaranchal)
12.	Sambal puri	Bilaspur
	Kimedi/ Gowdod	(Chhattisgarh)
13.	Kalahandi	Andhra Pradesh, Orissa
14.	Pandhar puri	Maharashtra
15.	Kundi	Sindh, Karachi

TABLE : CATTLE BREEDS OF INDIA

S.No.	Breed Name	Origin/ Home tract
1.	Kankrej	Runna of Kutch (Gujarat)
2.	Kagwanya (Kenkatha)	Bundelkhand
3.	Kherigarh	Kheri
4.	Malvi	Gwalior
5.	Tharparkar (Thari)	Sind
6.	Bachaur	Sitamarhi (Bihar)
7.	Gaolao	Maharashtra, M.P.
8.	Hariana	Haryana, Rohtak, Hisar, Jind
9.	Krishna Valley	Krishna river area (Karnataka)
10.	Mewati	Alwar, Bharatpur
11.	Nagauri	Jodhpur (Rajasthan)
12.	Ongole	Guntur (A.P.)
13.	Rathi/ Rath	Alwar (Rajasthan)
14.	Dangi	Ahmednagar, Nasik
15.	Deoni	Andhra Pradesh
16.	Gir	Gujarat
17.	Nimari	Nimar (M.P.)
18.	Red Sindhi	Karachi (Pak)
19.	Sahiwal	Montegomery (Pakistan)
20.	Hallikar	Karnataka
21.	Amritmahal	Mysore

22.	Khillari	Sholapur (Maharashtra)
23.	Kangayam	Coimbatore
24.	Alambadi	Salem (T.N.)
25.	Ponwar	Pilibhit
26.	Siri	Darjeeling

TABLE : CROSS BRED CATTLE IN INDIA

S.No.	Name	Crossing between
1.	Jersind	Red Sindhi x Jersey
2.	Karan Swiss	Brown Swiss bull x Sahiwal or Sindhi
3.	Karan Fries	Tharparkar x Holstein - Freisian
4.	Sunandini	Nondescript cows x Brown Swiss bull (Kerala)
5.	Frieswal	Friesian x Sahiwal

TABLE : AFFIXES

Sl.	Affix	Root	Meaning	Example
1.	A, an -	Greek	Not, without	Atrophy, Anoxia, Asepsis, Anemia
2.	Aden	Greek	A gland	Adenitis, Adenoma
3.	Angion	Greek	A vessel	Angioma, Cholangitis
4.	Anthrax	Greek	Coal	Anthrax, Anthracosis
5.	Anti	Greek	Against opposite	Antibody, Antidote Antigen
6.	Arthron	Greek	A joint	Arthrology, Arthritis
7.	Autos	Greek	Self	Autolysis, Autonomy
8.	Blastos	Greek	A sprout (immature thing)	Fibro blast, myeloblast retinoblastoma
9.	Bolos	Greek	A lump	Bolus, imbolus
10.	Carcino	Greek	A crab or cancer	Carcinoma
11.	Cele	Greek	A swelling	Hydrocele
12.	Chrom	Greek	Colour	Cytochrome
13.	Chym	Greek	Juice	Chyme, ecchymosis, Parenchyma
14.	Coll	Greek	Glue	Collagen, Colloid
15.	Cyst	Greek	A bladder	Cystitis
16.	Cyt	Greek	A cell or vessil	Cytology, cytolysis
17.	Derma	Greek	Skin	Dermis, Dermatitis
18.	Dia	Greek	Through across	Diarrhea, Dialysis, Diagnosis
19.	Dys	Greek	Bad	Dyspepsia, dyspnoea
20.	Ectasis	Greek	Expansion	Bronchiectasis
21.	Ectomy	Greek	Excision or cutting out	Appendectomy
22.	Em -, en -	Greek and latin	In, into	Encyst Embolism, empyema
23.	Emia	Greek	Blood	Anemia, pyemia
24.	Endo	Greek	Within	Endocardium, Endarteritis
25.	Enteron	Greek	Bowel	Enteritis, dysentery
26.	Epi -	Greek	Upon	Epicardium, Epithelium
27.	Erythros	Greek	Red	Erythrocytes, Erythema
28.	Gaster	Greek	Stomach	Gastritis

29.	Gen, genesis	Greek	Birth, Origin	Gene, Estrogen, Carcinogenesis
30.	Gnosis	Greek	Knowledge	Diagnosis, Prognosis
31.	Hem	Greek	Blood	Hemorhage
32.	Heteros	Greek	Other, different	Heterotopia, Heterologus
33.	Homos	Greek	Same	Homologus, Homozygous
34.	Hyalos	Greek	Glass	Hyaline, keratohyalin
35.	Hydr, hygr	Greek	Water, wet	Hydrocephalus, Hygroma
36.	Hyper	Greek	Over, excessive	Hyperplasia
37.	Hypo	Greek	Under, deficient	Hypoglycemis
38.	Idio	Greek	One's own	Idiopathic
39.	itis	Greek	Inflammation	Hepatitis
40.	Lapsus	Latin	A slip	Prolapse, Collapse
41.	Leukos	Greek	White	Leucocyte
42.	Lipos	Greek	Fat	Lipoid, Lipase
43.	Lithos	Greek	A stone	Enterolith
44.	Lysis	Greek	Loosening solution	Autolysis, analysis
45.	Macros	Greek	Large	Macrophage
46.	Malakos	Greek	Softening	Ostemmalacia
47.	Mastos	Greek	Breast	Mastitis
48.	Megga megalo	Greek	Great	Megaloblast, Splenomegaly, Megakarycyte
49.	Melan	Greek	Black	Melanin, Melancholia
50.	Mesos	Greek	Middle	Mesoderm, Mesentery
51.	Mikros	Greek	Small	Microscope
52.	Monos	Greek	Alone, Single	Monooxide, Menogamy
53.	Morphe	Greek	Form, shape	Morphology, Amorphous
54.	Myc	Greek	Mushroom	Mycology
55.	Myelos	Greek	Marrow	Myelitis
56.	My -, myo	Greek	Muscle	Myositis, Myome
57.	Nekros	Greek	A corpse	Necropsy, Necrosis
58.	Nephros	Greek	A kidney	Nephrosis
59.	Neuron	Greek	Nerve	Neuritis
60.	Oid, ode	Greek	Like	Deltoid, Mastoid
61.	Oligos	Greek	Scanty	Oligemia
62.	Oma, Ome	Greek	Expressing result of an action, tumor	Adenoma, Sarcoma Granuloma

63.	Orthos	Greek	Straight	Orthopaedics
64.	Osis, asis	Greek	Process, condition	Necrosis, fibrosis
65.	Para	Greek	Beside	Parasite, Paralyses
66.	Pathos	Greek	Suffering	Pathology, Pathogenic
67.	Peri	Greek	Around	Pericardium
68.	Phagos	Greek	Eating	Dysphagia
69.	Philos	Greek	Friend, lover	Eosinophil
70.	Phlebos	Greek	vein	Phlebitis
71.	Phobos	Greek	Fear	Photophobia
72.	Physa	Greek	A puff of wind	Emphysema
73.	Physis	Greek	Nature	Physiology
74.	Phyton Physis	Greek	Growth	Oesteophyte, Diaphysis, Osteophyte
75.	Plast, Plasma, Plasia	Greek	Molded Growth	Protoplasm, Aplasia,
76.	Pleo	Greek	More	Pleomorphism
77.	Pneuman (Pneuoma pneo)	Greek	Air Breather	Pneumonia, Apnea
78.	Polios	Greek	Gray	Poliomyelitis
79.	Poly	Greek	Many	Polymorphism
80.	Pseudo	Greek	False	Pseudopodia
81.	Pyon	Greek	Pus	Pyemia
82.	Rhinos	Greek	Nose	Rhintis
83.	Rrhea	Greek	A flow	Diarrhea
84.	Sarkos	Greek	Flesh	Sarcoma
85.	Skleros	Greek	Hard	Sclera, Scleroderma
86.	Septikos	Greek	Putrid	Asepsis, Septicemia
87.	Stasis	Greek	Standing, stale	Hemostasis
88.	Tertos	Greek	Monster, Deformity	Teratology
89.	Thesis	Greek	Thing laid down	Thesis, synthesis
90.	Thrombos	Greek	A lump, clot	Thrombus, Thrombosis
91.	Topos	Greek	Place	Ectopic
92.	Trope	Greek	A turning	Liptropic
93.	Trophe	Greek	Food, nutrition	Dystrophy
94.	Zoon – zoa, amite	Greek	Animal	Protozoa, Spermatozoon

Animal Diseases and their nicknames

Diseases	Nick name/s (Synonyms)
Anaplasmosis	Gall sickness
Hemobartenellosis	Feline infectious anemia
Schistosomiasis	Bilharzia
Trypanosoma cruzi infection	Chagas disease
Trypanosoma evansi infection	Surra
Trypanosoma equiperdum	Dourine
Congenital intrinsic Platelet function disorder	Chediak higashi syndrome
Congenital extrinsic Platelet Function disorder	Von will brand's disease
Cutaneous asthenia	Ehlers danlos syndrome
	Rubber puppy disease
Streptococcal lymphadenitis in pigs	Jowl abscess
Dirofilariasis	Heart worm disease
High mountain disease	Brisket disease; Pulmonary hypertensive heart disease.
Clostridium piliforme disease	Tyzzer's disease
Brachygnathia	Parrot mouth (in horse)
Prognathia	Sow mouth (in horses)
Ankyloglossia	Bird tongue (abnormal incomplete tongue)
Epitheliogenesis imperfecta	Smooth tongue (incomplete development of lingual filiform papillae)
Segmented aplasia	Rectal agenesis
Epulis	Gingival hyperplasia or Fibromatosis gingivae
Lipomatosis	Abnormal fat necrosis
Bloat	Ruminal tympany
Lactic acidosis	Grain overload
Hardware disease	Traumatic gastritis or Traumatic reticulo-peritonitis
Fasciolocides magna infection	Giant liver fluke infection
Dicrocoelium dendriticum infection	Lancet fluke infection
Eurytrema infection	Pancreatic fluke infection
Paramphistome infection	Rumen fluke infection or Conical fluke infection
Trichostrongylus axei infection	Hair worm infection
Theiler's disease	Serum hepatitis Idiopathic Acute Hepatitis
Black disease	Infectious necrotic hepatitis (by *Clostridium novyi* B)
Equine ehrlichial colitis	Potomac horse fever
Escherichia coli enterotoxemia	Edema disease

Porcine proliferative enteritis	Ileitis or Porcine intestinal adenomatosis
Slavery mouth / Slavers / Rattle Belly	Watery mouth disease (lambs) by E. coli
Vincent's stomatitis or Trenchmouth	Necrotizing Ulcerative gingivostomatitis
Spirocerca lupi infection	Esophageal worm infection
Trichuris infection	Whipworms infection
Ancylostoma caninum infection	Hookworm infection
Acanthocephalus infection	Thorny headed worm infection
Blepheritis	Eyelid inflammation
Dacrocystitis	Lacrimal sac inflammation
Pink eye	Infectious ophthalmia
Cushing's disease	Hyperadrenocorticism
Addison's disease	Hypoadrenocorticism
Actinobacillus lignieresii infection	Wooden tongue
Actinomyces bovis infection	Lumpy jaw
Splenic fever or charbon or Milzbrand	Anthrax
Borreliosis	Lyme disease
Redwater disease	Bacillary hemoglobinunis
Clostridium chauvoei infection	Black leg disease
Clostridium novyi infection	Big head disease
Lamziekte	Botulism
Pulpy kidney disease	Type D enterotoxemia
Akabane disease	Akabane virus infection
Hairy shaker disease	Border disease (Pestivirus)
Leptospirosis	Redwater disease of calves
Circling disease	Listeriosis or Listerellosis
Plague	Yersiniosis
Tularemia	Francisella tularemia
Swamp fever	Equine infectious Anemia
Equine typhoid / Rotalaufseuche	Equine viral arteritis
Farcy	Glanders
Swine fever	Hog cholera
Glasser's disease	Infectious polyarthritis
San Mignel sea lion virus disease	Vesicular exanthema of swine
Coronaviral encephalomyelitis	Vomiting and washing disease
Ondiri disease	Bovine petechial fever
Three day sickness	Ephemeral fever
Thrombotic menigoencephalitis	Haemophilus somnus disease
Cowdriosis	Heartwater disease
Snotsiektte	Catarrhal fever or gangrenous Coryza
Johne's disease	Paratuberculosis
Cattle plague	Rinderpest
Hardpad disease	Canine distemper
Feline distemper	Feline panleucopenia

TABLE : COMMON MICROBIAL GENERA OF RAW MILK

Micrococci	*Micrococcus*	*Staphylococcus*
Streptococci	Enterococcus (Faecal)	Group N
		Mastitis
		Streptococci
		Streptococcus agalactiae
		S. dysgalactiae
		S. uberis
Asporogenes (Gram + ve rods)	Mycobacterium	Arthrobacter
	Corynebacterium	Kurthia
		Listeria
		Lactobacillus
Spore formers	Bacillus	
	Clostridium	
Gram – ve rods	Pseudomonas	Flavobacterium
	Acinetobacter	Enterobacter
		Aerobacter
		Klebsiella
		Escherichia
		Salmonella
		Shigella Yersinia
		Serratia
		Alcaligenes
Miscellaneous	Yeast and Molds	Streptomycetes

ABBREVIATIONS

AGMARK	Agriculture Marketing
AH	Animal Husbandry
AI	Artificial Insemination
AICRP	All India Coordinated Research Project
ARIC	Agricultural Research Information Centre
AISL	All India Service Liabilities
ALC	Avian Leucosis Complex
ANSI	Animal Nutrition Society of India, Karnal
AOAC	Association of Official Analytical Chemists

APAS	Andhra Pradesh Academy of Science
APF	Animal Protein Factor
APPEA	Agriculture and Processed Products Export Authority
ARS	Agriculture Research Services
ASRB	Agriculture Scientist Recruitment Board
ATP	Adenosine Tri-Phosphate
BIS	Bureau of Indian Standards
BMR	Basal Metabolic Rate
BRI	Butyro-Refractometer (Index)
BV	Biological Value
CDB	Community Development Block
CEP	Central Exchange Programme
CF	Crude Fibre / Crude Fat
CFB	Corrugated Fibre Board
CL	Corpus Luteum
CMC	Critical Miceller Concentration
CORDET	Co-operative Rural Development Trust
CP	Crude Protein
CPR	Calorie - Protein Ratio
CSIR	Council of Scientific and Industrial Research, New Delhi
CSMRI	Central Salt and Marine Chemical Research Institute, Bhavnagar
DARE	Department of Agricultural Research and Education
DBT	Department of Biotechnology
DCP	Digestible Crude Protein
DDM	Digestible Dry Matter
DE	Digestible Energy
DFS	Deep Frozen Semen
DM	Dry Matter
DNA	Deoxyribonucleic Acid
DST	Department of Science and Technology
ECG	Electro Cardiogram
EDCIL	Educational Development Consultants India Limited
EDTA	Ethylene Di-amine Tetra acetic Acid
EEC	European Economic Community
ETT	Embryo Transfer Technology
EUN	Endogenous Urinary Nitrogen
FAO	Food and Agriculture Organization
FCI	Food Corporation of India

FDA	Food and Drug Adulteration Act
FFBFS	Fossils – Fuel-Based Feed Stock
FMD	Foot and Mouth Disease
FPTC	Food Processing and Training Centre
FRC	Food Research Council
FSB	Frozen Semen Bank
FSH	Follicle Stimulating Hormone
GE	Gross Energy
GIT	Gastro Intestinal Tract
GNC	Groundnut Cake
GOI	Government of India
GR	Green Revolution
HCN	Hydro-Cyanic Acid
HS	Haemorrhagic Septicemia
HTLT	High Temperature and Low Time
IADP	Intensive Agriculture District Programme
IAS	Indian Academy of Science, Bangalore
IBSP	Intensive Breeding and Selection Programme
ICAR	Indian Council of Agriculture Research, New Delhi
ICDP	Intensive Cattle Development Programme
ICFRE	Indian Council for Forestry Research and Education, Dehradun
ICMR	Indian Council of Medical Research
IDA	International Development Association, Indian Dairy Association
IDC	Indian Dairy Corporation
IGA	International Goat Association
IGNOU	Indira Gandhi National Open University
IIM	Indian Institute of Management
INSA	Indian National Science Adacemy
IPCC	Inter-Government Panel On Climatic Change
IRDP	Integrated Rural Development Programme
ISAB	Indian Society of Agricultural Biochemists
ISCA	Indian Science Congress Association
ISI	Indian Standard Institute
ISSGPU	Indian Society for Sheep and Goat Production and Utilisation
ITEC	Indian Technical and Economic Cooperation

IU	International Unit
IVT	Illinois Variable Temperature
KGK	Krishi Gyan Kendra
KVK	Krishi Vigyan Kendra
GBPUAT	Govind Ballabh Pant University of Agriculture and Technology
LEISA	Low External Input and Sustainable Agriculture
LH	Leuteinzing Hormone
LLP	Lab to Land Programme or Land Programme
LTLT	Low Temperature and Low Time
LTPC	Long Term Programme of Co-operation
LW	Live Weight
ME	Metabolizable Energy
MFAL	Marginal Farmer and Agricultural Labour
MHA	Methionine Hydroxy Analogue
MOETT	Multiple Ovulation Embryo Transfer Technology
MOU	Memorandum of Understanding
MP	Metabolizable Protein
MPEDA	Marine Product Export Development Authority
MSH	Melanocyte Stimulating Hormone
NAAS	National Academy of Agriculture Science
NAFED	National Agriculture Co-operative and Marketing Federation of India
NARP	National Agriculture Research Projects
NARS	National Agriculture Research System
NABARD	National Bank of Agriculture and Rural Development
NBFGR	National Bureau of Fish Genetic Resource
NBT	National Book Trust, New Delhi, Nylon Bag Technique
NCA	National Commission of Agriculture
NCAER	National Council of Applied Economic Research
NCDC	National Co-operative Development Corporation, New Delhi
NCERT	National Council of Educational Research and Training, New Delhi
NCFR	Non Conventional Feed Resources
NCL	National Chemical Laboratory
NDDB	National Dairy Development Board
NDF	Nutrient Detergent Fibre
NDP	National Development Programme

NE	Net Energy
NET	National Eligibility Test
NGOs	Non-Government Organisations
NFE	Nitrogen Free Extract
NPC	National Productivity Council
NPL	National Physical Laboratory
NPU	Net Protein Utilisation
NRDC	National Research and Development Cooperation
NREP	National Rural Employment Programme
NRL	Nuclear Research Laboratory
NSC	National Seed Corporation
NV	Nutritive Value
OF	Operation Flood
ONBC	Open Nucleus Breeding System
OPTP	Oilseeds Production Trust Project
ORP	Operational Research Project
PCT	Proximal Convoluted Tubule
PER	Protein Efficiency Ratio
PFA	Preventation of Food Adulteration (Rule)
pH	Negative power of Hydrogen ions
PIF	Prolactin Inhibitory Factor
PL – 480	Public Law-480
PMST	Pregnant Mare Serum Test
PTD	Participatory Technology Development
RAPI	Rural Agro Processing Industry
REF	Rural Erythropoietic Factor
RI	Refractive Index
RIA	Radio Immuno Assay
RLEGP	Rural Landless Employment Guarantee Programme
RM (V)	Reichert Meissal (Value)
RNA	Ribo Nucleic Acid
RNAM	Regional Network for Agricultural Machinery
RNE	Renewable Natural Energy
RNR	Research on Natural Resources
RRS	Reciprocal Recurrent Selection
RSAC	Remote Sensing Application Centre, Lucknow
RWP	Rural Work Programme
SAUs	State Agricultural Universities

SCERT	State Council of Educational Research and Training
SET	State Eligibility Test
SI	Sire Index
SDA	Specific Dynamic Action
SDI	Selective Dissemination of Information
SNF	Solids Not Fat
TA	Total Ash
TB	Tuberculosis
TCA	Tricarboxylic Acid Cycle
TCT	Thyro Calci Tonin
TDN	Total Digestible Nutrients
TPP	Thiamine Pyro Phosphate
TS	Total Solids
TSH	Thyroid Stimulating Hormone
VFA	Volatile Fatty Acid
WFO	World Food Organisation
WR	White Revolution
WB	World Bank

Important Acronyms

AFLP	Amplified Fragment Length Polymorphism
APEDA	Agriculture and Processed Food Products Export Development Authority
ATMA	Agricultural Technology Management Agency
BARC	Bhabha Atomic Research Centre
BD	Biodiversity
BR	Biosphere Reserve
BSNL	Bharat Sanchar Nigam Limited
CAbC	Community Agrobiodiversity Centre
CDC	Centre for Disease Control
cDNA	Complementary De-oxy Ribo Nucleic Acid
CFB	Community Food Bank
CFGB	Community Feed Grain Bank

CFTRI	Central Food Technology Research Institute
CIDA	Canadian International Development Agency
CIFT	Central Institute of Fisheries Technology
CMFRI	Central Marine Fisheries Research Institute
CSB	Community Seed Bank
CSGCA	Centre for Studies on Gender Concerns in Agriculture
CSWCRTI	Central Soil and Water Conservation Research and Training Institute
DAE	Department of Atomic Energy
DBT	Department of Biotechnology
DFO	District Forest Officer
DFRL	Defence Food Research Laboratory
DRDA	District Rural Development Agency
EB	Executive Body
EC	Executive Committee
ECAS	Every Child A Scientist
EST	Expressed Sequence Tags
FAO	Food and Agriculture Organisation
FD	Forest Department
FF	Ford Foundation
FRIS	Farmers' Rights Information Database
GB	General Body
GEAC	Genetic Engineering Approval Committee
GIS	Geographical Information Systems
GKP	Global Knowledge Partnership
GO	Government Organisation
GoM	Gulf of Mannar
GoMBR	Gulf of Mannar Biosphere Reserve
GRU	Gandhigram Rural University

HEP	High Egg Passage
ICAR	Indian Council for Agricultural Research
ICDS	Integrated Child Development Service
ICEF	India Canada Environment Facility
ICRISAT	International Crop Research Institute for Semi-Arid Tropics
ICT	Information and Communication Technology
IDRC	International Development Research Centre
IEEF	Ion Exchange Enviro Farms Pvt Ltd
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IGCAR	Indira Gandhi Centre for Atomic Research
IGNOU	Indira Gandhi National Open University
IIFS	Integrated Intensive Farming System
IMTECH	Institute of Microbial Technology
INM	Integrated Nutrient Management
IOB	Indian Overseas Bank
IPA	Isopropyl Alcohol
IPGRI	International Plant Genetic Resources Institute
IPM	Integrated Pest Management
ISRO	Indian Space Research Organisation
ITK	Indigenous Technical Knowledge
IWST	Institute of Wood Science and Technology
IYR	International Year of Rice
JMM	Joint Mangrove Management
KAU	Kerala Agriculture University
KC	Kennel Cough
KVK	Krishi Vigyan Kendra

LEISA	Low External Input Sustainable Agriculture
LEP	Low Egg Passage
LJSS	Luna Jungla Samrakshyana Samiti
LR	Land Race
MFPI	Ministry of Food Processing Industries
MMU	Mangrove Management Unit
MoU	Memorandum of Understanding
MSFLF	Manikollai Small Farmers' Lift Irrigation Federation
NABARD	National Bank for Agriculture and Rural Development
NASSCOM	National Association of Software and Service Companies
NATP	National Agricultural Technology Project
NBDB	National Bioresources Development Board
NBPGR	National Bureau of Plant Genetic Resources
NEDCAP	Non-Conventional Energy Development Corporation of Andhra Pradesh
NHB	National Horticulture Board
NRCB	National Research Centre for Bananas
NREGA	National Rural Employment Guarantee Programme
NRM	Natural Resource Management
NSS	National Service Scheme
NVA	National Virtual Academy for Food Security and Rural Prosperity
OKN	Open Knowledge Network
ORMAS	Orissa Rural Marketing Society
OSU	Ohio State University
PB	Plant Biodiversity

PCI	Participatory Crop Improvement
PCS	Participatory Conservation System
PPB	Participatory Plant Breeding
PPR	Peste des Petits ruminants
PPRC	Paddy Processing Research Centre
PPVFR	Protection of Plant Varieties and Farmers' Rights
PRA	Participatory Rural Appraisal
PRI	Panchayat Raj Institution
RCGM	Review Committee on Genetic Manipulation
RET	Rare Endangered and Threatened
RFPC	Regional Forest Protection Committee
RGCVAS	Rajiv Gandhi College of Veterinary and Animal Sciences
RNA	Ribo Nucleic Acid
RS	Remote Sensing
RSGA	Reddiyarchatram Seed Growers Association
RuTAG	Rural Technology Action Group
SAFWA	Sethiyathope Anaicut Farmers' Welfare Association
SBI	State Bank of India
SDC	Swiss Agency for Development and Cooperation
SGC	Save Grain Campaign
SHG	Self-Help Group
SPA	Sub-Programme Area
SRI	System of Rice Intensification
SSHG	Sustainable Self-Help Group
SSR	Simple Sequence Repeats
THADCO	Tamil Nadu Adi Dravidar Development

	Corporation
THF	Tetrahydrofuran
THMRC	The Hindu Media Resource Centre
TLC	Thin-Layer Chromatography
TN	Tamil Nadu
TNAU	Tamil Nadu Agricultural University
TRAI	Telecom Regulatory Authority of India
UDRC	Uttara Devi Resource Centre for Gender and Development
UL/ML/LL	Upland / Medium Land / Low Land
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organisation
VDF	Village Development Fund
VKC	Village Knowledge Centre
VLI	Village Level Institution
VVV	Vikas Volunteer Vahini
WFP	World Food Programme
WTO	World Trade Organisation

DID YOU KNOW THAT.....

- ***Ablation*** refers to excision or amputation.
- ***Abstem*** is citrated Calcium carbimide.
- ***Acholia*** means absence of bile.
- ***Acrodynia*** is painful reddening of extremities.
- ***Actinobiology*** is the study of effects of radiation on livery organisms.
- ***Kynology*** is a study of dogs.
- Congenital absence of bladder is ***acystia***.
- Inflammation of a gland or lymph node is ***adenitis***.
- ***Hilar adenitis*** is inflammation of bronchial lymph nodes.
- ***Ametria*** refers to congenital absence of uterus.
- ***Anastomosis*** is establishment of inter-communication between two hollow organs, vessels or nerves
- ***Atavism*** is reappearance of a hereditary trait, which was disappeared in one or more generations.
- ***Athlete's foot*** is a fungal disease caused by *Tinea podia*.
- ***Bulimia*** refers to excessive appetite.
- ***Callosity*** is local hardening of skin, caused by pressure or friction.
- ***Canicola fever*** is leptospirosis in man by species of Leptospira from rats, dogs, pigs, (Leptospira canicola) foxes, mice, voles.
- Chromicised catgut and iodized catgut holds for 20 – 40 days, after suturing.
- ***Cheilitis*** is inflammation of lip.
- ***Chemosis*** is swelling of bulbar conjunctiva.

- ***Chyme*** is partially digested food while chyle is digested fats.
- Enlargement of a vein is known as ***CIRSOID***.
- Clavicle is also known as ***COLLAR BONE***.
- ***Colpitis*** is inflammation of vagina.
- ***Demulcent*** is a slippery, mucilaginous fluid which allays invitation and soothes inflammation.
- **Hydropic degeneration** is usually associated with epithelial lesions.
- Hydropic degeneration with inclusion bodies in urinary tract epithelium of dogs indicates **distemper** disease.
- Most common location of fatty degeneration is **liver**, followed by kidney and heart.
- Liver is considered the **nutritional guardian** of the body.
- **Fatty liver** is seen in diabetes (dogs) and Ketosis (cows).
- Periacinar distribution of lipids is the most common distribution of fatty liver.
- **Fatty liver** has yellow colour and greasy texture on cut surface.
- **Steatosis** is fatty infiltration resulting in mottled colour of muscle.
- **Hyaline droplets** are small ionisaphlic structure in cytoplasm of cells.
- **Fibrinoid** is eosinophilic material in blood vessel common in Arthus reaction, mast cell tumors.
- **Amyloid** is best known primary cause of uremia.
- Without meiosis, sexual reproduction is not possible.
- First meiotic division during spermatogenesis occurs in primary spermatocyte to form secondary spermatocyte.

- During spermatogenesis, second meiotic division occurs between secondary spermatocyte and spermatic.
- 4n condition appears in primary oocyte.
- Two polar bodies are formed during oogenesis in farm animals.
- First polar body has diploid chromosome number while second polar body has haploid chromosome number.
- Diameter of a chromosome is approximately 0.2 μ.
- **Allelomorphs** usually affect a trait in contrasting manners.
- Deletions never mutate back to normal.
- **Andalusian** poultry is example of blending inheritance or in complete dominance.
- 9: 3: 3 : 1 ratio is obtained in F_2 generation of dihybrid inheritance.
- $2 p q = 2 \times p^2 q^2$ is known as **Hardy Weinberg Equation**.
- Deaf mutism is a case of epistasis.
- This is also called duplicate recessive epistasis.
- Hardy Weinberg principle determines frequency of a particular recessive allele in a population.
- Baldness in men is sex-influenced trait.
- Hen feathered condition in poultry is an example of a sex-limited trait.
- A woman with Turner's syndrome has one x chromosome and no barr body.
- Male with **Klinefelter syndrome** has one Barr body.
- Black and white spotted condition in Holstein cattle occurs due to single pair of recessive genes. This is an example of Modifying genes.
- Muton is smallest genetic unit capable of mutation.

- Recon is smallest individual unit of DNA capable of recombination.
- Muton and recon are single bases in a nucleotide.
- Cistron is the unit of DNA carrying information for formation of one polypeptide chain in protein formation.
- mRNA carries genetic code.
- **Cytoplasmic RNA** is also known as tRNA.
- Only two amino acids have single genetic code.
- All the 64 triplets do not code for amino acids.
- PMCG and FSH are most commonly used to induce superovulation.
- Animal husbandry output contributes about 30 % of the India's agriculture output.
- India has 57 % of the world's buffalo population and 15 % of cattle population.
- India has 19.9 crore cattle and 9 crore buffalo. (1997 census).
- India is the largest producer of milk in the world (87.7 million tones in 2002 -03).
- Per capita availability of milk in India is 230 gm per day. (2002-03).
- India ranks fifth in egg production in the world (39. 8 billion eggs in 2002 -03).
- India has 27 indigenous cattle and 7 buffalo breeds.
- Milk and milk product order (MMPO) was notified in 1992, which was amended in 2002.
- IgG is **heterocytotropic** antibody.
- Chromosome 6 in human has major histocompatibility complex.

- Sequence of appearance of complements in classic pathway is : **C1-C4-C2-C3-C5-C6-C9**.
- Cellular immunity was evolved before humoral immunity.
- T and B lymphocytes are first seen in amphibian during evolution.
- IgM Antigen interaction is the most important initiating stimulus for the classic complement pathway.
- Monocytes are the largest white blood cells.
- Monocyte has kidney-shaped nucleus.
- Presence of macrophage indicates non-antigenic irritant.
- Presence of mural cardiac thrombi is pathognomic lesion of black quarter.
- H. N. Ray gave **stilbamidine test** for trypanosma.
- P. G. Pandey discovered *Stephanofilaria assamensis*.
- Alfred Lingard was the first director of IVRI.
- Hoogstral is known as MASTER OF TICKS.
- Fasciola was discovered by RINHOW.
- Fasciolopsis buski is a true zoonotic parasite.
- Moneizia is most common tapeworm of ruminants.
- White spots in liver, caused by *Ascaris suum*, are known as MILK SPOTS.
- IgG is found in highest concentration in serum as compared to other Ig.
- Ig M has the highest sedimentation coefficient (19).
- Heaviest Ig is IgM (900, 000 mol. Wt.).
- Only IgG crosses placenta.
- Ig G is lightest immunoglobulin (mol. Wt. 140,000).
- Ig G is most common serum antibody.

- Ig G opsonise virus and bacterial toxins.
- Ig A is also called as **Secretory or coproantibody**.
- Ig M is first antibody formed as compared to other Ig.
- Ig M is the most efficient class of Ig in fixing complement.
- Ig A is a part of first line of defence.
- Ig M is the only antibody found in shark.
- Salmonella infection triggers IgM production.
- Ig A is principal antibody in human colostrum.
- Ig G is principal antibody in animal colostrum.
- Ig E is homocytotropic.
- Metastrongylus, also known as lungworm of pig, carries SWINE INFLUENZA VIRUS.
- Amoscenate is drug of choice for Ancylostoma.
- HUSK OR HOOSE DISEASE is caused by Dictyocaulus.
- Trichostrongylloidea members are also known as GEOHELMINTHS.
- Dewclaw sore is caused by *Stephanofilaria kaili*.
- Asuntol is drug of choice for Stephonofilaria.
- Indian Kalazar is not a zoonotic disease.
- Kalazar is also known as Dum Dum fever.
- Canine teeth are also called eye teeth, bridle teeth, tusks, tushes. Absent in mare, gelding, ruminant.
- Reticulum has Honey comb structure.
- Rumen appears like Turkish towel
- Main Pancreatic duct is also known as Duct of wirsung
- Accessory Pancreatic duct is also known as Duct of santorini
- pH of cow urine is 7.75 (alkaline).

- Cow urine's specific gravity is 1.0300.
- Colostral corpuscles is also known as **Bodies of deone**
- **Pizzel eye** is also known as Root of penis
- **Aitch bone** is also known as Symphysis pelvis
- **Proud cut** horse is Horse without testes (removed) but has epididymis. (Sterile)
- Tibial tarsal bone is also known as **Talus**
- Tarsus joins Hock
- Carpus joins Knee
- Semilunar cartilage joins Menisci
- Patella joins Knee cap
- Smooth muscle is Involuntary, Unstripped, Visceral or plain muscle
- Skeletal muscle is Voluntary, striated, somatic muscle.
- India shares 12.9 % of total milk production of world.
- Total value of output from livestock sector is Rs. 130233 crores in India.
- Contribution of milk and milk products in total output from livestock sector in India is Rs. 90358 crores i.e. about 70 %.
- Share of livestock sector to GDP of India is 5.51%.
- Agriculture sector contributers 24.85 % to GDP of India.
- India imported livestock and its products worth Rs. 14789.40 million during 2001-01.
- Total value of export of livestock and livestock products by India is Rs. 34760 million during 2000-01.
- Cattle requires dry matter 2.0 % - 2.5 %, and fodder 10 % of their body weight.
- Weight of dressed carcass, blood, hide and fat is 1/5th, 1/3rd, 1/8th and 1/2th of body weight respectively.

- Navel cord of calf is tied 2.5 cm away from its body and cut above one centimetre below the ligature.
- Feeding colostrum within first hour of life is essential.
- Calf needs 3-4 litres of colostrum per day.
- Disbudding is done in 3 to 10 days after birth.
- Placenta is expelled within 4-8 hours of parturition.
- Upto 10 litres milk production, cows and buffaloes require 30-35 litres water for drinking. For additional milk production, they need 3 litres drinking water/ litre milk production.
- An average of 100-110 litres water is sufficient for all purposes per day per cow.
- Camel may drink 90 litres of water at a time.
- For winter egg production, 12-14 hours of light (sun+artificial) is optimum.
- Adult cattle buffaloes may consume 5-6 kg dry fodder daily.
- Aseptically drawn milk may contain 500-100 bacteria per ml.
- 15-20 ml formaline mixed to 15 gm $KMnO_4$ is sufficient for one cubic metre of air space disinfection (fumigation).
- Sodium Carbonate (4%) solution is extensively used as disinfectant in FMD outbreaks.
- 70 % alcohol is most efficient concentration as a disinfectant.
- Isopropyl alcohol is more effective germicide than ethyl alcohol.
- Gluteraldehyde is used for instrument disinfection.
- Canine tooth of domestic ruminants has commonly been counted as a fourth incisor.
- Largest salivary gland is found in horses.

- Left lung of horse is bilobed.
- Pelvic cavity is smallest of body cavities.
- Roof of pelvic cavity is formed by sacrum and first 3 coccygeal vertebrae.
- Liver is largest gland of body.
- Liver is 5 lobed in dog, 3 lobed in ox and horse and 4 lobed in pigs.
- GOLDEN HOUR is the first hour after injury term coined by Adams Cowley.
- 100 c.c. blood has 20 ml. Oxygen.
- Camelidae family members have nucleated red blood corpuscles (RBCs).
- Amphibians have largest RBCs.
- Smallest RBCs are found in mammals.
- Spleen is store house of dead RBCs.
- Life of RBCs is calculated by radioactive chromium method.
- Cu is responsible for blue colour of blood.
- Sphygmomanometer is used to measure blood pressure.
- Average life of WBC is 10 days.
- Kendiv and Piutrz proposed the structure of haemoglobin.
- Blood group 'O' is universal blood donor group.
- Person with blood group "AB" can accept all types of blood groups.
- Land Steiner discovered blood groups in year 1900.
- Smallest RBCs are found in musk deer.
- Hales discovered blood pressure.
- William Harvey discovered blood circulation.
- Thrombocytes are found only in mammals.

- Minimata disease is caused by toxicity of mercury.
- Itai – Itai disease occurs due to toxicity of cadmium.
- India has 53% of the world's buffalo population, 20% of goat and 15 % of cattle population of the world.
- Contribution of milk is higher than combined contribution of wheat and sugarcane.
- Meat has 16% of total output of livestock products in India.
- James Stuart is known as **Father of extension**.
- Community development programme was started on 2nd October 1952.
- Lab-to-land programme was started in 1979.
- NATP was started in 1997.
- Institutional village linkage programme was started in 1995.
- Mixed farming refers to crop production with livestock farming, having contribution of minimum 10% and maximum 49% from livestock.
- TRYSEM is abbreviation of Training of Rural Youth for Self Employment, started in 1979.
- DWCRA is abbreviation of Development of Women and Children in Rural Areas.
- Jawahar Rozgar Yojna was started in 1989 for rural employment.
- High-yielding variety (HYV) programme was initiated in 1966.
- Key village scheme (KVS) was started in 1952. It was the first systematic approach for livestock improvement.
- Pratopterus is also known as lungfish.
- Anavas is called climbing perch.
- Hippocampus is commonly known as Sea horse.

- 34000 species of fishes are found in India.
- Fishes have Mesonephric kidney.
- Lymnology is study of ponds, static water bodies.
- Aristotic is founder of fishery history.
- V.G. Jhingaran is father of Indian fishery science.
- Central Inland Fisheries Research Institute is situated in Bairakpur (W. Bengal).
- Phycomycetes fungus causes gill sloughing in fishes.
- Air bladder of fishes is used for commercial production of Icing glass.
- Central Institute of Fishery Education is situated in Bombay.
- Largest Aquarium of India is located in Bombay.
- Blue eye condition in dog is resulted after vaccination with live canine adenovirus (CAV) vaccine.
- Granulomatous reaction is a variant of delayed hypersensitivity found in leprosy, tuberculosis, parasitic, fungal infection and syphilis.
- 1 HA unit is highest dilution at which agglutination of erythrocytes occurs.
- Myeloma patients excrete light chain of Ig in urine.
- IgM does not have hinge region.
- C_3 is most abundant and most pivotal complement present in plasma.
- IgM is longest living antibody (70 days $T_{1/2}$).
- Ig E is also known as Reagin.
- MMPO (Milk and Milk Product Order) was issued in 1992.
- Fowl is most resistant to warfarin toxicity.
- Byssinosis is caused by exposure to cotton dust / lint.

- Iron dust results in Siderosis.
- Corn feed results in niacin deficiency in pigs.
- DCP is most common way of expressing the protein value of feed for ruminants.
- Among food-borne toxins, botulinum toxin is most toxic.
- 1 mg. Penicillin G Sodium is equivalent to 1667 unit.
- 1 kg TDN is equivalent to 0.869 starch equivalent.
- Blood cells are also known as corpuscles.
- Life on earth was originated before 3.7×10^9 years.
- India has 390 species of wild mammals.
- India has 1232 species of wild birds.
- India has 665 species of reptiles and amphibians.
- 2546 species of arthropods are found in India.
- At present, India has 27 tiger reserves.
- There are 89 National Parks in India.
- India has 500 zoological gardens.
- Jim Corbett National Park is situated in Uttaranchal.
- William Harvey discovered blood circulation.
- Louis Pasteur produced rabies vaccine.
- Dr. B. P. Pal was first director-general of recognized ICAR.
- Wildlife Institute of India is situated in Dehradun.
- ICAR was established on 16 July 1929.
- Musk deer is state wild animal of Uttaranchal.
- Monal pheasant (Lopophorus impejanus) is state bird of Uttaranchal.
- First KVK of India was established in Pondicherry.

- Madhya Pradesh is also known as Tiger state.
- Eucalyptus is also known as Environmental terrorist.
- Methane is only greenhouse gas produced by ruminants.
- Arrhenium gave term greenhouse gas is 1890.
- Greenhouse gas absorb infrared rays.
- CFC is the only man-made greenhouse gas.
- PCR technique was developed by Kary Mullis (1983).
- Humming bird, smallest bird, is also known as natural helicopter.
- Glucagon is made up of 29 amino acids.
- Haemoglobin is made up of 574 amino acids.
- Ribosome is molecular machine for protein formation.
- Enzymes work as catalysts.
- Plasmid is extra chromosomal DNA of cell.
- Dominant genea gene is responsible for melanin synthesis.
- No. of chromosomes in Ascaris is O2 (two).
- C. Mcclaung discovered sex determining chromosome.
- H. Mullu proved first of all the notating effect of X – rays in fly.
- Tatum and Beadle first of all proposed one gene one enzyme theory.
- S. Ochoa was first scientist to synthesize RNA artificially.
- DNA was first synthesized artificially by A. Coonberg.
- J. Beckwidth first isolated the gene.
- H. G. Khorana was the first scientist to synthesize artificial gene.
- A. Munay and J. Szostak were first to form artificial chromosome.
- A. Jeffrick developed DNA finger printing technique.

- Robert Winston is father of test tube baby.
- Griffith was the first to propose DNA as a genetic material.
- National Institute of Nutrition is situated in Hyderabad.
- Cornea and lens are bloodless parts.
- Red dog is a byproduct of milling spring wheat. It has 17 -20 % protein with 2-4 % crude fibre.
- Rice bran mastitis have 14 % crude protein and less than 14% crude fibre.
- Rice bran is laxative in action.
- In pig, myoglobin accounts for 10 % of total iron in the body.
- Largest Zoo of India is situated in Alipore (W. Bengal).
- Ababil is fastest bird.
- Mycoplasma gallisepticum is considered as smallest cell.
- Gluteus maximum is longest human muscle.
- Carolus Linnaeus is also known as father of Taxonomy.
- Auxins were discovered by DARWIN. This is a growth regulating plant harnone.
- Lodoicea (Double Coconut) is largest fruit in world.
- Largest live reptile is sea turtle.
- Heart is busiest organ of animals.
- Kangaroo is ovoviviparous mammal.
- Cruiser National Park (South Africa) is largest Zoo of world.
- Hydrofish is most poisonous snake of world.
- Earthworm has four pairs of heart.
- National Institute of Animal Health is situated at Baghpat, Uttar Pradesh. NIAH
- ARISTOTLE (384-322 B.C.) is also known as father of Medicine, Father of Biology and Father of Zoology.

- Aurangjet (1658 - 1707 A.D.) was also known as JINDA PEER.
- Dada Bhai Nauroji is also known as Grand Old Man of India.
- Kapil Dev is also known as Hariyana Hurricane.
- Chanakya is also known as Makiyavelli of India.
- Jainul Abdeen is popularly known as Akbar of Kashmir.
- Martin Luther King (Junior) is popularly known as BLACK GANDHI.
- Book named "IN THE LINE OF FIRE" is written by Pervez Musharraf.

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