



**Karnataka Veterinary, Animal And Fisheries
Sciences University, BIDAR - 585 226**

ICAR-JRF

[Indian Council of Agricultural
Research, New Delhi]

QUESTION BANK



FOR THE BENEFIT OF:
B.V. Sc & A. H STUDENTS

**Coaching Classes
Conducted under
SCSP-TSP Grant
2019-20 from
Government
of Karnataka**



Organized by:

**VETERINARY COLLEGE,
Karnataka Veterinary, Animal And Fisheries Sciences University
Nandinagar, Bidar - 585 226**

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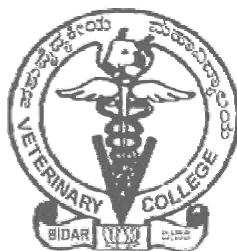
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SCIENCES UNIVERSITY, BIDAR - 585 226**

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**VETERINARY COLLEGE, NANDINAGAR
BIDAR - 585 226**



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Fore Word

The Indian Council of Agricultural Research (ICAR), an apex body for coordinating education in agriculture and allied sciences including Veterinary and Animal Sciences. Ministry of Agriculture, has been able to foster a countrywide arrangement with the agriculture/Veterinary university to set aside 25% seats of their seats for Master degree programmes to be admitted through All India Entrance Examination so as to reduce academic inbreeding, increase mobility among students, encourage national integration and infuse merit and uniform examination standards leading to improved overall quality of higher agricultural education.

Apart from above mandates of the Council, it is also encourage to undertake quality of higher education in Veterinary, Agriculture, Horticulture, Forestry and Fishery sciences, in a way to produce quality scientists required not only for its premier research institutes spread across the country, and also to scale up with human resource development. In this direction, ICAR, New Delhi is conducting All India Entrance Examination annually, viz., Junior Research Fellowship, Senior Research fellowship, National eligibility Test in various disciplines of Veterinary, Agriculture and Allied disciplines.

ICAR PG Scholarship for postgraduate studies will be awarded to 475 candidates based on merit in the examination as per their overall merit-rank and seat availability in different disciplines. The remaining admitted students will be awarded NTS (PGS).

In the interest among under-graduate students to pursue post-graduation in a reputed institute is on the rise and it is a healthy developement. The Veterinary College, Bidar is organizing coaching classes for the interested B.V.Sc & A.H students during the period 27.01.2020 to 31.01.2020. On behalf of the University and College, I profusely thank the Government of Karnataka for funding this programme under the SCSP-TSP grant 2019-20. I thank Dr. R.G Bijurkar, Professor and Head, Department of Veterinary Gynaecology and Obstetrics who has served as SCSP-TSP Cordinator for effective utilization of grants released for the year 2019-20. I also take this opportunity to thank all the resource faculties who were involved in guiding the students to take up the All India Entrance Examination. I thank all resource faculties for their efforts in preparing the Question Bank which is of immense help to the students to equip themselves in the best way possible to face the examination. Finally, I wish grand susses to all the students who are shortly apparearing for the ICAR-JRF Examination - 2020.

Dr. D. Dilipkumar
Dean (Vety)

RESOURCE FACULTY

Sl. No.	NAME	DEPARTMENT
01	Dr. Ashok Pawar Professor and Head	Department of Veterinary Anatomy and Histology
02	Dr. Basawraj Awati Professor and Head	Department Veterinary Microbiology
03	Dr. Rajendrakumar T Assistant Professor	Department of Veterinary Pathology
04	Dr. Vijaykumar M Associate Professor	Department of Veterinary Pharmacology and Toxicology
05	Dr. Prashantkumar Waghe Assistant Professor	Department of Veterinary Pharmacology and Toxicology
06	Dr. Vinay Tikare Assistant Professor	Department of Veterinary Pharmacology and Toxicology
07	Dr. Krishnamurthy C.M Assistant Professor	Department of Veterinary Parasitology
08	Dr. Adeepa J Assistant Professor	Department of Veterinary Parasitology
09	Dr. Arun Kharate Assistant Professor	Department of Veterinary Public Health and Epidemiology
10	Dr. R. G Bijurkar Professor and Head	Department of Animal Reproduction, Gynecology and Obstetrics
11	Dr. Venkanagouda D Assistant Professor	Department of Animal Reproduction, Gynecology and Obstetrics
12	Dr. Vivek R Kasaralika Professor and Head	Department of Veterinary Medicine
13	Dr. Ravindra B G Associate Professor	Department of Veterinary Medicine
14	Dr. Dilipkumar D Dean	Department of Veterinary Surgery and Radiology
15	Dr. Bhagavantappa Assistant Professor	Department of Veterinary Surgery and Radiology
16	Dr. Shrikant Kulkarni Associate Professor	Department of Veterinary Physiology and Biochemistry
17	Dr. Vijayalakshmi Assistant Professor	Department of Veterinary Physiology and Biochemistry
18	Dr. Prashant Waghmare Associate Professor	Department of Livestock production and Management
19	Dr. Vivek Patil Associate Professor	Department of Livestock production and Management
20	Dr. Vidyasagar Assistant Professor	Department of Livestock production and Management
21	Dr. Ramachandra B Professor and Head	Department of Animal Nutrition
22	Dr. Ravindra B. D Assistant Professor	Department of Animal Nutrition
23	Dr. M. D Suranagi Professor and Head	Department of Animal Genetics and Breeding
24	Dr. Shrikant Doddamani Assistant Professor	Department of Animal Genetics and Breeding
25	Dr. Kiran M Assistant Professor	Department of Livestock Products Technology
26	Dr. Anantrao Desai Assistant Professor	Department of Animal Husbandry and Veterinary Education

SYLLABI FOR ICAR'S ALL INDIA ENTRANCE EXAMINATION FOR ADMISSION TO MASTER DEGREE PROGRAMMES AND ICAR-PG SCHOLARSHIP/NTS (PGS)

MAJOR SUBJECT GROUP - VETERINARY SCIENCE

(Sub-Subjects: Veterinary Anatomy/ Veterinary Anatomy and Histology, Veterinary Virology, Veterinary Immunology, Veterinary Microbiology and Immunology/Bacteriology, Veterinary Gynaecology and Obstetrics/ Ani. Reproduction, Veterinary Medicine (Clinical/Preventive), Veterinary Parasitology, Veterinary Pharmacology and Toxicology, Veterinary Pathology, Wildlife Science/ Wildlife Health Management, Veterinary Surgery and Radiology Veterinary Public Health and Epidemiology/ Veterinary Public Health/ Veterinary Epidemiology/ Veterinary Epidemiology and Preventive Medicine)

UNIT I: Structure of cells, cell organelles, chromosome structure and functions, cell growth, division and differentiation and functions. Structure and function of basic tissues-epithelium, connective tissue, muscle and nervous tissue. Gross Morphology, Histology and physiology of mammalian organs and systems, major sense organs and receptors, circulatory system. Digestion in simple stomached animals, birds and fermentative digestion in ruminants, Kidney and its functions-respiratory system-animal behaviour- growth-influence of environment on animal production-biotechnology in animal production and reproduction- electrophysiology of different types of muscle fibres. Exocrine and endocrine glands, hormones and their functions, blood composition and function. Homeostasis, osmoregulation and blood clotting. Gametogenesis and development of urogenital organs. Boundaries of body cavities. Pleural and peritoneal reflections.

UNIT-II: Classification and growth characteristics of bacteria, important bacterial diseases of livestock and poultry, general characters, classification of important fungi. Nature of viruses, morphology and characteristics, viral immunity, important viral diseases of livestock and poultry. Viral vaccines. Antigen and antibody, antibody formation, immunity, allergy, anaphylaxis, hypersensitivity, immunoglobulins, complement system. Etiology of diseases and concept, extrinsic and intrinsic factors, inflammation, degeneration, necrosis, calcification, gangrene, death, atrophy, hypertrophy, benign and malignant tumours in domestic animals. General classification, morphology, life cycle of important parasites, important parasitic diseases (Helminths, Protozoa and Arthropods) of veterinary importance with respect to epidemiology, symptoms, pathogenesis, diagnosis, immunity and control.

UNIT-III: Clinical examination and diagnosis, Etiology, epidemiology, symptoms, diagnosis, prognosis, treatment and control of diseases affecting different body systems of various species of domestic animals, epidemiology aims, objectives, ecological concepts and applications. General

surgical principles and management of surgical cases. Types, administration and effects of anaesthesia. Principles and use of radiological techniques in the diagnosis of animal diseases.

Estrus and estrus cycle in domestic animals, Synchronization of estrus, fertilization, pregnancy diagnosis, parturition, management of postpartum complications dystokias and its management, fertility, infertility and its management, artificial insemination.

UNIT-IV: Zoonotic diseases through milk and meat, Zoo animal health. Source and nature of drugs, pharmacokinetics, Chemotherapy-sulpha drugs, antibiotics, mechanism and problem of drug resistance. Drug allergy, important poisonous plants, toxicity of important agro-chemicals and their detoxification, drugs action on different body systems.

MAJOR SUBJECT GROUP - ANIMAL SCIENCES

(Sub-Subjects: Animal Husbandry/Dairy Science, Animal Genetics and Breeding, Animal Nutrition, Veterinary/Animal Physiology, Livestock Production Management, Livestock Products Technology, Poultry Science, Veterinary and Animal Husbandry Extension, Livestock/Veterinary/ Animal Husbandry Economics, Bio-Statistics)

UNIT-I: Principles of animal genetics, cell structure and multiplication. Mendel's laws, principles of population genetics, concept of heredity, heterosis and mutation, principles of evolution, principles of molecular genetics, genetic code, quantitative and qualitative traits. Selection of breeding methods in livestock and poultry. Population statistics of livestock.

UNIT-II: General nutrition, proximate principles, carbohydrates, proteins and fats their digestion and metabolism in ruminants and non-ruminants. Energy partition- measures of protein quality. Water, minerals, vitamins and additives, feeds and fodders and their classification. Common anti-nutritional factors and unconventional feeds. Hay and silage making. Grinding, chaffing, pelleting, roasting, feed block. Feed formulation principles. Digestion- control motility and secretion of alimentary tract. Mechanism, natural and chemical control of respiration, gaseous exchange and transport, high altitude living, physiology of work and exercise. Cardiac cycle, natural control of cardiovascular system. Smooth and skeletal muscle contraction. Blood coagulation. Physiology of immune system. Male and female reproduction including artificial insemination, in-vitro fertilization, cryo-preservation. Excretory system.

UNIT III: General concepts of livestock production and management, status of dairy and poultry industry, impact of livestock farming in Indian agriculture. Livestock housing, production and reproduction management, lactation management, breeding programmes for livestock and poultry.

Composition, quality control and preservation of livestock products, methods of processing and storage livestock products. International Trade/WTO/IPR issues related to livestock products.

UNIT IV: Concept of sociology, differences between rural, tribal and urban communities, social change, factors of change. Principles and steps of extension education, community development aims, objectives, organizational set up and concept evolution of extension in India, extension teaching methods. Role of livestock in economy. Identifying social taboos, social differences, obstacles in the way of organizing developmental programmes. Concept of marketing, principles of co-operative societies, animal husbandry development planning and programme, key village scheme, ICDD, Gosadan, Goshala, Role of Gram Panchayat in livestock development. Basics of statistics, data analysis and computational techniques.

MAJOR SUBJECT GROUP - ANIMAL BIOTECHNOLOGY

(Sub-Subjects: Animal Biotechnology, Veterinary/Animal Biochemistry)

UNIT-I: Structure of prokaryotic and eukaryotic cells, cell wall, membranes, cell organelles, organization and functions, chromosome structure and functions, cell growth division and differentiation. Sub unit structure of macromolecules and supermolecular systems. Self assembly of sub units, viruses, bacteriophage, ribosomes and membrane systems.

UNIT-II: Scope and importance of biochemistry in animal sciences, cell structure and functions. Chemistry and biological significance of carbohydrates, lipids, proteins, nucleic acids, vitamins and hormones. Enzymes chemistry, kinetics and mechanism of action and regulation. Metabolic inhibitors with special reference to antibiotics and insecticides. Biological oxidation, energy metabolism of carbohydrates, lipids, amino acids and nucleic acids. Colorimetry, spectrophotometry, chromatography and electrophoresis methods.

UNIT-III: Chemistry of antigens and antibodies and molecular basis of immune reaction, radio-immune assay and other assays. Chemistry of respiration and gas transport, water and electrolyte metabolism. Deficiency diseases, metabolic disorders and clinical biochemistry. Endocrine glands, biosynthesis of hormones and their mechanism of action.

UNIT-IV: History of molecular biology, biosynthesis of proteins and nucleic acids, genome organization, regulation of gene expression, polymerase chain reaction, basic principles of biotechnology applicable to veterinary science gene sequence, immunodiagnostics, animal cell culture, in vitro fertilization. Sub-unit vaccines: Principles of fermentation technology. Basic principles of stem cell and animal cloning.

[Source: ICAR Website]

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ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY ANATOMY**Dr. Ashok Pawar**Department of Veterinary Anatomy
Veterinary College, Bidar - 585 266 (Karnataka)**I . Choose the correct answer**

1. The bone which is a part of axial skeleton is:
 - a. femur
 - b. tibia
 - c. sacrum
 - d. humerus
2. The number of Thoracic Spinal nerves present in the cattle is:
 - a. 7 pairs
 - b. 13 pairs
 - c. 18 pairs
 - d. 37 pairs
3. The example of elongated bone is:
 - a. rib
 - b. scapula
 - c. radius
 - d. atlas
4. A pulley like structure seen on the bone is termed as:
 - a. trochanter
 - b. trochlea
 - c. spine
 - d. condyle
5. Collar bone of the shoulder is:
 - a. scapula
 - b. clavicle
 - c. coracoid
 - d. rib
6. The NAV nomenclature of shoulder girdle is:
 - a. pectoral girdle
 - b. thoracic girdle
 - c. cingulum membri thoracic
 - d. extremitas thoracalis
7. The bone of the arm region is:
 - a. humerus
 - b. radius
 - c. carpal
 - d. metacarpal
8. The number of the functional digits in cattle is:
 - a. 1
 - b. 2
 - c. 3
 - d. 4

9. The acromion process is absent in:
 - a. Buffalo
 - b. Cow
 - c. Dog
 - d. donkey
10. The lateral surface face of the scapula gives attachment to:
 - a. deltoideus
 - b. serratus ventralis
 - c. rhomboideus
 - d. sub scapularis
11. The distal extremity of femur consist of:
 - a. head
 - b. tubercle
 - c. trochlea
 - d. tuberosity
12. The number of carpal bone present in the dog in each limb:
 - a. 4
 - b. 5
 - c. 6
 - d. 7
13. The carpal bone present in cow in the proximal row:
 - a. 2
 - b. 3
 - c. 4
 - d. 5
14. The pin bone is:
 - a. ilium
 - b. ischium
 - c. pubis
 - d. sacrum
15. The patella is seen in dog in the:
 - a. shoulder joint
 - b. stifle joint
 - c. carpal joint
 - d. hock joint
16. The ATypical cervical vertebrae is:
 - a. first
 - b. third
 - c. sixth
 - d. seventh
17. The number of cervical vertebrae present in the Horse is:
 - a. 7
 - b. 8
 - c. 14
 - d. 18

18. Haemal arches are present in the coccygeal vertebrae of :
- dog
 - ox
 - horse
 - fowl
19. The number of sternal rib present in the dog is:
- 7
 - 9
 - 13
 - 18
20. The foramen magnum is present in:
- occipital bone
 - parietal
 - temporal
 - frontal
21. The unpaired cranial bone:
- frontal
 - malar
 - vomer
 - ethmoid
22. The Supra orbital foramen present in:
- frontal
 - maxilla
 - malar
 - palatine.
23. The largest sinus present in horse is:
- frontal
 - maxillary
 - palatine
 - sphenoid
24. Carpal joint is classified as:
- arthrodia
 - hinge
 - enarthroses
 - condyloid
25. The example of amphiarthroses joint is:
- intercentral vertebral articulation
 - shoulder
 - hock
 - carpal
26. The muscle present on the lateral aspect of the shoulder is:
- infraspinatus
 - teres major
 - subscapularis
 - coraco brachialis

27. The muscle present in the medial aspect of the thigh region is:
- gluteus medius
 - semitendinosus
 - biceps femoris
 - sartorius
28. The prepubic tendon is refers to the insertion of which muscle:
- creamaster
 - rectus abdominis
 - abdominis internus
 - transverse abdominis
29. The fallowing is not a sublumbar muscle:
- psoas major
 - psoas major
 - iliacus
 - gracilis
30. The thorax muscle is:
- serratus cervicis
 - retractor costae
 - scalenus
 - longus colli
31. The muscle is not a part of mastication:
- masseter
 - temporalis
 - malaris
 - diagastricus.
32. The muscle of the hyoideus apparatus is:
- stylo glossus
 - mylo hyoideus
 - hyoglossus
 - palatinus
33. The extrinsic muscle of larynx is:
- crico thyroideus
 - crico arytenoideus
 - thyro arytenoideus
 - sterno thyro hyoideus
34. Sub sinuosal groove seen on which surface of the heart:
- left
 - right
 - anterior
 - posrerior
35. The coronary sinus present in:
- right atrium
 - left atrium
 - right ventricle
 - left ventricle.

36. The number of papillaries muscle present in right ventricle is:
- 2
 - 3
 - 4
 - 5
37. Two anterior vena cava are seen in:
- dog
 - cow
 - fowl
 - horse.
38. The following artery does not arise from the thoracic aorta:
- bronchial
 - oesophagheal
 - vertebral
 - 7th intercostals
39. The artery which arises from the subscapular artery:
- suprascapular
 - external thoracic
 - posterior circumflex
 - radial
40. The artery which passes through the carpal canal is:
- ulnar
 - median
 - radial
 - common interosseous
41. The Middle meningeal artery is branch of:
- common carotid
 - occipital
 - internal maxillary
 - external carotid
42. The supraorbital artery is branch of:
- malar
 - occipital
 - external ophthalmic
 - external maxillary
43. The right gastric artery in ruminants is given by:
- hepatic
 - right ruminal
 - left ruminal
 - omaso abomasal
44. The paired visceral artery arises from abdominal aorta is:
- renal
 - lumbar
 - anterior mesenteric
 - coeliac

45. Os phrenic is a visceral bone present in:
- dog
 - camel
 - bird
 - pig
46. The posterior uterine artery is arises from:
- abdominal aorta
 - internal iliac artery
 - external iliac artery
 - internal pudenal artery
47. The saphenous artery which supplies posterior aspect in hind limb is been replaced by artery in Horse is:
- posterior femoral
 - posterior tibial
 - anterior tibial
 - popliteal
48. The RMC is absent in:
- dog
 - cow
 - buffalo
 - sheep
49. The largest venous trunk in the body is:
- posterior vena cava
 - vena hemiazygos
 - anterior vena cava
 - portal vein
50. The superficial lymph node present in the head region of cattle is:
- pterygoid
 - parotid
 - atlantal
 - prescapular
51. The lymph node present in the thoracic cavity is:
- renal
 - mesenteric
 - mediastinal
 - celiac
52. The popliteal lymph gland is superficial in:
- cow
 - buffalo
 - dog
 - donkey
53. Cytogenous gland is:
- parathyriod
 - ovary
 - adrenal

- d. thyroid
- 54. Mucosa of a ureter is lined by:
 - a. simple squamous epithelium
 - b. simple cuboidal epithelium
 - c. transitional epithelium
 - d. pseudostratified columnar ciliated epithelium
- 55. Small intestine is lined by:
 - a. simple squamous epithelium
 - b. simple cuboidal epithelium
 - c. stratified squamous epithelium
 - d. simple columnar epithelium
- 56. The cytoskeleton of a cell is:
 - a. microfilaments
 - b. mitochondria
 - c. lysosomes
 - d. golgi bodies
- 57. The nucleus is cart wheel shaped in:
 - a. lymphocyte
 - b. plasma cell
 - c. mast cell
 - d. monocyte
- 58. The nucleus is bi nucleated in:
 - a. parietal cell
 - b. plasma cell
 - c. basophil
 - d. neutrophils
- 59. The inclusion bodies seen in the cell is:
 - a. lysosomes
 - b. peroxisomes
 - c. lipofuscin
 - d. ribosomes
- 60. Simple squamous epithelium is seen in:
 - a. skin
 - b. tongue
 - c. pericardium
 - d. rumen
- 61. Loose connective tissue consist of cells in which most numerous is:
 - a. fat cell
 - b. plasma cell
 - c. histiocyte
 - d. eosinophil
- 62. The reticular tissue forms the frame work of :
 - a. liver
 - b. gall bladder
 - c. spleen

- d. kidney
- 63. The white fibro cartilage seen in:
 - a. ear
 - b. inter vertebral disc
 - c. epiglottis
 - d. trachea
- 64. The ligaments are:
 - a. dense irregular connective tissue
 - b. dense regular connective tissue
 - c. loose connective tissue
 - d. reticular tissue
- 65. Non granular leucocyte is:
 - a. basophil
 - b. eosinophil
 - c. lymphocyte
 - d. neutrophil
- 66. The perinucleus halos are seen in:
 - a. skeletal muscle
 - b. smooth muscle
 - c. cardiac muscle
 - d. liver cell
- 67. The neuroglial cell is:
 - a. microglia
 - b. mast cell
 - c. plasma cell
 - d. neurolemmacyte
- 68. Payer's patches are present in:
 - a. stomach
 - b. small intestine
 - c. large intestine
 - d. tongue
- 69. The Brunner's glands in the duodenum are present in:
 - a. mucus membrane
 - b. sub mucosa
 - c. tunica muscularis
 - d. tunica serosa
- 70. Canal of herring are observed in:
 - a. kidney
 - b. liver
 - c. spleen
 - d. brain
- 71. M zone is seen in the:
 - a. spleen
 - b. thymus
 - c. adrenal

- d. pituitary gland
72. The pineal gland is present in:
- a. telen cephalan
 - b. mylen cephalan
 - c. dien cephalan
 - d. mesen cephalan
73. The space between the duramater and arachanoid is called:
- a. epidural
 - b. subdural
 - c. subarachnoid
 - d. cisterna magna
74. The dorsal part of the mid brain is:
- a. tegmentum
 - b. tectum
 - c. pituitary gland
 - d. cerebral peduncle
75. The floor of the lateral ventral is formed by:
- a. fornix
 - b. hippoampus
 - c. corpus collasum
 - d. caudate nucleus
76. The Basal ganglia is the part of :
- a. fore brain
 - b. mid brain
 - c. hind brain
 - d. spinal cord
77. The Inferior oblique muscle of the eye ball receive nerve supply from:
- a. optic
 - b. trochlear
 - c. oculomotor
 - d. abducent
78. The motor cranial nerve is:
- a. 1st
 - b. 5th
 - c. 7th
 - d. 11th
79. The longest cranial nerve is:
- a. trochlear
 - b. vagus
 - c. olfactory
 - d. oculomotor
80. The upper eye lid receive nerve supply by:
- a. frontal
 - b. lacrimal
 - c. nasociliary

- d. infra trochlear
- 81. The following nerve is involved in para sympathetic system:
 - a. 1st
 - b. 4th
 - c. 10th
 - d. 12th
- 82. The motor nerve supply to the tongue is by:
 - a. 3rd
 - b. 5th
 - c. 10th
 - d. 12th
- 83. The phrenic nerves is formed by the union of ventral primary branches of :
 - a. C5-C7
 - b. C6-C8
 - c. C8-T2
 - d. T1-T3
- 84. The Anterior cutaneous nerve of forearm is given by:
 - a. ulnar
 - b. axillary
 - c. radial
 - d. median
- 85. The saphneous nerve is branch of:
 - a. sciatic
 - b. obturator
 - c. anterior gluteal
 - d. femoral
- 86. The peritoneum lined by:
 - a. simple squamous epithelium
 - b. simple cuboidal epithelium
 - c. stratified squamous epithelium
 - d. simple columnar epithelium
- 87. The following is vascular tunic of the eye:
 - a. iris
 - b. cornea
 - c. sclera
 - d. retina
- 88. The middle ear is located in:
 - a. frontal
 - b. temporal
 - c. occipital
 - d. sphenoid bone
- 89. Syndesmo chorial placenta is seen in the:
 - a. mare
 - b. cow
 - c. dog

- d. cat
- 90. The gestation period of sheep is about:
 - a. 30 days
 - b. 65 days
 - c. 115 days
 - d. 150 days
- 91. The urine is stored in the foetus temporarily in:
 - a. amnion
 - b. allantois
 - c. yolk sac
 - d. chorion
- 92. Meckel's diverticulum is anomaly seen in the development of:
 - a. respiratory system
 - b. urinary system
 - c. genital system
 - d. digestive system
- 93. The mesoderm derivates is:
 - a. heart
 - b. liver
 - c. spleen
 - d. testis
- 94. The endodermal derivates is:
 - a. pancrease
 - b. testis
 - c. kidney
 - d. brain
- 95. The first pharyngeal pouch differentiate into:
 - a. eustachian tube
 - b. palatine tonsil
 - c. thyroid
 - d. thymus
- 96. The time ovulation in cow with respect to the onset of oestrous:
 - a. 14 hour after
 - b. 24 hours before
 - c. 12 hour before
 - d. 48 hour after
- 97. The taste buds are seen in:
 - a. filiform papillae
 - b. fungiform papillae
 - c. conical papillae
 - d. foliate papillae
- 98. The smooth surface kidneys are present in:
 - a. cow
 - b. buffalo
 - c. bull

- d. sheep
- 99. The gall bladder is absent in:
 - a. sheep
 - b. cow
 - c. dog
 - d. horse
- 100. Hassall's corpuscles are seen in:
 - a. pituitary gland
 - b. liver
 - c. thymus
 - d. pineal gland
- 101. Urinary system developed from:
 - a. ectoderm
 - b. entoderm
 - c. mesoderm
 - d. all of the above
- 102. The number of paired pronephric tubules are seen in the early part of the development of Kidney are about:
 - a. 3
 - b. 7
 - c. 15
 - d. 30
- 103. The number of paired mesonephric tubules are seen in the early part of the development of Kidney are about:
 - a. 3
 - b. 7
 - c. 15
 - d. 30
- 104. The permanent kidney are formed in ruminants from:
 - a. pronephros
 - b. mesonephros
 - c. metanephros
 - d. wolffian body
- 105. Due to fusion of the metanephric primordia of the two sides leads to a anomaly called:
 - a. cystic kidney
 - b. horse show kidney
 - c. pelvic kidney
 - d. forked ureter
- 106. Failure in the communication between the secretory and excretory tubules in development of kidney is anomaly is termed as:
 - a. cystic kidney
 - b. horse show kidney
 - c. pelvic kidney
 - d. forked ureter

107. The following organ is developed from two layers:
- liver
 - adrenal
 - spleen
 - heart
108. The portion which forms uterus and Vagina from the mullerian duct persists in a male in rudimentary form represented as:
- colliculus seminalis
 - testis
 - appendix testis
 - uterus masculinus
109. The seminal vesicle is derived from:
- ectoderm
 - entoderm
 - mesoderm
 - all of the above
110. The Prostate and cowpoer's gland is derived from:
- ectoderm
 - entoderm
 - mesoderm
 - all of the above
111. The penile urethra is derived from:
- ectoderm
 - entoderm
 - mesoderm
 - all of the above
112. The cranial group of mesonephric tubules in female persistsas:
- epoophoron
 - paroophoron
 - gartner's canal
 - clitoris
113. The double fold of peritoneum passing from stomach to other viscera is termed:
- omentum
 - mesentery
 - ligament
 - fascia
114. The double fold of peritoneum attaches intestine to the wall of the abdomen:
- omentum
 - mesentery
 - ligament
 - fascia
115. The double fold of peritoneum attaches Viscera other than parts of the digestive tube to the wall of the abdomen:
- omentum
 - mesentery

- c. ligament
 - d. fascia
116. The double fold extending from liver to the parietal surface of the omasum is:
- a. ligament
 - b. lesser omentum
 - c. greater omentum
 - d. pleura
117. The peritoneum is reflected and form a pouch between rectum and sacrum is:
- a. recto-genital
 - b. sacro-genital
 - c. sacro-rectal
 - d. vesico-genital
118. Honey comb appearance is seen in the interior of:
- a. rumen
 - b. reticulum
 - c. omasum
 - d. abomasums
119. Many longitudinal muscular folds are seen in the interior of:
- a. rumen
 - b. reticulum
 - c. omasum
 - d. abomasums
120. Saccus caecus is related to the organ in equine is:
- a. liver
 - b. abomasum
 - c. caecum
 - d. colon
121. Margoplicatus a line separates non glandular and glandular parts in the stomach of:
- a. cattle
 - b. buffalo
 - c. horse
 - d. sheep
122. Ileo-caecal and caeco-colic orifice in the caecum of horse is present in:
- a. apex
 - b. base
 - c. greater curvature
 - d. lesser curvature
123. First part of the great colon is called:
- a. left ventral
 - b. right ventral
 - c. left dorsal
 - d. right dorsal
124. Fourth part of the great colon is called:
- a. left ventral
 - b. right ventral

- c. left dorsal
 - d. right dorsal
125. Two caeca are seen in:
- a. bird
 - b. horse
 - c. dog
 - d. sheep
126. The scythe shaped spleen is present in:
- a. bird
 - b. horse
 - c. dog
 - d. sheep
127. The oyster Shell shaped spleen is present in:
- a. bird
 - b. horse
 - c. dog
 - d. sheep
128. The paired cartilage in the larynx is:
- a. arytenoid
 - b. epiglottis
 - c. cricoid
 - d. thyroid
129. The leaf like cartilage in the larynx is:
- a. arytenoid
 - b. epiglottis
 - c. cricoid
 - d. thyroid
130. The shield shaped cartilage in the larynx is:
- a. arytenoid
 - b. epiglottis
 - c. cricoid
 - d. thyroid
131. The organelle is responsible for reduction of hydrogen peroxide to water and oxygen:
- a. microtubule
 - b. mitochondria
 - c. microbodies
 - d. golgi bodies
132. The organelle is responsible for production of steroid hormones:
- a. smooth endoplasmic reticulum
 - b. mitochondria
 - c. microbodies
 - d. golgi bodies
133. The organelle is responsible for primary respiratory in function:
- a. smooth endoplasmic reticulum

- b. mitochondria
 - c. microbodies
 - d. golgi bodies
134. Davson and Danielli describe the cell membrane as:
- a. unit membrane
 - b. bilayer of lipids
 - c. sandwich model
 - d. fluid mosaic mode
135. If the centromere present in the at one end than it is termed as:
- a. metacentric
 - b. sub- metacentric
 - c. aerocentric
 - d. telocentric
136. The percentage of protein in the cell is approximately:
- a. 85
 - b. 2
 - c. 10
 - d. 30
137. The intercellur junction which prevent leakage of material from the lumen is:
- a. zonula occludens
 - b. zonula adherens
 - c. macula adherens
 - d. nexus
138. The intercellur junction which are communicating junctions:
- a. zonula occludens
 - b. zonula adherens
 - c. macula adherens
 - d. nexus
139. The fixed Macrophages of connective tissues is known as:
- a. mast cell
 - b. fibroblast
 - c. histiocyte
 - d. plasma cell
140. The ground substance which is found in arteries is:
- a. heparin sulphate
 - b. dermatin sulfate
 - c. hyaluronan
 - d. chondroitin sulfate
141. The light band of skeletal muscle is interconnected by:
- a. I line
 - b. H line
 - c. M line
 - d. Z line
142. The melotonin is produced by:
- a. pituitary

- b. pineal
 - c. thyroid
 - d. adrenal gland
143. The purkinje cell layer is seen in:
- a. cerebrum
 - b. cerebellum
 - c. spinal cord
 - d. medulla oblongata
144. The outer most layer of the tunica intima is:
- a. endothelium
 - b. subendothelial layer
 - c. internal elastic membrane
 - d. external elastic membrane
145. The epiglottis is lined by:
- a. simple squamous epithelium
 - b. simple cuboidal epithelium
 - c. stratified squamous epithelium
 - d. pseudostratified ciliated columnar epithelium
146. The acidophil type of cell in pituitary gland is:
- a. FSH
 - b. TSH
 - c. STH
 - d. ACTH
147. Brain sands are characteristic of:
- a. thalamus
 - b. pineal gland
 - c. thyroid
 - d. pituitary gland
148. The cells which synthesis and store glucagon in pancreatic islets is:
- a. alpha
 - b. beta
 - c. delta
 - d. gamma
149. The cells which synthesis and store insulin in pancreatic islets is:
- a. alpha
 - b. beta
 - c. delta
 - d. gamma
150. Tapetum which gives metallic luster in eye is present in:
- a. cornea
 - b. sclera
 - c. retina
 - d. choroid

ANSWE KEY:

Veterinary Anatomy									
1-C	2-B	3-A	4-B	5-B	6-C	7-A	8-B	9-D	10-A
11-C	12-D	13-C	14-B	15-B	16-B	17-A	18-A	19-B	20-A
21-D	22-A	23-B	24-A	25-A	26-A	27-D	28-B	29-D	30-B
31-C	32-B	33-D	34-B	35-A	36-B	37-C	38-C	39-C	40-A
41-C	42-C	43-A	44-A	45-B	46-D	47-B	48-A	49-A	50-B
51-C	52-C	53-B	54-C	55-D	56-A	57-B	58-A	59-C	60-A
61-C	62-C	63-B	64-B	65-C	66-C	67-A	68-B	69-B	70-B
71-A	72-C	73-B	74-B	75-A	76-A	77-B	78-D	79-B	80-D
81-C	82-D	83-A	84-B	85-D	86-A	87-A	88-B	89-B	90-C
91-B	92-D	93-D	94-A	95-A	96-A	97-B	98-D	99-D	100-C
101-C	102-B	103-D	104-C	105-B	106-A	107-B	108-D	109-C	110-B
111-A	112-A	113-A	114-B	115-A	116-B	117-C	118-B	119-C	120-B
121-C	122-D	123-B	124-D	125-A	126-B	127-D	128-A	129-B	130-D
131-C	132-A	133-A	134-C	135-C	136-C	137-A	138-D	139-C	140-A
141-D	142-B	143-B	144-C	145-C	146-C	147-B	148-A	149-B	150-D

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
MICROBIOLOGY**

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I. Choose the correct answer

1. The term vaccine was coined by:
 - a. Jenner
 - b. Tyndall
 - c. R. Koch
 - d. L. Pasteur
2. Complement system was discovered by:
 - a. E. Metchnikoff
 - b. J. Bordet
 - c. K. Landsteiner
 - d. L. Pasteur
3. Serum is sterilized by:
 - a. autoclave
 - b. hot air oven
 - c. filtration
 - d. direct flaming
4. In Grams staining iodine is act as:
 - a. mordant
 - b. fixative
 - c. both a and b
 - d. decolorizer
5. Staining of acid fast organism is done by:
 - a. Ziehl Neelsens method
 - b. Grams stain
 - c. Hiss method
 - d. Leifson method
6. India ink is:
 - a. simple stain
 - b. special stain
 - c. negative stain
 - d. differential stain
7. MacConkey's agar is:
 - a. synthetic media
 - b. enriched media
 - c. differential media
 - d. none
8. Medium which is used for culturing mycobacterium:
 - a. lowenstein jensen medium
 - b. ogawa medium

- c. dorset medium
 - d. all the correct
9. Cold enrichment is required for the isolation of:
- a. *Listeria monocytogenes*
 - b. *Staph. aureus*
 - c. *Erysipelothrix*
 - d. *Clostridium tetani*
10. Bacteria responsible for food poisoning:
- a. *Staph.aureus*
 - b. *Bacillus cereus*
 - c. *Clostridium Botulinum*
 - d. *All of these*
11. Dysgonic species of Mycobacterium is:
- a. *M. bovis*
 - b. *M. tuberculosis*
 - c. *M. avium*
 - d. *M. phlei*
12. Satellite growth on blood agar plate in presence of *Staph. aureus* is characteristic of:
- a. *Pasteurella*
 - b. *Haemophilus*
 - c. *Actinobacillus*
 - d. *Mycoplasma*
13. Bacteria which require living medium for their growth is:
- a. *Mycoplasma and Leptospira*
 - b. *Rickettsia and Mycoplasma*
 - c. *Chlamydia and Rickettsia*
 - d. *None of these*
14. Pallisade arrangement is characteristic of:
- a. *Corynebacterium*
 - b. *Campylobacter*
 - c. *E.coli*
 - d. *Listeria*
15. Mycoplasma organisms are pleomorphic in nature due to:
- a. absence of cell wall
 - b. small in size
 - c. absence of rigid cell wall
 - d. species specific in nature
16. Tuberculin test is based on:
- a. delayed hypersensitivity
 - b. anaphylactic reaction
 - c. arthus reaction
 - d. all of above
17. Calf hood vaccination is advisable for:
- a. brucellosis
 - b. pasteurellosis

- c. salmonellosis
 - d. neonatal calf diarrhoea
18. The germ tube production is characteristic of:
- a. *Candida albicans*
 - b. *Cryptococcus neoformans*
 - c. *Corynebacterium pyogenes*
 - d. *Pseudomonas aeruginosa*
19. Experimentally *Mycobacterium leprae* can be cultivated on:
- a. bacterial media with mycobactin
 - b. nine banded armadillo
 - c. cell culture system
 - d. none of the above
20. Viruses that exist in cells and cause recurrent disease are considered:
- a. oncogenic
 - b. latent
 - c. cytopathic
 - d. resistant
21. In anthrax by which reaction *Bacillus* organism detected in blood smear:
- a. Mac Fadyean's reaction
 - b. Ascoli's precipitation test
 - c. Zeil Neelsen staining
 - d. None of above
22. Intranuclear inclusion bodies are seen in:
- a. pox diseases
 - b. adeno virus infection
 - c. herpes virus infection
 - d. lyssa virus infection
23. Negri bodies are seen in Rabies which are:
- a. intranuclear
 - b. intracytoplasmic
 - c. both
 - d. may be intranuclear or intracytoplasmic
24. Enlargement of Bursa of fabricius in poultry is seen in:
- a. CRD
 - b. RD
 - c. IB
 - d. IBD
25. Flaviviridae family has the genus:
- a. Flavi virus
 - b. Pesti virus
 - c. Hepacivirus
 - d. All of these
26. Which bacteria requires the X and V factor for growth in the medium:
- a. *Haemophilus*
 - b. *Moraxella*

- c. *Mycoplasma*
 - d. Both a and c
27. In all the capsulated bacteria capsule is made up of polysaccharide except in which bacteria it is made up of polypeptide:
- a. *Klebsiella pneumoniae*
 - b. *Streptococci*
 - c. *E. coli*
 - d. *Bacillus anthracis*
28. Bacteria surrounded by flagella all over the surface is known as:
- a. *Amphitrichous*
 - b. *Lopotrichous*
 - c. *Peritrichous*
 - d. *Atrichous*
29. Fried egg appearance of colonies are produced by:
- a. *Mycoplasma*
 - b. *Salmonella*
 - c. *Moraxella*
 - d. *None*
30. Aerobic spore forming bacteria are:
- a. *Clostridium tetani*
 - b. *Bacillus anthracis*
 - c. *Both*
 - d. *None*
31. Gram negative anaerobes are:
- a. *Fusobacterium*
 - b. *Clostridium*
 - c. *Both*
 - d. *None*
32. Lamsiekte, in cattle is caused by:
- a. *Clostridium botulinum* type A
 - b. *Clostridium botulinum* type C
 - c. *Clostridium botulinum* type B
 - d. *Clostridium botulinum* type D
33. Limberneck, in chickens is caused by:
- a. *Clostridium botulinum* type D
 - b. *Clostridium botulinum* type B
 - c. *Clostridium botulinum* type C
 - d. *Clostridium botulinum* type A
34. Catalase test positive for:
- a. *Streptococci*
 - b. *Both*
 - c. *Staphylococci*
 - d. *None*
35. IMVIC pattern found in *E. coli*:
- a. + - + -

- b. + + - -
 - c. - - + +
 - d. + - - +
36. Mcfadyean reaction is used to diagnose anthrax being:
- a. capsule
 - b. spore
 - c. flagella
 - d. all
37. Hotis test is specific for:
- a. *Streptococcus agalactiae*
 - b. *Streptococcus uberis*
 - c. *Streptococcus dysgalactiae*
 - d. None
38. IBRT virus belongs to which family:
- a. *Poxviridae*
 - b. *Togaviridae*
 - c. *Herpesviridae*
 - d. None
39. The genome of Parvoviridae and Circoviridae is:
- a. ds DNA
 - b. ds RNA
 - c. ss DNA
 - d. ss RNA
40. Most enveloped viruses released by:
- a. cell lysis
 - b. endocytosis
 - c. budding
 - d. all
41. Segmented genome of reovirus contains:
- a. 10 segment
 - b. 12 segment
 - c. 11 segment
 - d. All
42. Envelope of poxvirus is derived from:
- a. endoplasmic reticulum
 - b. nuclear membrane
 - c. golgi apparatus
 - d. none
43. Icosahodron symmetry of virus has:
- a. 20 faces, 30 edges, 12 vertex
 - b. 12 edges, 30 faces, 20 vertex
 - c. 20 edges, 30 faces, 12 vertex
 - d. none of the above
44. The members of the order Mononnegavirales includes:
- a. *Rhabdoviridae*

- b. *Birnaviridae*
 - c. *Picornaviridae*
 - d. *Coronaviridae*
45. Doyles form of NDV is caused by the strain:
- a. velogenic
 - b. lentogenic
 - c. mesogenic
 - d. all the three
46. The FMDV vaccine in India contains the strains:
- a. O, A, C
 - b. A, C, Asia 1
 - c. O, A, Asia 1
 - d. O, A, SAT-2
47. The macrophages of Brain are called as:
- a. histiocytes
 - b. kuffer cells
 - c. osteoclasts
 - d. microglial cells
48. The glyco proteins produced by virus infected cells are called:
- a. interleukins
 - b. antigen
 - c. interferon
 - d. leukotrienes
49. The Cells bearing CD4 recognize:
- a. MHC –I
 - b. MHC –III
 - c. MHC –II
 - d. all of these
50. The molecules responsible for recognition of antigen by immune system are:
- a. B cell receptor
 - b. MHC molecules
 - c. T cell receptor
 - d. All of these
51. The antigen presenting cell is/are:
- a. dendritic cells
 - b. B Lymphocyte
 - c. macrophages
 - d. all of these
52. B Lymphocytes of birds mature in:
- a. bone marrow
 - b. spleen
 - c. bursa of fabricius
 - d. blood
53. Fc region of Ig G is formed by:
- a. only heavy chain

- b. combination of heavy and light chain
 - c. only light chain
 - d. none of these
54. Type -I hypersensitivity reaction is mediated by:
- a. Ig G
 - b. Ig E
 - c. Ig M
 - d. Ig D
55. Cytokine produced by the cell and it binds with the same cell this termed as:
- a. paracrine
 - b. endocrine
 - c. autocrine
 - d. none
56. The secretory component is seen in:
- a. Ig G
 - b. Ig E
 - c. Ig M
 - d. Ig A
57. Peptide binding site in MHC-I is between:
- a. alpha-1 and alpha-2
 - b. alpha-1 and beta-2 microglobulins
 - c. alpha-1 and alpha-3
 - d. none
58. Type II phagocytosis is mediated by:
- a. CD 32 (antibody)
 - b. both a and b
 - c. CD 35 (complement)
 - d. none of these
59. Site of T-lymphocytes in lymphnodes is:
- a. paracortical zone
 - b. medulla
 - c. cortex
 - d. none
60. Beta 2 microglobulin is an integral part of:
- a. MHC –I
 - b. MHC –II
 - c. MHC –III d)
 - d. all of these
61. CH4 is present in which antibody:
- a. IgG
 - b. IgM
 - c. IgA
 - d. IgD
62. The most Accepted theory of antibody production is given by:
- a. Erlich

- b. S.Tonegowa
 - c. Burnett
 - d. none of these
63. Which is the primary binding immune-diagnostic test:
- a. RIA
 - b. precepitation test
 - c. agglutination test
 - d. all
64. Rose Bengal plate test is used for the diagnosis of:
- a. Anthrax
 - b. Brucellosis
 - c. Q-fever
 - d. Coccidiosis
65. Western blotting detects:
- a. proteins
 - b. lipids
 - c. nucleic acids
 - d. carbohydrates
66. The first outbreak of Avian influenza in India was in the state of:
- a. West Bengal
 - b. Orissa
 - c. Maharashtra
 - d. Uttarpradesh
67. Protoplast are:
- a. G+ve bacteria without cell wall
 - b. G-ve bacteria without cell wall
 - c. G+ve bacteria without cytoplasmic membrane
 - d. G-ve bacteria without cytoplasmic membrane
68. Spheroplasts are:
- a. G-ve bacteria without cell wall
 - b. G-ve bacteria with partial cell wall
 - c. G-ve bacteria without cytoplasmic membrane
 - d. G-ve bacteria with partial cytoplasmic membrane
69. Bacterial capsule:
- a. resist phagocytosis
 - b. acts as reservoir of food
 - c. prevents bacteriophage attachment
 - d. all of the above
70. The antigen independent maturation of lymphoid cells occurs in:
- a. primary lymphoid organ
 - b. tertiary lymphoid organ
 - c. secondary lymphoid organ
 - d. none
71. The antigen dependent maturation of lymphoid cells occurs in:
- a. primary lymphoid organ

- b. tertiary lymphoid organ
 - c. secondary lymphoid organ
 - d. none
72. The predominant lymphocyte in the blood circulation is:
- a. B cell
 - b. T cell
 - c. both a and b
 - d. none of these
73. Immunoglobulin is the surface receptor of:
- a. B cell
 - b. T cell
 - c. both a and b
 - d. none of these
74. The Hinge region of Ig G is rich in:
- a. proline, cysteine
 - b. arginine
 - c. methionine
 - d. none of these
75. The size of the antigen peptide that can be accommodated in MHC I is:
- a. 8-10 aa
 - b. 13-16 aa
 - c. more than 20 aa
 - d. more than 42 aa
76. The size of the antigen peptide that can be accommodated in MHC II is:
- a. 8-10 aa
 - b. 13-16 aa
 - c. more than 20 aa
 - d. more than 42 aa
77. As the structural complexity increases the antigenicity:
- a. improves
 - b. no effect on antigenicity
 - c. decreases
 - d. none of these
78. The highest concentration of antibodies is seen in:
- a. blood
 - b. mucus membranes
 - c. liver
 - d. none of these
79. In some enveloped viruses the matrix protein is present:
- a. between capsid and envelope
 - b. above the envelope
 - c. between capsid and nucleic acid
 - d. none of the above
80. All helical RNA viruses of animals are:
- a. enveloped

- b. non enveloped
 - c. both a and b
 - d. none of the above
81. The members of the order mononnegavirales includes:
- a. *Rhabdoviridae*
 - b. *Birnaviridae*
 - c. *Picornaviridae*
 - d. *Coronaviridae*
82. The order Nidovirales comprises of:
- a. *Coronaviridae*
 - b. *Arteriviridae*
 - c. Both a and b
 - d. None of the above
83. Streaks of hemorrhages are seen in the large intestines in animal affected with:
- a. rinderpest
 - b. PPR
 - c. both a and b
 - d. none of the above
84. The first step in viral replication is:
- a. attachment
 - b. replication of nucleic acid
 - c. uncoating
 - d. release
85. The polymerase enzyme functions as:
- a. transcriptase
 - b. replicase
 - c. both a and b
 - d. none of the above
86. DNA viruses except this replicates in nucleus of the infected cell:
- a. *Poxviridae*
 - b. *Adenoviridae*
 - c. *Herpesviridae*
 - d. *Circoviridae*
87. mRNA acts directly as nucleic acid in:
- a. plus sense
 - b. negative sense
 - c. both a and b
 - d. none of these
88. African swine fever virus replicates in:
- a. nucleus
 - b. both a and b
 - c. cytoplasm
 - d. mitochondria
89. RNA dependent RNA polymerase is possessed by:
- a. plus sense

- b. both a and b
 - c. negative sense
 - d. none of these
90. The genome of following virus is ambisense:
- a. *Bunyaviridae*
 - b. *Picornaviridae*
 - c. *Paramyxoviridae*
 - d. *Orthomyxoviridae*
91. The genome of retroviruses is:
- a. plus sense
 - b. ambisense
 - c. negative sense
 - d. DNA
92. The ideal CO₂ requirement for growth of cell culture in laboratory is:
- a. 1 %
 - b. 5-10 %
 - c. 15 %
 - d. 15-20%
93. Latency related transcripts are present in:
- a. Poxviridae
 - b. Adenoviridae
 - c. Herpesviridae
 - d. Circoviridae
94. Western blotting detects:
- a. proteins
 - b. nucleic acids
 - c. lipids
 - d. carbohydrates
95. Electron microscope was invented by:
- a. Fleming
 - b. Edwards
 - c. Louis pasteur
 - d. Knoll and Ruska
96. Influenza drug Amantidine HCl acts by:
- a. ion channel blocker
 - b. neuraminidase inhibitor
 - c. nucleoside analogue
 - d. none of these
97. The nucleoside analogue antiviral drug is:
- a. oseltamivier
 - b. zonavir
 - c. ribavarin
 - d. Amantidine
98. The herpes viruses are placed under the order:
- a. *Herpesvirales*

- b. *Mononnegavirales*
 - c. *Picornavirales*
 - d. *Not under any order*
99. Lumpy skin disease virus belongs to the genus:
- a. *Leporipoxvirus*
 - b. *Orthopoxvirus*
 - c. *Suipoxvirus*
 - d. *Capripoxvirus*
100. Infectious balanoposthitis in bulls is caused by:
- a. bovine herpes virus-1
 - b. bovine herpes virus-5
 - c. bovine herpes virus-3
 - d. none of the above

ANSWER KEY:

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

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
PATHOLOGY**

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I . Choose the correct answer

1. Formation of the cytoplasmic blebs is seen in _____
 - a. necrosis
 - b. apoptosis
 - c. both a and b
 - d. none of the above
2. Free radicals cause cell injury by:
 - a. lipid peroxidation of the membrane
 - b. cross linking of proteins
 - c. DNA fragmentation
 - d. all of the above.
3. _____ help in the proper folding of the proteins in their transport across the ER and golgi complex:
 - a. Chaperones
 - b. heat shock proteins
 - c. both a & b
 - d. C-reactive proteins
4. Itching effect in the inflammation is produced by _____
 - a. bradykinnin
 - b. histamine
 - c. prostaglandins
 - d. leukotrienes
5. _____ Scientist was first to describe vascular changes in the inflammation.
 - a. Julius Cohnheim
 - b. Elie Metchnikoff
 - c. Rudolf Virchow
 - d. Claudius Galen
6. Most chemical mediators of the inflammation cause an increase in vascular permeability only in _____
 - a. arterioles
 - b. capillaries
 - c. venules
 - d. all of the above
7. Triple response in the inflammation was described by _____
 - a. Sir Thomas Lewis
 - b. Julius Cohnheim
 - c. Elie Metchnikoff
 - d. Claudius Galen
8. Major basic protein mainly present in the _____

- a. neutrophils
 - b. eosinophils
 - c. basophils
 - d. macrophages
9. The following are function as endogenous pyrogens, except _____
- a. IL-1
 - b. IL-6
 - c. TNF- α
 - d. IL-2
10. In contrast to mammals, _____ play an important role in the avian inflammation:
- a. serotonin
 - b. 5 HT
 - c. both a & b
 - d. bradykinin
11. Proud flesh refers to the _____
- a. inadequate formation of granulation tissue
 - b. accumulation of excessive granulation tissue
 - c. accumulation of excessive collagen
 - d. none of the above
12. Wallerian degeneration is common in the _____
- a. muscle
 - b. bone
 - c. cartilage
 - d. nerves
13. Nutmeg pattern of liver is seen in the:
- a. acute general passive hyperaemia
 - b. chronic general passive hyperaemia
 - c. acute local passive hyperaemia
 - d. chronic local passive hyperaemia
14. Brown induration of the lungs is common in the:
- a. acute general passive hyperaemia.
 - b. chronic general passive hyperaemia.
 - c. acute local passive hyperaemia
 - d. chronic local passive hyperaemia
15. Hypostatic congestion is most common in the _____
- a. lungs
 - b. liver
 - c. kidney
 - d. intestine
16. The principal constituent of the purulent exudates is _____
- a. serum
 - b. plasma
 - c. neutrophils
 - d. eosinophils

17. Piliconcretions are made up of _____
- plant
 - polythene
 - hairs
 - desquamated cells
18. Choleliths may cause _____ jaundice:
- toxic
 - posthepatic
 - prehepatic
 - hemolytic
19. In Xanthomas, the macrophages are laden with _____
- glycogen
 - haemosiderin
 - cholesterol
 - fat
20. To demonstrate glycogen, tissue must be preserved in the _____
- 10% formalin
 - formal saline
 - neutral buffered formalin
 - absolute alcohol
21. _____ pigment is referred as aging pigment:
- melanin
 - lipofuscin
 - haemosiderin
 - porphyrin
22. _____ deposition is the important marker that indicates that cells suffered from free radical injury:
- lipofuscin
 - melanin
 - porphyrin
 - haemosiderin
23. Heart failure cells are mainly present in the _____
- lungs
 - heart
 - spleen
 - kidney
24. Discoloration of the skin with bilirubin occurs only when level rises above _____ in the serum or plasma:
- 1 mg/dl
 - 0.5 mg/dl
 - 5 mg/dl
 - 2 mg/dl
25. Acanthosis nigricans, an increased amount of melanin within the skin is frequently observed in the _____
- horse

- b. dog
 - c. pig
 - d. cattle
26. Biphasic type of Vanden Berg reaction is seen in _____
- a. haemolytic jaundice
 - b. toxic jaundice
 - c. obstructive jaundice
 - d. all of above
27. Deposition of carbon particles in the lungs is referred as _____
- a. silicosis
 - b. siderosis
 - c. anthracosis
 - d. pneumoconiosis
28. _____ is the most common disturbance of cell metabolism and it is the first reaction of a cell to injury:
- a. fatty change
 - b. hydropic degeneration
 - c. mucinous degeneration
 - d. albuminous degeneration
29. Brain sand is a _____ type of hyaline change:
- a. keratohyaline
 - b. cellular hyaline
 - c. connective tissue hyaline
 - d. none
30. The accumulation of _____ material in spleen gives lardaceous appearance:
- a. amyloid
 - b. hyaline
 - c. lipofuscin
 - d. haemosiderin
31. Amyloid deposition in the conjunctiva of _____ leads to blindness:
- a. cattle
 - b. horse
 - c. cat
 - d. puppies
32. Primary granules of neutrophils contain _____
- a. lactoferrin
 - b. lysozyme
 - c. myeloperoxidase
 - d. lipase
33. Amyloid occurs in the body as a result of:
- a. immune complexes
 - b. antigen
 - c. antibody
 - d. starch

34. Epithelial pearl is an example of _____ degeneration:
- amyloid
 - mucin
 - hyaline
 - cellular swelling
35. Presence of foreign material in blood vessels is known as _____
- thrombus
 - emboli
 - ischaemia
 - infarction
36. Ketosis in cow may cause _____
- hyaline degeneration
 - fatty change
 - amyloid degeneration
 - fat necrosis
37. Cloudy swelling is characterized by the hazy cytoplasm due to swollen _____
- ER
 - golgi bodies
 - mitochondria
 - nucleus
38. Partial loss of epithelium on skin or mucous membrane is known as _____
- abrasion
 - erosion
 - laceration
 - contusion
39. Radiation affects the dividing cells of _____
- ovary
 - testes
 - lymphocytes
 - all of the above
40. Transformation of one cell type to another cell type is known as _____
- hyperplasia
 - dysplasia
 - anaplasia
 - metaplasia
41. Mesothelioma originates from mesothelium of:
- peritoneum
 - pleura
 - pericardium
 - all of the above
42. Bence Jones proteins found in the urine with neoplasm of _____
- Multiple myeloma
 - Hodgkins disease
 - Bovine leukemia
 - all of the above

43. Most common testicular tumour in dogs is _____
- seminoma
 - sertoli cell tumour
 - leydig cell tumour
 - both a and b
44. Wilm's tumour is neoplasm of _____
- gall bladder
 - liver
 - kidney
 - lungs
45. In avian inflammation _____ cells are seen in abundance in comparison to mammals:
- eosinophills
 - basophills
 - neutrophills
 - none
46. Fragmentation of the nucleus is referred as _____
- karyolysis
 - karyorrhexis
 - chromatolysis
 - pyknosis
47. Physiological cell death after completion of its function is known as _____
- apoptosis
 - necrosis
 - necrobiosis
 - cell death
48. Staining of tissue with haemoglobin after death of the animal is referred as _____
- algor mortis
 - livor mortis
 - rigor mortis
 - pseudomelonosis
49. Cells come out through break in blood vessels is referred as _____
- diapedesis
 - pavementation
 - rhesis
 - extravasation
50. Multinucleated cells having vacuolation in the cytoplasm due to increased lipid content is referred as _____
- foreign body giant cells
 - langhn's giant cells
 - tumour giant cell
 - touton giant cell

ANSWER KEY

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

II . Important Points

1. Punched out ulcers' in abomasum- pathognomonic lesion of **theileriosis**
2. Negri bodies in cattle with rabies seen in **cerebellum**
3. Father of pathological anatomy **Antonio Benevieni**
4. Father of cellular pathology **Rudolph Virchow**
5. Lysosome first demonstrated by **Novikoff**
6. Most reactive free radical in inducing cell damage **Hydroxyl radical**
7. Removal of damaged organelle during cell injury is called as **Autophagy**
8. Component of cytoskeleton useful in tumor diagnosis **Intermediate filaments**
9. Eosinophilic, intracytoplasmic inclusion in liver in alcoholic liver disease is **Mallory body**
10. Condition in which impairment of phagocytic property of WBC occurs in **Chediak Higashi syndrome**
11. Best fixative for glycogen **Non-aqueous fixatives(methyl alcohol)**
12. Stains for glycogen (any two) **Best carmine & PAS**
13. Macrophage laden with lipids in atherosclerosis called as **Foam cell**
14. Russel bodies seen in **Plasma cells**
15. Partial or complete loss of melanocytes in the epidermis **Vitiligo**
16. Pigments causing 'Brown Atrophy' is **Lipofuscin**
17. Aggregates of ferritin micelles is called **Hemosiderin**
18. Heart failure cells are **Alveolar macrophage laden with Hemosiderin**
19. Unconjugated hyperbilirubinemia is indicative of **Prehepatic jaundice**
20. Direct Van den berg reaction is indicative of **Obstructive jaundice**
21. Color of faeces in obstructive jaundice **Grey / Clay color**
22. Hyperkeratosis in cattle common in which poisoning **Chlorinated naphthalene poisoning**
23. Type of necrosis involved in hypoxic cell death in the CNS **Liquefactive necrosis**
24. Necrosis in which architectural details persist but cellular details are lost **Coagulative necrosis.**

25. Enzymes important in apoptosis **Caspases**
26. Conditions in which PM clotting of blood doesn't occur **Anthrax and Sweet clover poisoning**
27. Pathological calcification without derangement in blood calcium levels **Dystrophic calcification**
28. Special stain for demonstrating Calcium in tissues **Van Kossa's Silver nitrate**
29. 'Tophi' is related to which disease **Articular gout**
30. Condition characterized by green refringence of Congo red stained sections under polarizing microscope **Amyloidosis**
31. Name the anaphylatoxins **C3a and C5a**
32. Chemical mediators from arachidonic acid metabolism via cyclooxygenase pathway **Thromboxane A₂ and Prostaglandins**
33. 'Triple response' in tissue inflammation was formulated by Sir Thomas Lewis
34. Colloidal carbon technique is used in identifying Leaking vessels in inflammation
35. Name some SRS-A(slow reacting substances of anaphylaxis) **Leukotrienes like LTC₄, LTD₄, LTE₄**
36. Cationic proteins produced by eosinophils toxic to parasites **Major Basic Proteins**
37. Suppurative inflammation of hair follicles caused by Staph aureus **Boils**
38. Diffuse spreading suppurative inflammation of connective tissues **Cellulitis**
39. Modified macrophages in case of granuloma are called Epithelioid cells
40. Granulation tissue is a hallmark of **Healing**
41. Adhesive glycoproteins of Extra-cellular matrix. **Fibronectin and Laminins**
42. Condition in which cardiac sclerosis/ cardiac cirrhosis occurs. **Chronic general passive hyperemia**
43. Alteration from a less specialized cell type to more specialized ones **Metaplasia**
44. A malignant tumor which doesn't metastasize **Basal Cell Carcinoma**
45. Oncogenes discovered by **Michael Bishop and Harold Varmus**
46. 'Sticker tumor' discovered by Novinsky is better known as **Canine Transmissible Venereal Tumor.**
47. Reed Sternberg Cells are typical of **Hodgkin's disease**
48. Horn cancer is most commonly seen in **Bullock**
49. Black tongue/ canine pellagra is caused by **Niacin deficiency**
50. Rodent ulcer is better known as **Basal cell carcinoma**

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
PHARMACOLOGY AND TOXICOLOGY**

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I . Choose the correct answer

1. Compared to subcutaneous injection, the intramuscular injection of drugs:
 - a. is more painful
 - b. produces faster response
 - c. is unsuitable for depot preparations
 - d. carries greater risk of anaphylactic reaction
2. Majority of drugs cross biological membranes primarily by:
 - a. passive diffusion
 - b. facilitated diffusion
 - c. active transport
 - d. pinocytosis
3. Bioavailability of drug refers to:
 - a. percentage of administered dose that reaches systemic circulation in the unchanged form
 - b. ratio of oral to parenteral dose
 - c. ratio of orally administered drug to that excreted in the faeces
 - d. ratio of drug excreted unchanged in urine to that excreted as metabolites
4. Weakly acidic drugs:
 - a. are bound primarily to α_1 acid glycoprotein in plasma
 - b. are excreted faster in alkaline urine
 - c. are highly ionized in the gastric juice
 - d. do not cross blood-brain barrier
5. A prodrug is:
 - a. the prototype member of a class of drugs
 - b. the oldest member of a class of drugs
 - c. an inactive drug that is transformed in the body to an active metabolite
 - d. a drug that is stored in body tissues and is then gradually released in the circulation
6. If a drug is eliminated by first order kinetics:
 - a. a constant amount of the drug will be eliminated per unit time
 - b. its clearance value will remain constant
 - c. its elimination half life will increase with dose
 - d. it will be completely eliminated from the body in 2 half life period
7. Level of anaesthesia for the most of the surgical procedure:
 - a. Plane 1 of stage III
 - b. Plane 2 of stage III
 - c. Plane 3 of stage III
 - d. stage II with preanaesthetics
8. All of the following pharmacological actions of acetylsalicylic acid (aspirin) are valid except :

- a. inhibition of phospholipase A₂
 - b. inhibition PGI₂ synthesis
 - c. inhibition of platelet aggregation
 - d. irreversible cyclooxygenase inhibitor
9. One of the following produces anticonvulsant action following its biotransformation:
- a. phenytoin
 - b. pentobarbitone
 - c. primidone
 - d. carbamazepine
10. A competitive antagonist of benzodiazepine receptors:
- a. 4-aminopyridine
 - b. nalorphine
 - c. detomidine
 - d. flumazenil
11. The following anaesthetic can be used by the open drop method:
- a. ether
 - b. desflurane
 - c. halothane
 - d. Isoflurane
12. 'Dissociative anaesthesia' is produced by:
- a. ketamine
 - b. fentanyl
 - c. propofol
 - d. both 'A' and 'B' are correct
13. Currently barbiturates are primarily used as:
- a. hypnotic
 - b. sedative
 - c. antiepileptic
 - d. preanaesthetic medicant
14. The primary mechanism of action of benzodiazepines is:
- a. dopamine antagonism
 - b. adenosine antagonism
 - c. opening of neuronal chloride channels
 - d. facilitation of GABA-mediated chloride influx
15. The most probable mechanism of anticonvulsant action of phenytoin is:
- a. facilitation of GABAergic inhibitory transmission
 - b. hyperpolarization of neurons
 - c. interaction with Ca²⁺ channels to promote Ca²⁺ influx
 - d. prolongation of voltage sensitive neuronal Na⁺ channel inactivation
16. Sodium valproate has been shown to:
- a. prolong neuronal Na⁺ channel inactivation
 - b. attenuate 'T' type Ca²⁺ current in neurons
 - c. inhibit degradation of GABA by GABA-transaminase
 - d. all of the above
17. Stage II of anesthesia is not produced by:

- a. ether
 - b. chloroform
 - c. methoxy flurane
 - d. none of the above
18. Innovar-vet[®] is a combination of:
- a. ketamine and xylazine
 - b. 4 Amino pyridine and yohimbine
 - c. chloral magnesium sulphate
 - d. droperidol and fentanyl
19. Pre-anaesthetic medication comprises all the following except:
- a. atropine
 - b. diazepam
 - c. glycopyrronium
 - d. lignocaine
20. Level of anaesthesia for the most of the surgical procedure:
- a. plane 1 of stage III
 - b. plane 2 of stage III
 - c. plane 3 of stage III
 - d. stage II with pre-anaesthetics
21. Nitric oxide for first time as anaesthetic:
- a. Horace Well
 - b. William Morton
 - c. M. Johnstone
 - d. Gardner Calton
22. To induce anesthesia diethyl ether was used first time by:
- a. Humphry Davy
 - b. Faraday
 - c. William T G Morton
 - d. none of the above
23. The cardiac muscarinic receptors:
- a. are of the M₁ subtype
 - b. are of the M₂ subtype
 - c. are selectively blocked by pirenzepine
 - d. function through the PIP₂ → IP₃/DAG pathway
24. Meyer and Overton discovered:
- a. lipid theory
 - b. membrane expansion theory
 - c. membrane fluidisation theory
 - d. lateral pressure theory
25. Least toxic among the following is:
- a. halothane
 - b. desflurane
 - c. methoxyflurane
 - d. sevoflurane.
26. The half life of slow elimination Benzodiazepine is:

- a. 20-100 hours
 - b. 15 days
 - c. 4-5 hours
 - d. 10-20 hours
27. Chloretone posses:
- a. CNS depressant action
 - b. antiseptic action
 - c. anti emetic action
 - d. all the above
28. 1,3,7 Trimethyl xanthine is otherwise known as:
- a. caffeine
 - b. theophylline
 - c. theobromine
 - d. hyocyamine
29. Cocaine is obtained from:
- a. *Theobroma cacao*
 - b. *Erythroxylon coca*
 - c. *Thea sinensis*
 - d. *Datura stramonium*
30. The alkaloid present in *Ephedra sennica* is:
- a. theobromine
 - b. dexedrine
 - c. ephedrine
 - d. cocaine
31. Nalorphine is a:
- a. partial agonist
 - b. obtained from Opium
 - c. an agonist
 - d. pure Antagonist
32. Analeptics are:
- a. cortical stimulants
 - b. medullary stimulants
 - c. spinal cord stimulants
 - d. CNS depressants
33. One of the following is a spinal cord stimulant
- a. xanthines
 - b. lobelline
 - c. strychnine
 - d. atropine
34. Theobromine is:
- a. 1, 3 dimethyl xanthine
 - b. 1,3,7,trimethyl xanthine
 - c. 3,7 dimethyl xanthine
 - d. not a xanthine
35. The major alkaloid present in cocoa is:

- a. theobromine
 - b. caffeine
 - c. theophylline
 - d. cocaine
36. Caffeine:
- a. increases the urine
 - b. decreases the urine
 - c. no action
 - d. produce stones
37. Xanthines:
- a. relieve fatigue
 - b. enhances fatigue
 - c. no action
 - d. produce convulsion
38. Irritation of G.I. mucosa is more with:
- a. tea
 - b. coffee
 - c. cocoa
 - d. sugar
39. Caffeine inhibits:
- a. stimulate phosphodiesterase
 - b. inhibits phosphodiesterase
 - c. inhibits cAMP
 - d. stimulate acetylcholine
40. Aminophylline is preferred over theophylline because:
- a. aminophylline is less active
 - b. it is more soluble
 - c. it is less soluble
 - d. none of the above
41. Xanthines enhances the action of:
- a. thiazides
 - b. mercurials
 - c. diamox
 - d. barbiturates
42. Theophylline is a chronobiotic because:
- a. it produce yellow color with nitric acid
 - b. affect the circadian rhythm
 - c. destroy bacteria
 - d. none of the above
43. Amphetamine is a:
- a. synthetic CNS stimulant
 - b. Spinal cord stimulant
 - c. since the name ends in 'ine' is an alkaloid
 - d. None of the above
44. Amphetamine causes:

- a. prolonged diuresis
 - b. prolonged rise of blood pressure
 - c. stimulation of spinal cord
 - d. depress CNS
45. Analeptics are widely used as:
- a. anti epileptic drug
 - b. analgesic agent
 - c. diuretics
 - d. medullary stimulant
46. Pentylene tetrazole is called as Leptazole in:
- a. U S P
 - b. N F
 - c. B P
 - d. IP
47. Pentylene tetrazole inhibits the:
- a. cholinergic action
 - b. adrenergic action
 - c. GABAergic inhibition
 - d. block the ganglia
48. Among analeptics the superior one is:
- a. leptazol
 - b. doxapram
 - c. cardiazol
 - d. 4-AP
49. Bicucullin acts as a convulsant by:
- a. stimulation of cholinergic receptors
 - b. GABA- A receptors antagonism
 - c. adrenergic stimulation
 - d. none of the above
50. The specific antagonist of barbiturate is:
- a. megitide
 - b. atropine
 - c. nalorphine
 - d. doxapram
51. Strychnine is:
- a. bitter to taste
 - b. sour to taste
 - c. sweet to taste
 - d. no taste
52. The characteristic convulsion caused by strychnine is:
- a. clonic convulsion
 - b. opisthotonus
 - c. intermittent
 - d. none of the above
53. Stimulation of spinal cord by strychnine is by:

- a. blocking Renshaw cells
 - b. stimulation of cholinergic receptor
 - c. blocking adrenergic neuron
 - d. none of the above
54. In strychnine poisoning death is by:
- a. arrest of heart beat
 - b. arrest of respiration
 - c. cortical stimulation
 - d. none of the above
55. Cerebro active drugs can be used in:
- a. CNS depression
 - b. inhalant anesthesia toxicity
 - c. senile dementia
 - d. injectable anesthesia toxicity
56. The important difference between Hypnosis and Narcosis:
- a. Hypnosis all reflexes are present except few but in Narcosis no reflex
 - b. Hypnosis can be reversed by external stimuli but not narcosis
 - c. hypnosis can be reversed but not narcosis
 - d. none of the above
57. Methyl alcohol is mainly:
- a. haemotoxic
 - b. nephrotoxic
 - c. hepatotoxic
 - d. neurotoxic
58. For drinking we are using
- a. methyl alcohol
 - b. isopropyl alcohol
 - c. methylated spirit
 - d. ethyl alcohol
59. The toxic metabolic product ,formaldehyde and formic acid is produced by:
- a. ethyl alcohol
 - b. methyl alcohol
 - c. isopropyl alcohol
 - d. denatured alcohol
60. The antidote of methyl alcohol is:
- a. disulfiram
 - b. ethyl alcohol
 - c. isopropyl alcohol
 - d. none of the above
61. Which of the following drugs is a nondepolarizing neuromuscular blocker:
- a. succinylcholine
 - b. vecuronium
 - c. decamethonium
 - d. dantrolene sodium
62. The site of action of d-tubocurarine is:

- a. spinal internuncial neurone
 - b. motor nerve ending
 - c. muscle end-plate
 - d. sodium channels in the muscle fibre
63. Adrenaline added to local anaesthetic solution for infiltration anaesthesia affords the following except:
- a. prolongs the duration of local anaesthesia
 - b. makes the injection less painful
 - c. provides a more bloodless field for surgery
 - d. reduces systemic toxicity of the local anaesthetic
64. The minimal alveolar concentration of an inhalational anaesthetic is a measure of its:
- a. potency
 - b. therapeutic index
 - c. diffusibility
 - d. oil: water partition coefficient
65. 'Second gas effect' is exerted by the following gas when co-administered with halothane:
- a. nitrous oxide
 - b. cyclopropane
 - c. nitrogen
 - d. helium
66. The most suitable laxative for a patient of irritable bowel disease with spastic constipation is:
- a. dietary fibre
 - b. liquid paraffin
 - c. bisacodyl
 - d. senna
67. The opioid antidiarrhoeal drugs act by the following mechanism(s):
- a. relax the intestinal smooth muscle
 - b. inhibit intestinal peristalsis
 - c. promote clearance of intestinal pathogens
 - d. all of the above
68. An 'orphan drug' is:
- a. very cheap drug
 - b. drug which has no therapeutic use
 - c. drug needed for treatment or prevention of a rare disease
 - d. drug which acts on orphanin receptors
69. Drug administered through the following route is most likely to be subjected to first-pass metabolism:
- a. oral
 - b. sublingual
 - c. subcutaneous
 - d. rectal
70. High plasma protein binding:
- a. increases volume of distribution of the drug

- b. facilitates glomerular filtration of the drug
 - c. minimises drug interactions
 - d. generally makes the drug long acting
71. Solubility of Methoxy flurane in blood is:
- a. less
 - b. highly
 - c. medium
 - d. not soluble
72. Halothane will not react with:
- a. chromium
 - b. polyethylenes
 - c. rubber
 - d. nickel
73. Halothane is synergistic with amino glycoside antibiotic in:
- a. antibacterial action
 - b. allergic action
 - c. muscle relaxant action
 - d. CNS depression
74. Methoxy flurane is a:
- a. volatile gas
 - b. non volatile gas
 - c. volatile liquid
 - d. nonvolatile liquid
75. Malignant hyperthermia is associated with anesthetic agent like:
- a. ether
 - b. halothane
 - c. barbiturate
 - d. chloroform
76. Nitrous oxide alone can produce anesthesia only in:
- a. liver disease
 - b. open method of administration
 - c. hyperbaric condition
 - d. closed method of administration
77. Diethyl ether is a:
- a. noninflammable
 - b. inflammable
 - c. carminative
 - d. non volatile
78. Barbituric acid is obtained by reacting:
- a. urea and melonic acid
 - b. barbiturate and hydrochloric acid
 - c. Barbiturate and acetic acid
 - d. none of the above
79. Barbituric acid is having:
- a. no action on CNS

- b. stimulate CNS
 - c. suppress CNS
 - d. excitation
80. Short chain compounds attached to 5th carbon atom of barbituric acid gives:
- a. ultra short action
 - b. short action
 - c. long action
 - d. medium duration
81. Replacement of Oxygen atom on carbon 2 of barbituric acid by Sulphur:
- a. increases the potency
 - b. increases the duration
 - c. decreases the stability
 - d. decreases the excretion
82. Pentobarbitone sodium is an example for:
- a. ultrashort acting compound
 - b. short acting
 - c. long acting
 - d. none of the above
83. Pentothal sodium is:
- a. sulphur containing barbiturate
 - b. long acting barbiturate
 - c. short acting barbiturate
 - d. none of the above
84. Losartan is a:
- a. selective AT₁ receptor antagonist
 - b. selective AT₂ receptor antagonist
 - c. nonselective AT₁ + AT₂ receptor antagonist
 - d. AT₁ receptor partial agonist
85. To block the excess cholinergic stimulation the most commonly used pre anesthetic is:
- a. coramine
 - b. doxapram
 - c. atropine
 - d. largactil
86. Barbiturates:
- a. inhibits hepatic microsomal enzymes
 - b. induce hepatic microsomal enzymes
 - c. destroy hepatic tissue
 - d. no action
87. Intra venous dextrose can be used to:
- a. prolong the barbiturate anesthesia
 - b. shorten the period
 - c. No action
 - d. hasten the recovery
88. Guaifenesin is an anesthetic agent having:

- a. antipyretic action
 - b. diuretic action
 - c. CNS stimulant
 - d. none of the above
89. Althesin is a mixture of 2 steroids:
- a. betamethasone and cortisone
 - b. dexamethasone and cortisone
 - c. cortisone and triamcinolone
 - d. alphaxalone and alphadalone
90. Althesin causes allergy in dogs due to:
- a. alphaxalone
 - b. alphadalone
 - c. cremophore- EL
 - d. none of the above
91. Chemically ketamine is:
- a. steroid
 - b. barbiturate derivative
 - c. aryl cycloalkylamine
 - d. none of the above
92. Sernylan contain:
- a. ketamine
 - b. phencyclidine
 - c. xylazine
 - d. none of the above
93. Opened eye is a characteristic feature of:
- a. xylazine
 - b. ketamine
 - c. ether
 - d. intraval sodium
94. Under physiological conditions the rate limiting enzyme in the generation of angiotensin II is:
- a. renin
 - b. angiotensin converting enzyme
 - c. aminopeptidase
 - d. angiotensinase
95. Zoletil contain:
- a. tiletamine and zolazepam
 - b. ketamine and xylazine
 - c. ether and chloroform
 - d. none of the above
96. 4-Aminopyridine and Yohimbine is an antidote for:
- a. barbiturate
 - b. chloral mag. sulph
 - c. ketamine and xylazine
 - d. none of the above

97. Innovar-vet is a combination of:
- ketamine and xylazine
 - 4 Amino pyridine and yohimbine
 - chloral magnesium sulphate
 - droperidol and fentanyl
98. Etorphine is:
- morphine derivative
 - codeine derivative
 - thebaine derivative
 - none of the above
99. Chlorpromazine is a:
- rauwolfia derivative
 - benzodiazepines
 - butyrophenones
 - phenothiazines
100. Strychnine produces convulsions by:
- stimulating NMDA receptors
 - facilitating the excitatory transmitter glutamate
 - blocking the inhibitory transmitter GABA
 - blocking the inhibitory transmitter glycine

ANSWER KEY:

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

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
PHARMACOLOGY AND TOXICOLOGY**

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I . Choose the correct answer

1. Which information may be gained from an acute toxicity study:
 - a. No Effect Level
 - b. LD50
 - c. therapeutic index
 - d. target organ
2. The therapeutic index is usually defined as:
 - a. TD50/LD50
 - b. ED50/LD50
 - c. LD50/ED50
 - d. ED50/TD50
3. Choose the antimicrobial which acts by interfering with DNA function in the bacteria:
 - a. chloramphenicol
 - b. ciprofloxacin
 - c. streptomycin
 - d. vacomycin
4. The following organism will develop antimicrobial resistance rapidly:
 - a. *Streptococcus pyogenes*
 - b. *Meningococcus*
 - c. *Treponema pallidum*
 - d. *Escherichia coli*
5. Super-infections are more common with:
 - a. use of narrow spectrum antibiotics
 - b. short courses of antibiotics
 - c. use of antibiotics that are completely absorbed from the small intestines
 - d. use of broad spectrum antibiotics
6. The following organisms are frequently responsible for super infections except:
 - a. *Pseudomonas aeruginosa*
 - b. *Salmonella typhi*
 - c. *Clostridium difficile*
 - d. *Candida albicans*
7. Which antimicrobial should be avoided in patients of liver disease:
 - a. tetracycline
 - b. cotrimoxazole
 - c. cephalixin
 - d. ethambutol
8. Select the drug combination which does not exhibit supra-additive synergism:
 - a. nalidixic acid + nitrofurantoin
 - b. amoxicillin + clavulanic acid

- c. pyrimethamine + sulfadoxine
 - d. sulfamethoxazole + trimethoprim
9. Indicate the sulfonamide which is suitable for topical use in the eye:
- a. sulfadiazine
 - b. sulfacetamide
 - c. sulfadoxine
 - d. sulfamoxole
10. Trimethoprim inhibits bacteria without affecting mammalian cells because:
- a. it does not penetrate mammalian cells
 - b. it has high affinity for bacterial but low affinity for mammalian dihydrofolate reductase enzyme
 - c. it inhibits bacterial folate synthetase as well as dihydrofolate reductase enzymes
 - d. all of the above
11. The following quinolone antimicrobial agent is not useful in systemic infections:
- a. lomefloxacin
 - b. ofloxacin
 - c. nalidixic acid
 - d. pefloxacin
12. Indicate the enzyme(s) inhibited by fluoroquinolones:
- a. both 'B' and 'C'
 - b. topoisomerase II
 - c. topoisomerase IV
 - d. DNA gyrase
13. Which fluoroquinolone has enhanced activity against gram positive bacteria and anaerobes:
- a. pefloxacin
 - b. ciprofloxacin
 - c. sparfloxacin
 - d. norfloxacin
14. The beta lactam antibiotics include the following:
- a. cephalosporins
 - b. monobactams
 - c. carbapenems
 - d. all of the above
15. The characteristic feature(s) of penicillin G is/are:
- a. it is unstable in aqueous solution
 - b. its antibacterial action is unaffected by pus and tissue fluids
 - c. it is equally active against resting and multiplying bacteria
 - d. both 'a' and 'b' are correct
16. Which of the following is not a semisynthetic penicillin:
- a. procaine penicillin
 - b. ampicillin
 - c. cloxacillin
 - d. carbenicillin
17. Select the most potent tetracycline antibiotic:

- a. demeclocycline
 - b. oxytetracycline
 - c. minocycline
 - d. doxycycline
18. The drug of choice for atypical pneumonia due to *Mycoplasma pneumoniae* is:
- a. doxycycline
 - b. ciprofloxacin
 - c. ceftriaxone
 - d. gentamicin
19. What is true of drug therapy of typhoid fever:
- a. combination of chloramphenicol with ciprofloxacin is superior to either drug alone
 - b. ceftriaxone (i.v) is one of the fastest acting and most dependable treatment
 - c. prolonged treatment with chloramphenicol eradicates typhoid carrier state
 - d. all of the above are correct
20. Aminoglycoside antibiotics have the following property common to all members:
- a. they are primarily active against aerobic gram negative bacilli
 - b. they are more active in acidic medium
 - c. they readily enter cells and are distributed in total body water
 - d. they are nearly completely metabolized in liver
21. 'Red man syndrome' has been associated with rapid intravenous injection of the following antibiotic:
- a. vancomycin
 - b. clindamycin
 - c. cefoperazone
 - d. piperacillin
22. Acidic urine augments the antibacterial action of the following drug:
- a. ciprofloxacin
 - b. cotrimoxazole
 - c. gentamicin
 - d. nitrofurantoin
23. First line anti-tubercular drugs include the following except:
- a. ciprofloxacin
 - b. streptomycin
 - c. pyrazinamide
 - d. ethambutol
24. Amphotericin B is not effective in the following fungal disease:
- a. *Cryptococcosis*
 - b. *Histoplasmosis*
 - c. *Blastomycosis*
 - d. *Dermatophytosis*
25. Idoxuridine is indicated in:
- a. *Herpes simplex keratitis*
 - b. *Herpes zoster*
 - c. *Chickenpox*

- d. all of the above.
- 26. Zidovudine inhibits the following virus/viruses:
 - a. human immunodeficiency virus
 - b. cytomegalovirus
 - c. hepatitis b virus
 - d. both 'a' and 'b'
- 27. The drug of choice for cerebral malaria due to *P. falciparum* is:
 - a. quinine
 - b. mefloquine
 - c. chloroquine
 - d. pyrimethamine + sulfadoxine
- 28. In addition to amoebiasis, metronidazole is used for:
 - a. *Roundworm infestation*
 - b. *Hookworm infestation*
 - c. *Kala-azar*
 - d. *Giardiasis*
- 29. Metronidazole is used in peridontal abscess because of activity against:
 - a. *Entamoeba histolytica*
 - b. *Giardia lamblia*
 - c. *Anaerobic bacilli*
 - d. *Aerobic gram positive cocci*
- 30. The following anthelmintic has been found to be safe during pregnancy:
 - a. thiabendazole
 - b. piperazine
 - c. albendazole
 - d. pyrantel pamoate
- 31. Select the drug that is used orally to treat scabies:
 - a. permethrin
 - b. ivermectin
 - c. praziquantel
 - d. crotamiton
- 32. Praziquantel is effective against the following helminth(s):
 - a. *Taenia saginata*
 - b. *Diphyllobothrium latum*
 - c. Schistosomes
 - d. All of the above
- 33. The following anticancer drug has high emetogenic potential:
 - a. vincristine
 - b. chlorambucil
 - c. 6-mercaptopurine
 - d. cisplatin
- 34. The following antineoplastic drug is a mitotic inhibitor and causes metaphase arrest:
 - a. busulfan
 - b. vincristine
 - c. cytarabine

- d. procarbazine
- 35. The mechanism of antibacterial action of tetracycline involves:
 - a. binding to a component of the 50S ribosomal subunit
 - b. inhibition of translocase activity
 - c. blockade of binding of aminoacyl - tRNA to bacterial ribosomes
 - d. selective inhibition of ribosomal peptidyl transferases
- 36. Which one of the following antibiotics is a potent inducer of hepatic drug-metabolizing enzymes:
 - a. ciprofloxacin
 - b. cyclosporine
 - c. erythromycin
 - d. rifampin
- 37. Cyclosporine is used for:
 - a. allergies
 - b. angina
 - c. prevention of transplant rejection
 - d. steroid deficiency
- 38. Select the antibiotic whose dose must be reduced in patients with renal insufficiency:
 - a. ampicillin
 - b. chloramphenicol
 - c. tobramycin
 - d. erythromycin
- 39. Which aminoglycoside antibiotic causes more hearing loss than vestibular disturbance as toxic effect:
 - a. streptomycin
 - b. gentamicin
 - c. kanamycin
 - d. sisomicin
- 40. Which out of the following antibiotics penetrates blood-CSF barrier the best:
 - a. erythromycin
 - b. gentamicin
 - c. tetracycline
 - d. chloramphenicol
- 41. Clavulanic acid is combined with amoxicillin because:
 - a. it kills bacteria that are not killed by amoxicillin
 - b. it reduces renal clearance of amoxicillin
 - c. it counteracts the adverse effects of amoxicillin
 - d. it inhibits beta lactamases that destroy amoxicillin
- 42. The penicillin G preparation with the longest duration of action is:
 - a. benzathine penicillin
 - b. sodium penicillin
 - c. potassium penicillin
 - d. procaine penicillin
- 43. The aminoglycoside that can be used in amoebiasis is:
 - a. paromomycin

- b. framycetin
 - c. amikacin
 - d. netilmicin
44. Which of the following agents is not a broad spectrum antibiotic:
- a. ampicillin
 - b. tetracycline
 - c. chlorempenicol
 - d. gentamicin
45. Probenacid increases the plasma concentration of penicillin because:
- a. blocks the renal tubular excretion of penicillin
 - b. prevents the metabolism of penicillin
 - c. displaces penicillin from protein binding sites and thus increases free drug concentration
 - d. acts by all above mechanisms
46. Which of the following drugs enhances GABA actions on the neuromuscular junctions of nematodes and arthropods?
- a. glutamic acid
 - b. ivermectin
 - c. picrotoxin
 - d. pyrantel pamoate
47. Body Surface Area (BSA) is used in calculating chemotherapy doses because:
- a. BSA is an indicator of tumor cell mass
 - b. BSA correlates with cardiac output
 - c. BSA correlates with gastrointestinal transit time
 - d. National Cancer Institute requires that BSA be used
48. Which of the following drugs or drug groups is not useful in the prevention of nausea and vomiting included by cancer chemotherapy?
- a. dexamethasone
 - b. dronabinol
 - c. ketaserin
 - d. ondansetron
49. Which one of the following anticancer drugs acts in the M-phase of the cell cycle to prevent disassembly of the mitotic spindle?
- a. dactinomycin
 - b. etoposide
 - c. paclitaxel
 - d. procarbazine
50. Gamma immunoglobulin is considered
- a. deoxyribonucleic acid (DNA)
 - b. ribonucleic acid (RNA)
 - c. protein
 - d. none of the above
51. The principal active alkaloid of ipecac is:
- a. yohimbine
 - b. caffeine

- c. apomorphine
 - d. emetine
52. Select the drug used in the treatment of filariasis:
- a. diethyl carbamazine citrate
 - b. thialbendazole
 - c. levamisole
 - d. piperazine citrate
53. Amitraz is classified under:
- a. organochlorines
 - b. organophosphates
 - c. pyrethroids
 - d. formamidines
54. The drug of choice for nasal schistosomiasis in cattle is:
- a. carbontetrachloride
 - b. praziquantel
 - c. levamisole
 - d. diethylcarbamazine
55. Long term therapy of enrofloxacin in adult cats result in:
- a. liver failure
 - b. lameness
 - c. gastroenteritis
 - d. blindness
56. The plant rich in cyanogenic glycosides is:
- a. cotton plant
 - b. lucerne
 - c. tapioca
 - d. poppy plant
57. The toxic principle present in castor bean is:
- a. gossypol
 - b. abrin
 - c. ricin
 - d. sanguinin
58. The antidote for propoxur toxicity is:
- a. pralidoxime
 - b. atropine sulphate
 - c. diacetyl monoxime
 - d. thiamine HCl
59. The chemical constituent commonly found in the commercially available mosquito repellants is:
- a. parathion
 - b. allethrin
 - c. amitraz
 - d. bromadiolone
60. Oxalate rich plant among these is:
- a. *Lantana camara*

- b. *Parthenium hysterophorus*
 - c. *Hypericum perforatum*
 - d. *Beta vulgaris*
61. Sui poisoning is caused by:
- a. *Acacia leucophloea*
 - b. *Abrus precatorius*
 - c. *Argemone mexicana*
 - d. *Areca catechu*
62. The antidote for diazepam over dosage is:
- a. adrenaline
 - b. dexametahsone
 - c. flumazenil
 - d. sodium lactate
63. Lufenuron is effective against:
- a. adult flies
 - b. immature ticks
 - c. immature fleas
 - d. adult mites
64. Dimercaptosuccinic acid is the chelating agent for:
- a. copper
 - b. selenium
 - c. iron
 - d. lead
65. Chocolates are toxic to dogs due to the presence of:
- a. aminophyllne
 - b. terbutaline
 - c. theobromine
 - d. pheneramine
66. Cats are highly sensitive to the toxicity of:
- a. pyrethroids
 - b. carbamates
 - c. phenols
 - d. macrolides
67. The therapeutic value of *Allium satium* is as:
- a. antidiarrhoeal
 - b. antibacterial
 - c. purgative
 - d. demulcent
68. The toxicity of copper in animals is enhanced by the low dietary levels of:
- a. manganese
 - b. iron
 - c. Magnesium
 - d. Molybdenum
69. Mottling and patchy loss of dentine appearance of teeth is observed due to the toxicity of:

- a. copper
 - b. zinc
 - c. fluoride
 - d. iron
70. An example for 'lethal synthesis' is the conversion of:
- a. codeine to morphine
 - b. parathion to paraoxon
 - c. phenylbutazone to oxyphenbutazone
 - d. vitamin K to vitamin K epoxide
71. Lindane toxicity is treated by the administration of:
- a. dimercaprol
 - b. d-penicillamine
 - c. phenobarbitone
 - d. scopalamine
72. The action of 2- pralidoxime is to:
- a. inhibit the acetyl cholinesterase enzyme
 - b. activate the acetyl cholinesterase enzyme
 - c. inhibit acetylcholine breakdown
 - d. activate acetyl choline synthesis
73. The drug used for leishmaniasis treatment is:
- a. pyrimethamine
 - b. albendazole
 - c. sodium stibogluconate
 - d. tinidazole
74. The group of antibiotics having an antimalarial effect:
- a. aminoglycosides
 - b. tetracyclines
 - c. carbapenems
 - d. penicillins
75. The drug for neurocysticercosis treatment:
- a. praziquantel
 - b. pyrantel
 - c. piperazine
 - d. bithionol
76. The drug, inhibiting viral reverse transcriptase:
- a. zidovudine
 - b. vidarabine
 - c. rimantadine
 - d. gancyclovir
77. The drug used for influenza A prevention:
- a. acyclovir
 - b. rimantadine
 - c. saquinavir
 - d. foscarnet
78. The anticancer drug of plant origin:

- a. dactinomycin
 - b. vincristine
 - c. methotrexate
 - d. procarbazine
79. Methotrexate is:
- a. purine antagonist
 - b. folic acid antagonist
 - c. antibiotic
 - d. alkylating agent
80. General contraindications for anticancer drugs are:
- a. depression of bone marrow
 - b. acute infections
 - c. severe hepatic and/or renal insufficiency
 - d. all of the above
81. The estrogen inhibitor is:
- a. leuprolide
 - b. tamoxifen
 - c. flutamide
 - d. anastrozole
82. Absolute contraindications of gastric lavage include:
- a. coma
 - b. sulfuric acid
 - c. convulsions
 - d. all of the above
83. Venomous animals are:
- a. those who deliver the poison directly into the victim
 - b. they have specific glands to produce venom
 - c. they have specific apparatus to inject the poison in victim
 - d. all of the above
84. Tramadol is:
- a. an opiate
 - b. it acts on peripheral nervous system
 - c. acts by increasing reuptake of norepinephrine
 - d. none of the above
85. Muscarinic manifestations of organophosphates are treated with:
- a. atropine
 - b. nicotine
 - c. morphine
 - d. naloxone
86. The safest and most efficacious therapy for cyanide poisoning is:
- a. sodium thiosulphate
 - b. hydroxycobalamin
 - c. sodium nitrite
 - d. cobalt EDTA
87. All of the following substances bind well to activated charcoal EXCEPT:
- a. thioridazine

- b. atenolol
 - c. cyanide
 - d. benztropine
88. Which of the following plants is not poisonous?
- a. oleander
 - b. castor bean
 - c. foxglove
 - d. water hemlock
89. Ophitoxemia refers to:
- a. organophosphorous poisoning
 - b. heavy metal poisoning
 - c. scorpion venom poisoning
 - d. snake venom poisoning
90. Pin point pupils are found in all the following toxicities, except:
- a. carbolic acid
 - b. hyoscyamine
 - c. organophosphates
 - d. carbamates
91. Elapidae are:
- a. vasculotoxic
 - b. neurotoxic
 - c. musculotoxic
 - d. nontoxic
92. N- acetylcysteine is antidote of:
- a. acetaminophen
 - b. panadol
 - c. digoxin
 - d. barbiturates
93. Minamata disease is a result of chronic toxicity by one of the following heavy metals:
- a. mercury
 - b. cadmium
 - c. organic lead
 - d. arsine gas
94. White phosphorous is:
- a. inert
 - b. toxic
 - c. non toxic
 - d. none
95. LD₅₀ figures are used as a general indicator of substance's:
- a. chronic toxicity
 - b. subchronic toxicity
 - c. acute toxicity
 - d. sub acute toxicity
96. The word bioaccumulation is associated with one of the following compound:
- a. OCC

- b. OPP
 - c. carbamates
 - d. herbicides
97. Cyanogenic glycoside Amygdalin can be isolated from:
- a. linseed meal
 - b. sorghum
 - c. bitter almond
 - d. acacia leucophloea
98. Melitin, zootoxin mainly found in:
- a. toads
 - b. spiders
 - c. scorpions
 - d. honey bee
99. Identify the non cyanogenate plant:
- a. *Sorghum vulgaris*
 - b. lotus
 - c. calitrophis
 - d. bamboo
100. The ultimate toxicant in urea toxicity is:
- a. NH_3
 - b. NH_4
 - c. CO_2
 - d. NH_3CO_3

ANSWER KEY:

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

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
PHARMACOLOGY AND TOXICOLOGY**

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I. Choose the correct answer

1. Necrosis of the gizzard lining and greenish discoloration of the liver is seen in:
 - a. mycotoxicosis
 - b. lead poisoning
 - c. botulism
 - d. avian influenza
2. _____ species is resistant to plumbism:
 - a. canine
 - b. equine
 - c. porcine
 - d. bovine
3. In plumbism, blue line is composed of:
 - a. lead sulfide
 - b. lead acetate
 - c. lead oxide
 - d. all of the above
4. Teeth and bone should be sent to lab in following poisonous condition:
 - a. fluorine
 - b. copper
 - c. arsenic
 - d. all of the above
5. Toxic ratio of molybdenum to copper in the body is:
 - a. >2:1
 - b. <2:1
 - c. 6:1
 - d. 12:2
6. The word haemolytic crisis is associated with the poisoning of:
 - a. arsenic
 - b. copper
 - c. mercury
 - d. lead
7. Plant toxin which causes cytotoxic anoxia and haemorrhage is:
 - a. *Datura spp.*
 - b. *Pteridium spp.*
 - c. *Lantana spp.*
 - d. *Parthenium spp.*
8. Plant toxin that causes deficiency of thiamine is:
 - a. *Datura spp.*
 - b. *Pteridium spp.*
 - c. *Lantana spp.*

- d. *Parthenium spp.*
9. One of the following organochlorine is least soluble in body fat:
- lindane
 - DDT
 - methoxychlor
 - dieldrin
10. _____ clinical sign is not seen in OPC poisoning:
- hyperthermia
 - salivation
 - miosis
 - convulsion
11. Zearalenone in pigs causes:
- nephritis
 - vulval edema
 - hepatitis
 - none of the above
12. _____ is estrogenic mycotoxin affecting pigs:
- zearalenone
 - aflatoxin
 - t-2 toxin
 - ochratoxin
13. In cattle, terminal dry gangrene in cattle is caused by:
- ergotamine
 - ergometrine
 - sporidesmin
 - both a and b
14. Tricothecenes, a mycotoxin is produced by:
- Fusariumgraminearum*
 - Fusariumroseum*
 - Fusariummoniliformae*
 - Fusariumtricinctum*
15. Ergot toxin is produced by:
- Fusariumtricinctum*
 - Penicilliumviridicatum*
 - Clavicepspurpuria*
 - Pithomyceschartarum*
16. Production of mycotoxin is favoured by all except
- increased oxygen
 - 70% RH
 - 20-25⁰ c temperature
 - 52-55 % moisture
17. A tragedy of gigantic proportion struck Bhopal in 1984 due to
- methyl isocyanate
 - ethyl isocyanate
 - nitrous oxide

- d. all of the above
18. Acid rain is caused by:
- nitric acid
 - sulphuric acid
 - both a and b
 - none of the above
19. Paracetamol is more toxic in:
- dog
 - cat
 - rabbit
 - horse
20. Carbon tetrachloride is primarily a:
- neurotoxicant
 - nephrotoxicant
 - haematotoxicant
 - hepatotoxicant
21. Rubratoxin is produced by:
- Penicilliumrubrum*
 - Penicilliumpurpurogenum*
 - Penicilliumviridicatum*
 - both a and b
22. Salmon poisoning in dogs is caused by:
- Neorickettsiahelmintheca*
 - Penicilliumviridicatum*
 - Penicilliumcyclopium*
 - Penicilliumochraceus*
23. Ochratoxin and citrinin are toxins produced by _____ fungi:
- Penicilliumviridicatum*
 - Penicilliumcyclopium*
 - Penicilliumochraceus*
 - all of the above
24. _____ toxic principal of onion is responsible for haemolytic anaemia:
- chlorinated naphthalene
 - N-propyl disulphide
 - CCl₄
 - none of the above
25. The proteins that are secreted by a bacterial cell into surrounding fluids, and are produced by both Gram-negative and Gram-positive bacteria:
- endotoxins
 - exotoxins
 - ectotoxins
 - all the above
26. Order of tolerance to aflatoxin is:
- Chicken>Guinea fowl>Duck
 - Guinea fowl>Chicken>Duck

- c. Duck>Guinea fowl>Chicken
 - d. Chicken>Duck>Guinea fowl
27. Proliferation of bile ducts in the liver is associated with _____ toxicosis:
- a. aflatoxicosis
 - b. ochratoxicosis
 - c. sulfonamide toxicity
 - d. copper toxicity
28. Which one of the following is not a potent immunosuppressive agent:
- a. T-2 toxin
 - b. aflatoxin
 - c. citrinin
 - d. ochratoxin
29. Mycotoxicosis in animals can be:
- a. teratogenic
 - b. mutagenic
 - c. carcinogenic
 - d. all of the above
30. Emetic syndrome in pigs is caused by _____ fungal toxin:
- a. zearalenone
 - b. tricothecenes
 - c. ochratoxin
 - d. citrinin
31. _____ mycotoxin which causes facial eczema in sheep:
- a. zearalenone
 - b. aflatoxin
 - c. sporidesmin
 - d. ochratoxin
32. Cellulose digestion impairment in ruminants is due to _____ poisoning:
- a. alkali disease
 - b. rubratoxicosis
 - c. oxalate poisoning
 - d. urea poisoning
33. Fungus causing secondary photosensitization in animals is:
- a. *Aspergillus spp.*
 - b. *Trichophyton spp.*
 - c. *Microsporium spp.*
 - d. *Pithomyces spp.*
34. Bright blindness in sheep is caused by:
- a. alkali disease
 - b. rubratoxicosis
 - c. both a and b
 - d. none of the above
35. Antidote for iron dextran toxicity is:
- a. desferrioxamine
 - b. D-Penicillamine

- c. BAL
 - d. both a and b
36. Antidote for paracetamol toxicity:
- a. N-methylGlycine
 - b. N-acetylcysteine
 - c. D-Penicillamine
 - d. Desferrioxamine
37. Death due to cobra envenomation is due to:
- a. acute nephrosis
 - b. hemolysis
 - a. respiratory arrest
 - b. hypotension
38. Which one is comparatively highly toxic to fish and birds:
- a. pyrethroids
 - b. parathion
 - c. rotenone
 - d. DDT
39. Antidote for carbaryl toxicity is:
- a. Atropine
 - b. 2-PAM
 - c. BAL
 - d. DAM
40. The insecticide used in flea repellent in dogs is:
- a. allethrin
 - b. permethrin
 - c. amitraz
 - d. lindane
41. Antidote for warfarin toxicity is:
- a. vitamin K₁
 - b. vitamin K₂
 - c. vitamin K₃
 - d. vitamin C
42. Universal antidote is:
- a. atropine
 - b. acetic acid
 - c. tannic acid
 - d. activated charcoal
43. The word "Suicidal transport/ poisoning is associated with the poisoning of:
- a. *Lathyrism*
 - b. *Abrusprecatorius*
 - c. *Croton tiglium*
 - d. *Seneciojacobae*
44. Phossy jaw condition in sheep is seen with the toxicity of:
- a. alkali disease
 - b. rubratoxicosis

- c. both a and b
 - d. none of the above
45. Example of non-particulate ionizing radiation is:
- a. alpha rays
 - b. beta rays
 - c. UV rays
 - d. gamma rays
46. Animal drowns in its own fluid is associated with:
- a. bromethalin
 - b. bromadiolone
 - c. diphacinone
 - d. ANTU
47. The major site for absorption of poisonous substances for mono-gastric animals is:
- a. large intestine
 - b. small intestine
 - c. colon
 - d. rectum
48. Which of the following binds to acetyl Co A inhibiting citric acid cycle:
- a. arsenic
 - b. fluoroacetate
 - c. malonate
 - d. fumarate
49. Following insecticides are toxic to cats except:
- a. carbophenothion
 - b. imidacloprid
 - c. permethrin
 - d. benzene hexachloride
50. Most appropriate symptomatic and supportive treatment for metaldehyde (molluscicides) toxicity in dogs includes administration of:
- a. vitamin K₁
 - b. diazepam
 - c. phenobarbital
 - d. 4-methylpyrazole
51. In dogs, methylxanthine causes:
- a. cardiotoxic effects
 - b. neurotoxic effects
 - c. both a and b
 - d. none of the above
52. Xylitol toxicity in dogs leads to:
- a. hyperglycemia
 - b. hypoglycemia
 - c. hypercalcemia
 - d. hypocalcemia
53. Toxic substance in onion includes:
- a. N- propyl disulfide

- b. xylitol
 - c. methylxanthine
 - d. none of the above
54. Consumption of sufficient avocado fruit leads to myocardial necrosis in which of the following species:
- a. dogs
 - b. cats
 - c. chickens
 - d. cattle
55. Antagonist of warfarin is:
- a. protamine sulphate
 - b. clopidogrel
 - c. phytylmeneadione
 - d. ethamsylate
56. Most sensitive species for monensin sodium toxicity is:
- a. bovines
 - b. equines
 - c. poultry
 - d. porcines
57. Cobra venom is rich in:
- a. phospholipase
 - b. pseudocholinesterase
 - c. acetylcholinesterase
 - d. thrombin like enzymes
58. Toxic principle in castor bean is:
- a. gossypol
 - b. abrin
 - c. ricin
 - d. sanguinin
59. Chemical compound commonly seen in mosquito repellent is:
- a. allethrin
 - b. parathion
 - c. amitraz
 - d. bromadiolone
60. Antidote for propoxur toxicity:
- a. pralidoxime
 - b. atropine sulphate
 - c. diacetylmonoxime
 - d. thiamine hcl
61. Chocolates are toxic to dogs due to the presence of:
- a. aminophylline
 - b. terbutaline
 - c. theobromine
 - d. none of the above
62. Cats are highly sensitive to the toxicity of:

- a. pyrethroids
 - b. carbamates
 - c. phenols
 - d. macrolides
63. The antidote for diazepam over dosage is:
- a. adrenaline
 - b. dexamethasone
 - c. sodium lactate
 - d. flumazenil
64. The toxic principle of St. John; wort is:
- a. hypericin
 - b. sinigrin
 - c. resinoid
 - d. none of the above
65. The toxic principle of marijuana is:
- a. hypericin
 - b. sinigrin
 - c. resinoid
 - d. none of the above
66. Which species is most commonly affected by horse chestnut:
- a. cattle
 - b. horse
 - c. sheep
 - d. goat
67. Signs of salivation, lacrimation, urination and defecation (SLUD) are most consistent with exposure to _____ chemicals:
- a. carbamates
 - b. pyrethroids
 - c. chlorinated hydrocarbons
 - d. metaldehyde
68. _____ insecticide is most appropriate to use in and around cats:
- a. carbophenothion
 - b. permethrin
 - c. imidacloprid
 - d. benzene hexachloride
69. Treatment of metaldehyde poisoning in dogs involves administration of:
- a. vitamin K₁
 - b. diazepam
 - c. phenobarbital
 - d. 4-methylpyrazole
70. Treatment of choice for ethylene glycol toxicities is:
- a. vitamin K₁
 - b. diazepam
 - c. phenobarbital
 - d. 4-methylpyrazole

71. In cattle hyperkeratosis is commonly seen in _____ poisoning:
- carbontetrachloride
 - chlorinated naphthalene
 - phenol
 - both a and b
72. Demyelination of nerves and intra nuclear inclusion bodies in tubular epithelium is caused in:
- aflatoxicosis
 - botulism
 - lead poisoning
 - adenovirus infection
73. Lead is more toxic to _____ system:
- respiratory system
 - digestive system
 - nervous system
 - renal system
74. Trapping of lead occurs in:
- liver
 - muscle
 - bone
 - heart
75. In horses, stertorous sounds due to laryngeal paralysis is caused by poisoning with:
- arsenic
 - lead
 - selenium
 - molybdenum
76. Progressive motor paralysis is seen in:
- lead toxicity
 - salt toxicity
 - strychnine poisoning
 - none of the above
77. Selenium is competitive inhibitor of _____ heavy metal:
- arsenic
 - copper
 - mercury
 - lead
78. Grunwald test is associated with the poisoning of:
- arsenic
 - copper
 - mercury
 - lead
79. Basophilic stippling is seen in:
- lead poisoning
 - arsenic poisoning
 - copper poisoning

- d. none of the above
80. The word periodic intermittent shifting lameness is associated with following poisoning condition:
- arsenic
 - copper
 - mercury
 - fluoride
81. Enzyme aconitase is inhibited by the following poison:
- arsenic
 - copper
 - mercury
 - fluoride
82. Mottling and patchy loss of dentine appearance of teeth is observed due to toxicity of:
- copper
 - zinc
 - fluoride
 - iron
83. Compulsive hypermotility is associated with:
- lead poisoning
 - mercury poisoning
 - copper poisoning
 - selenium poisoning
84. In ruminants, blue-green coloured faeces is suggestive of:
- lead toxicity
 - copper toxicity
 - mercury toxicity
 - selenium toxicity
85. Gun metal kidney is characteristic of _____ toxicity:
- copper
 - arsenic
 - mercury
 - lead
86. Deficiency of following in sheep predisposes to copper toxicity:
- lead
 - molybdenum
 - mercury
 - all of the above
87. The ideal copper to molybdenum ratio is
- 1:6
 - 6:1
 - 1:2
 - 2:1
88. The word black berry jam spleen is associated with the poisoning of:
- arsenic
 - copper

- c. mercury
 - d. lead
89. Peat scours is associated with _____ poisoning:
- a. arsenic
 - b. copper
 - c. molybdenum
 - d. selenium
90. Pacing gait and spectacled appearance is associated with _____ toxicity condition:
- a. arsenic
 - b. copper
 - c. molybdenum
 - d. selenium
91. Enzootic ataxia and sway back in ewes is caused by:
- a. arsenic poisoning
 - b. copper poisoning
 - c. molybdenum poisoning
 - d. selenium poisoning
92. Aetiology of Dagnala disease is:
- a. selenium toxicity
 - b. selenium deficiency
 - c. oxalate poisoning
 - d. all of the above
93. Selenium toxicosis can be decreased by :
- a. addition of linseed oil
 - b. increase in protein diet
 - c. pretreatment with copper
 - d. all of the above
94. Loss of hairs in mane and tail of horses is associated with the poisoning of:
- a. arsenic
 - b. selenium
 - c. copper
 - d. lead
95. The word “Rooted to one spot” is associated with the toxicity of:
- a. arsenic
 - b. copper
 - c. mercury
 - d. selenium
96. Kicking and looking at abdomen is seen in the poisoning of:
- a. lead
 - b. salt
 - c. botulism
 - d. urea
97. Specimen for histopathological examination in birds suspected with organic arsenic toxicity is:
- a. peripheral nerves

- b. cardiac muscles
 - c. skeletal muscles
 - d. bone marrow
98. An arsenic compound used as growth promoter in poultry is:
- a. roxarsone
 - b. arsanillic acid
 - c. lead arsenate
 - d. sodium arsenite
99. Expired air has garlic odour in _____ poisoning:
- a. phosphorus
 - b. copper
 - c. onion
 - d. all of the above
100. The characteristic acetylene odour and evidence of gastritis upon postmortem is seen in the toxicity of:
- a. warfarin
 - b. formaldehyde
 - c. aluminium phosphide
 - d. phosphorus

ANSWER KEY:

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

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF GENERAL
HELMINTHOLOGY**

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I. Choose the correct answer

1. The head of the tape worm is called:
 - a. rostellum
 - b. acetabulum
 - c. scolex
 - d. proboscis
2. Direct life cycles are characteristic features of:
 - a. trematode
 - b. cestode
 - c. nematodes
 - d. *Acanthocephala*
3. Pouched amphistome is:
 - a. *Paramphistomum*
 - b. *Cotylophoron*
 - c. *Gastrothylax*
 - d. *Echinostoma*
4. The commonest infective stage in nematode life cycle is:
 - a. L₁
 - b. L₂
 - c. L₃
 - d. L₄
5. When a species is named after a person, the name ends in:
 - a. ii
 - b. um
 - c. is
 - d. ensis
6. First stage nematode larva seen in fresh cattle dung is most likely to be:
 - a. *Haemonchus contortus*
 - b. *Dictyocaulus vivipara*
 - c. *Oesophagostomum radiatum*
 - d. *Gaigeria pachyscelis*
7. Find out the temporary parasites from the following options:
 - a. Platyhelminthes
 - b. Nematelminthes
 - c. Dipterans
 - d. Arachnids
8. In the accepted category of taxa, the family follows:
 - a. phylum
 - b. class
 - c. order

- d. genus
- 9. The name of the family ends in:
 - a. inae
 - b. ida
 - c. idea
 - d. oidea
- 10. The host which harbors the sexually mature parasites of some other definitive host:
 - a. carrier host
 - b. reservoir host
 - c. intermediate host
 - d. paratenic host
- 11. The process of the larva coming out of the egg is called:
 - a. hatching
 - b. moulting
 - c. shedding
 - d. exsheathing
- 12. The parasite which is not fully adopted for parasitic life and is capable of independent existence:
 - a. periodic parasite
 - b. temporary parasite
 - c. obligatory parasite
 - d. facultative parasite
- 13. Metacercaria is the infective stage of all trematodes except:
 - a. Fasciolidae
 - b. Paramphistomatidae
 - c. Schistosomatidae
 - d. Echinostomatidae
- 14. Infective larva develops within the egg of:
 - a. *Strongylus vulgaris*
 - b. *Ascaris Suum*
 - c. *Haemonchus contortus*
 - d. *Nematodirus spathiger*
- 15. Cucumber seed shaped gravid segments are seen in:
 - a. *Taenia hydatigena*
 - b. *Dipylidium caninum*
 - c. *Diphyllbothrium latum*
 - d. *Echinococcus granulosus*
- 16. The bladder worm having a thin, transparent cyst wall containing numerous invaginated scolices:
 - a. *Cysticercus*
 - b. *Coenurus*
 - c. *Hydatid*
 - d. *Cysticercoid*
- 17. Hepatotracheal migration is seen in:
 - a. *T. canis*

- b. *S. trachea*
 - c. *S. vulgaris*
 - d. *H. gallinarum*
18. Cercaria of schistosomes remain infective in the environment for:
- a. 5-8 hours
 - b. 1 week
 - c. 1 month
 - d. 1 year
19. Radial stage and metacercaria are absent in the life cycle of:
- a. *Schistosoma*
 - b. *Dicrocoelium*
 - c. *Prosthogonimus*
 - d. *Fasciolopsis*
20. First stage nematode larva seen in fresh cattle dung is most likely to be:
- a. *Haemonchus contortus*
 - b. *Dictyocaulus viviparus*
 - c. *Oesophagostomum radiatum*
 - d. *Gaigeria pachyscelis*
21. The metacestode that is not seen in sheep:
- a. *Hydatid*
 - b. *Coenurus cerebralis*
 - c. *Cysticercus tenuicollis*
 - d. *Cysticercus cellulosae*
22. The trematode that is not seen in man:
- a. *Schistosoma mansoni*
 - b. *Fasciolopsis buski*
 - c. *Paragonimus westermanii*
 - d. *Paramphistomum cervi*
23. Parthenogenesis is found to occur in the life cycle of:
- a. *Strongylus vulgaris*
 - b. *Strongyloides*
 - c. *Haemonchus*
 - d. *Ostertagia*
24. The term used to denote shedding of gravid segments is:
- a. viviparous
 - b. oviparous
 - c. apolytic
 - d. anapolytic
25. Slime balls involved in the life cycle of:
- a. *D. dendriticum*
 - b. *P. explanatum*
 - c. *P. pellucidus*
 - d. *M. benedeni*
26. The dorso-ventrally flat endoparasites, hermaphrodite in nature which lack a body cavity are:

- a. *Acanthocephala*
 - b. nematodes
 - c. cestodes
 - d. tongue worms
27. A highly absorptive outer covering is present in:
- a. flukes
 - b. roundworms
 - c. tapeworms
 - d. tongue worms
28. Hair like worms with reduced corona radiate but well developed copulatory bursa seen in:
- a. *Strongylus*
 - b. *Trichostrongylus*
 - c. *Oesophagostomum*
 - d. *Strongyloides*
29. Lungworms which are referred to as biohelminths:
- a. *Dictyocaulus*
 - b. *Paragonimus*
 - c. *Metastrongylus*
 - d. *Oesophagostomum*
30. The process of inhibited or arrested development in nematodes is:
- a. diapauses
 - b. excystation
 - c. hypobiosis
 - d. histotrophic phase
31. Metacercaria is the infective stage of all trematodes except:
- a. *Fasciolidae*
 - b. *Amphistomidae*
 - c. *Schistosomatidae*
 - d. *Echinostomatidae*
32. Infective larva develops within the egg of:
- a. *Strongylus vulgaris*
 - b. *Ascaris suum*
 - c. *Haemonchus contortus*
 - d. *Fasciola*
33. The gravid segments are apolytic in:
- a. *Taenia hydatigena*
 - b. *Dipylidium caninum*
 - c. *Diphylobothrium latum*
 - d. *Echinococcus granulosus*
34. The bladder worm having a thin, transparent cyst wall containing numerous invaginated scolices:
- a. *Cysticercus*
 - b. *Coenurus*
 - c. *Hydatid*

- d. *Cysticercoid*
35. Hepatotracheal migration is seen in:
- pups infected before 2 to 3 months of age
 - pups infected through paratenic hosts
 - pups infected trans colostrally
 - only in adults
36. In the accepted category of taxa, the family follows:
- Phylum
 - Class
 - Order
 - Genus
37. Radial stage is absent in the life cycle of:
- Schistosomes*
 - Dicrocoelium*
 - Both a and b
 - Only in *Dicrocoelium*
38. The larval stages of *Spirometra* are commonly known as:
- Cysticerci*
 - Hydatid*
 - Coenurus*
 - Spargana*
39. The metacestode that is not seen in sheep:
- Hydatid*
 - Coenurus cerebralis*
 - Cysticercus tenuicollis*
 - Cysticercus cellulosae*
40. The trematode that is not seen in man:
- Schistosoma mansoni*
 - Fasciolopsis buski*
 - Paragonimus westermanii*
 - Paramphistomum cervi*
41. The common mode of infection with *Ancylostoma caninum* are:
- skin penetration
 - ingestion of intermediate host
 - transplacental
 - paratenic hosts
42. The smallest tapeworm of dogs is:
- Taenia taeniaeformis*
 - Dipylidium caninum*
 - Echinococcus granulos*
 - Davainea proglottina*
43. The process of the larva coming out of the egg is called:
- hatching
 - moulting
 - shedding

- d. exsheathing
44. Ingestion of raw bulbs of water plants is the common mode of infection with:
- Opisthorchis sinensis*
 - Fasciola gigantica*
 - Fasciolopsis buski*
 - Taenia solium*
45. The cercariae of *Dicrocoelium dendriticum* clump together and are called as:
- mesocercaria
 - slime balls
 - metacercaria
 - cercaria pigmentata
46. The tapeworm which passes gravid segments that are motile includes:
- Echinococcus granulosus*
 - Taenia solium*
 - Taenia saginata*
 - Diphyllobothrium latum*
47. Parthenogenesis is found to occur in the life cycle of:
- Strongylus vulgaris*
 - Strongyloides*
 - Haemonchus*
 - Triodontophorus*
48. The amphistome species that has the bile ducts as site of predilection is:
- Gastrothylax*
 - Fischoederius*
 - Cotylophoron*
 - Gigantocotyle*
49. Consumption of raw or improperly cooked fish can lead to infection with:
- Fasciolopsis buski*
 - Paragonimus*
 - Diphyllobothrium latum*
 - Eurytrema pancreaticum*
50. The term used to denote shedding of gravid segments is known as:
- viviparous
 - oviparous
 - apolytic
 - anapolytic

ANSWER KEY

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

II. Fill in the blanks

- The parasite which requires a host for completion of life cycle is _____
- The cestode parasites of domestic animals belong to the sub class _____
- The dwarf tapeworm of dog is _____
- Ring worm like lesion in the intestine of sheep is caused by _____
- The *schistosoma cercaria* has _____ which differ from other trematodes
- The muscular glandular type of oesophagus is found in _____ parasites
- Moracco leather appearance is a characteristic lesion of _____ nematode
- The parasitic white scour in the buffalo calves is a condition caused by _____
- The _____ is the cestode parasite responsible for Vitamin B₁₂ deficiency
- Genital sucker is characteristic feature in a amphistome called _____
- The fundamental functional unit of excretory system in platyhelminth is _____
- Immature amphistomes are usually located in _____ part of definitive host
- Triangular shaped with pyriform apparatus is the feature of eggs of _____
- Oesophageal tumours are characteristic in the dogs infected with _____
- The larval form of filarial worms are called as _____
- The scientific name of Guinea worm is _____
- Thorny headed worms are classified under the phylum _____
- Smallest and most pathogenic tapeworm of poultry is _____
- Expand the SNOPAD _____
- The trematode in which the testes are situated posteriorly and the excretory bladder is 'Y' shaped is _____

ANSWER KEY

1	Obligatory parasite	11	Flame cells
2	Eucestoda	12	Duodenum
3	<i>Echinococcus granulosus</i>	13	<i>Moniezia expansa</i>
4	<i>Trichostrongylus colubriformis</i>	14	<i>Spirocerca lupi</i>
5	Bifid tail / Forked tail	15	Microfilaria
6	Spirurid	16	<i>Dracunculus medidensis</i>
7	<i>Ostertagia ostertagi</i>	17	<i>Acanthocephala</i>
8	<i>Toxocara vitulorum</i>	18	<i>Davainea proglattina</i>
9	<i>Diphyllobothrium latum</i>	19	Standardized nomenclature of animal parasitic diseases
10	<i>Cotylophoron cotylophorum</i>	20	<i>Opisthorchis tenuicollis</i>

III. Match the following

- | | | |
|------------------------------------|--------------------------------------|-----|
| 1. Lung fluke | – <i>Toxocara cati</i> | () |
| 2. Oviduct fluke | – <i>Moniezia benedeni</i> | () |
| 3. Double pored tapeworm of cattle | – <i>Syngamus trachea</i> | () |
| 4. Broad fish tapeworm | – <i>Bunostomum phlebotomum</i> | () |
| 5. Arrow headed worm | – <i>Haemonchus contortus</i> | () |
| 6. Hook worm | -- <i>Stephanurus dentatus</i> | () |
| 7. Barbers pole worm | – <i>Prosthogonimus ovatus</i> | () |
| 8. Gape worm | – <i>Diphyllobothrium latum</i> | () |
| 9. Nodular worm | – <i>Paragonimus westerrmanii</i> | () |
| 10. Kidney worm | – <i>Oesophagostomum columbianum</i> | () |

ANSWER KEY

1	2	3	4	5	6	7	8	9	10
5	3	8	6	7	10	2	4	1	9

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF ENTOMOLOGY AND
ACAROLOGY****Dr. Adeppa J and Dr. Krishnamurthy C. M**Department of Veterinary Parasitology
Veterinary College, Bidar - 585 226 (Karnataka)**I. Choose the correct answer**

1. In insects, malpighian tubules are part of:
 - a. excretory system
 - b. reproductive system
 - c. respiratory system
 - d. circulatory system
2. Shape of stigma slits of posterior spiracle of *Stomoxys calcitrans* is:
 - a. L
 - b. S
 - c. M
 - d. X
3. Who first demonstrated the transmission of *Babesia spp* by tick:
 - a. Patrick Manson
 - b. Ronald Ross
 - c. Smith and Kilbourne
 - d. Knipling and Bushland
4. Red mite of poultry birds is:
 - a. *Megninia ginglymura*
 - b. *Dermanyssus gallinae*
 - c. *Cnemidocoptes gallinae*
 - d. *Sarcoptes scabiei*
5. Which of the following insect does not possess biting mouth parts:
 - a. *Stomoxys spp.*
 - b. *Musca domestica*
 - c. *Aedes aegypti*
 - d. *Tabanus spp.*
6. Slipper shaped pupa, cocoon with respiratory filaments is characteristic of:
 - a. black fly
 - b. sand fly
 - c. biting midges
 - d. horse bot fly
7. Type of feeding behavior of mosquito is:
 - a. lapping and sponging
 - b. piercing and sucking
 - c. cutting and sponging
 - d. piercing and lapping
8. Larvae of *Oestrus Ovis* can be identified by the following feature:
 - a. rings of spines pointed toward posterior
 - b. dark transverse dorsal bands
 - c. smooth larvae, no spines

- d. tapering at both ends
9. Which one of the following tick is brevirostrate tick:
- Rhipicephalus microplus*
 - Hyalomma spp.*
 - Ixodes holocuculus*
 - Amblyomma spp*
10. The fly called “Ox Warbles” are responsible for great economic loss to hide traders:
- Booponus intonsus*
 - Hypoderma lineatum*
 - Haematobia irritans*
 - Phormia regina*
11. In____fly the development of larva undergoes inside the nasal passage and mature larva crawls out and pupate in the ground:
- Melophagus ovinus*
 - Oestrus ovis*
 - Hypoderma lineatum*
 - Phormia regina*
12. Urogenital myiasis caused by:
- Musca domestica*
 - Fania scalaris*
 - Gastrofillus intestinalis*
 - Oestrus ovis*
13. *Hyalomma anatolicum* transmit:
- Babesia*
 - Trypanosoma evansi*
 - Theileria annulata*
 - All of the above
14. The winter resting site of first stage larvae of *Hypoderma lineatum* is:
- oesophageal wall
 - skin
 - spinal canal
 - none of the above
15. Spinose ear tick in the ears, dogs, sheep, horses, cattle and other mammals:
- Ixodes hexagonus*
 - Otobius megnini*
 - Rhipicephalus appendiculatus*
 - Dermacentor reticulatus*
16. The caster bean tick is:
- Hyalomma anatolicum antolicum*
 - Ixodes ricinus*
 - Rhipicephalus appendiculatus*
 - Nosomma monstrosus*
17. The vector for Kyasanur forest disease:
- Haemaphysalis spinigera*
 - Boophilus annulatus*

- c. *Ixodes ovatus*
 - d. *Boophilus microplus*
18. The mite which causes ear mange in dog, cat and fox is:
- a. *Notoedres cati*
 - b. *Sarcoptes scabiei*
 - c. *Demodex canis*
 - d. *Otodectes cynotis*
19. The “tumbu fly” deposits eggs in the sleeping places of man, the larva penetrate into the skin and mature:
- a. *Sarcophaga haemorrhoidalis*
 - b. *Cordylobia anthropophaga*
 - c. *Wohlfahrtia magnificia*
 - d. *Booponus intonsus*
20. Yellow fever is transmitted by:
- a. *Culex pipiens*
 - b. *Aedes aegypti*
 - c. *Anopheles gambiae*
 - d. *Anopheles maculipennis*
21. The spirochaete *Borrelia anserina* is transmitted to the fowl by species of:
- a. *Culex*
 - b. *Aedes*
 - c. *Anopheles*
 - d. *Mansoni*
22. The strick tight flea of poultry in which female burrows into the skin causing the formation of swellings which may ulcerate:
- a. *Echidnophaga gallinacea*
 - b. *Ceratophyllus garei*
 - c. *Dasypsyllus gallinulae*
 - d. *Ceratophyllus gallinae*
23. The myxomatosis virus affecting rabbits is transmitted by:
- a. *Leptopsylla segnis*
 - b. *Spilopsyllus cuniculi*
 - c. *Ceratophyllus faciatus*
 - d. *Xenopsylla cheopis*
24. All fleas have:
- a. 2 pairs of wings
 - b. 4 pairs of wings
 - c. 3 pairs of wings
 - d. none of the above
25. *Simulium* spp acts as intermediate host of:
- a. *Babesia* spp
 - b. *Diphylidium caninum*
 - c. *Anaplasma marginale*
 - d. *Leucocytozoon* spp
26. *Linguatul serrata* is found in the naso-pharyngeal region of:

- a. dog
 - b. cattle and buffalo
 - c. sheep and goat
 - d. rabbits
27. The 'Long-nosed' cattle louse, which has an elongated head and body is:
- a. *Lipeureus caponis*
 - b. *Haematopinus quadripertusus*
 - c. *Solenopotes capillatus*
 - d. *Haematopinus eurytenuis*
28. Pizzle strike occurs in the region of :
- a. testes
 - b. scrotum
 - c. prepuce
 - d. tail
29. Canada balsam is:
- a. fixative agent
 - b. clearing agent
 - c. preservative
 - d. mounting agent
30. Longirostrate tick is:
- a. *Haemaphysalis spp.*
 - b. *Hyalomma spp.*
 - c. *Rhipicephalus spp.*
 - d. *Boophilus spp.*
31. Larviparous fly is:
- a. *Tabanus striatus*
 - b. *Musca domestica*
 - c. *Oestrus ovis*
 - d. *Gastrophilus nasalis*
32. Seat of predilection of *Gastrophilus intestinalis* is:
- a. stomach
 - b. duodenum
 - c. large intestine
 - d. rectum
33. Boat shaped eggs with lateral floats are present in:
- a. *Culex*
 - b. *Aedes*
 - c. *Anopheles*
 - d. *Culicoides*
34. Hexagonal basis capitulum is seen in:
- a. *Hyalomma*
 - b. *Rhipicephalus*
 - c. *Boophilus*
 - d. *Haemaphysalis*
35. Coarctate pupa is a feature of:

- a. *Simulium*
 - b. *Phlebotomus*
 - c. *Tabanus*
 - d. *Stomoxys*
36. Bird Malaria is transmitted by:
- a. *Anopheles*
 - b. *Culicoides*
 - c. *Culex*
 - d. *Haematopota*
37. Stink glands are present in:
- a. fleas
 - b. bugs
 - c. lice
 - d. ticks
38. "Red mange" in dogs is caused by:
- a. *Chorioptes canis*
 - b. *Otodectes cynotis*
 - c. *Sarcoptes scabiei*
 - d. *Demodex canis*
39. Ram's head appearance of pupa is seen in:
- a. *Simulium*
 - b. *Tabanus*
 - c. *Culicoides*
 - d. *Phlebotomus*
40. Trichodectes canis transmits:
- a. *Ancylostoma caninum*
 - b. *Toxocara canis*
 - c. *Dipylidium caninum*
 - d. *Diphyllobotrium latum*
41. An example of chitin synthesis inhibitor is:
- a. methoprene
 - b. diflubenzuron
 - c. permethrin
 - d. propoxur
42. A primary myiasis producing fly is:
- a. *Sarcophaga*
 - b. *Musca*
 - c. *Chrysomia*
 - d. *Lucilia*
43. Owl midge is one of the common names of:
- a. *Simulium spp.*
 - b. *Culicoides spp.*
 - c. *Anopheles spp.*
 - d. *Phlebotomus spp.*
44. Kala-azar in human being is transmitted by:

- a. black fly
 - b. sand fly
 - c. house fly
 - d. horse fly
45. TickGARD vaccine was developed against:
- a. *Hyalomma anatolicum*
 - b. *Amblyomma spp*
 - c. *Rhipicephalus microplus*
 - d. *Haemaphysalis spinigera*
46. Babesiosis in dog is transmitted by:
- a. *Rhipicephalus sanguineus*
 - b. *Hyalomma marginatum*
 - c. *Boophilus annulatus*
 - d. *Ixodes scapularis*
47. Mule's operation is done on sheep to prevent:
- a. tick infestation
 - b. mite infestation
 - c. blow fly strike
 - d. lice infestation
48. The following drug is contraindicated in canine demodicosis:
- a. ivermectin
 - b. amitraz
 - c. corticosteroid
 - d. vitamin B complex
49. Which one of the following fly is an obligatory myiasis producer:
- a. *Oestrus ovis*
 - b. *Chrysomia megacephala*
 - c. *Sarcophaga spp.*
 - d. *Musca domestica*
50. Oestrus ovis fly is:
- a. viviparous
 - b. larviviparous
 - c. ovoviviparous
 - d. pupiparous

ANSWER KEY

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

ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF PROTOZOOLOGY

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I . Choose the correct answer

1. Cerebral form of babesiosis is more common in the infection due to:
 - a. *Babesia bigemina*
 - b. *B. bovis*
 - c. *B. divergens*
 - d. *B. equi*
2. The causative agent of *Dum dum fever* is:
 - a. *Leishmania donovani*
 - b. *L. tropica*
 - c. *Trypanosoma equiperdum*
 - d. none of the above
3. Sporogony in *Babesia bigemina* takes place in:
 - a. vector
 - b. host RBCs
 - c. lymph nodes
 - d. environment
4. In toxoplasmosis abortions are more likely to occur in:
 - a. cattle
 - b. sheep
 - c. horse
 - d. cat
5. The causative agent of Tibarsa in camels is:
 - a. *Trypanosoma evansi*
 - b. *T. brucei*
 - c. *T. vivax*
 - d. *T. cruzi*
6. The life cycle of *Babesia bigemina* was discovered by:
 - a. Ronald Ross
 - b. Babes
 - c. Smith and Kilbourne
 - d. Antony Van Leewenhoek
7. *Trypanosoma* spp. found in intracellular location is:
 - a. *Trypanosoma evansi*
 - b. *T. Cruzi*
 - c. *T. Equiperdum*
 - d. *T. Brucei*
8. The part of the intestine affected by *Eimeria brunetti* is:
 - a. rectum
 - b. caecum
 - c. anterior part of small intestine
 - d. middle of small intestine

9. The gamonts of *Hepatozoon canis* are found in:
 - a. erythrocytes
 - b. lymphocytes
 - c. neutrophils
 - d. macrophages
10. *Histomonas meliagridis* is transmitted by the eggs of:
 - a. *Ascaridia galli*
 - b. *Heterakis gallinae*
 - c. *Syngamus trachea*
 - d. *Subulura brumpti*
11. The stage of parasite found in vertebrate hosts in trypanosomes:
 - a. *Amastigote*
 - b. *Epimastigote*
 - c. *Trypomastigote*
 - d. *Promastigote*
12. Transverse binary fission is the mode of multiplication in:
 - a. amoeba
 - b. ciliates
 - c. haemoprotozoa
 - d. giardia
13. The enteroepithelial cycle in *Toxoplasma gondii* occurs in:
 - a. felines
 - b. canines
 - c. nonfelines
 - d. herbivores
14. Transovarian transmission is commonly noticed in:
 - a. *Theileria*
 - b. *Babesia*
 - c. *Plasmodium*
 - d. *Trypanasoma*
15. Winter coccidiosis in cattle is attributed to:
 - a. *Eimeria bovis*
 - b. *E. zuernii*
 - c. *E. cylindrica*
 - d. *E. ellipsoidalis*
16. Steatorrhoea is a common clinical manifestation in:
 - a. amoebiasis
 - b. coccidiosis
 - c. toxoplasmosis
 - d. giardiasis
17. The person who discovered the life cycle of human malaria organism is
 - a. Laveran
 - b. Ronald Ross
 - c. Grassi
 - d. None of them

18. The second generation of merozoites of *Plasmodium relictum* is
 - a. Merozoites
 - b. Schizonts
 - c. Metacryptozoites
 - d. Cryptozoites.
19. *Balantidium coli* produces
 - a. hyaluronidase
 - b. chymotrypsin
 - c. haemolysin
 - d. none of them
20. Jones test is used to diagnose
 - a. Amoebiasis
 - b. Leshmaniasis
 - c. Mal-de-caderas
 - d. None of them
21. The study of protozoan parasites was made possible due to the invention of microscope by
 - a. Francesco Redi
 - b. Sir Ronald Ross
 - c. Antony Van Leeuwenhoek
 - d. Linnaeus
22. Transmission of a protozoan parasite by an arthropod was first demonstrated by
 - a. Kuchemeister
 - b. Smith and Kilbourne
 - c. Sir Ronald Ross
 - d. Rudolphi
23. Haemoprotozoan parasites are commonly stained using
 - a. Geimsas stain
 - b. Trichrome stain
 - c. Carmine stain
 - d. Lugol's Iodine
24. The first pathogenic trypanosome species of mammals was isolated in India by
 - a. Ronald Ross
 - b. Smith and Kilbourne
 - c. Babes
 - d. Griffith Evans
25. In Sarcocystis infection, endopolygony in the intermediate host occurs in:
 - a. enteric cells
 - b. blood cells
 - c. hepatic cells
 - d. endothelial cells
26. Elongate form with kinetoplast posterior to nucleus with undulating membrane and free flagellum is called:
 - a. amastigote
 - b. trypomastigote

- c. promastigote
 - d. epimastigote
27. Maltese cross type of orientation of parasites is a feature of:
- a. *Babesia ovis*
 - b. *B. equi*
 - c. *B. divergens*
 - d. *None of the above*
28. The cause of Tropical Theileriosis is:
- a. *Theileria parva*
 - b. *T. annulata*
 - c. *T. orientalis*
 - d. *T. lawrenci*
29. The large form of Babesia found in sheep is:
- a. *Babesia ovis*
 - b. *Babesia motasi*
 - c. *Babesia divergens*
 - d. *Babesia taylori*
30. The causative agent of oriental sore is:
- a. *Leishmania donovani*
 - b. *L. tropica*
 - c. *Trypanosoma equiperdum*
 - d. *None of the above*
31. Trypanosome species found in the intracellular location is:
- a. *T. evansi*
 - b. *T. cruzi*
 - c. *T. equiperdum*
 - d. *T. brucei*
32. Sporogony in *Babesia bigemina* takes place in:
- a. tick vector
 - b. host RBCs
 - c. lymph nodes
 - d. environment
33. Extra intestinal development of *Toxoplasma gondi* occurs in:
- a. felines only
 - b. felines and intermediate hosts
 - c. intermediate hosts only
 - d. none of the above
34. Stimuli required for the excystation of Sporulated Oocyst is:
- a. bile
 - b. trypsin
 - c. CO₂
 - d. all of the above
35. An acute angle is formed between two Babesia organisms in:
- a. *B. bigemina*
 - b. *B. bovis*

- c. *B. divergens*
 - d. *B. equi*
36. In Toxoplasmosis abortions are likely to occur:
- a. in 1st pregnancy only
 - b. during any pregnancy
 - c. during all pregnancies
 - d. none of the above
37. Inverse age resistance is observed in:
- a. trypanosomosis
 - b. coccidiosis
 - c. babesiosis
 - d. theileriosis
38. Indian Kala azar is dependent on:
- a. canine infection
 - b. feline infection
 - c. porcine infection
 - d. none of them
39. The First generation of merozoites of *Plasmodium relictum* are called:
- a. merozoites
 - b. schizonts
 - c. metacryptozoites
 - d. cryptozoites
40. The causative agent of enterohepatitis in turkeys:
- a. *Syngamus trachae*
 - b. *Histomonas meleagridis*
 - c. *Heterakis gallinae*
 - d. None of them
41. Stercorarian Trypanosome of bovines in India causes diseases during stress condition:
- a. *Trypanosoma evansi*
 - b. *T. cruzi*
 - c. *T. equiperdium*
 - d. *T. theileri*
42. The causative agent of Equine protozoal meningo encephalitis:
- a. *Trypanosoma evansi*
 - b. *Neospora hughesi*
 - c. *Sarcocystis neurona*
 - d. *Neospora caninum*
43. Opportunistic protozoa cause serious disease in:
- a. immunologically competent persons
 - b. immunodeficient individuals
 - c. in all groups of people
 - d. those closely associated with pet animals
44. Drug of choice for tropical theileriosis in cattle:
- a. anthiomaline

- b. fascinex
 - c. closental
 - d. butalex
45. *Anaplasma marginale* belongs to order:
- a. Kinetoplastorida
 - b. Eucoddidiorida
 - c. Rickettsiaceae
 - d. None of them.
46. Predominant immunoglobulin seen in bovine Trypanosomosis is:
- a. Ig A
 - b. Ig M
 - c. Ig G
 - d. Ig E
47. Sporulated Oocyst are shed by:
- a. *Isospora sp*
 - b. *Sarcocystis sp*
 - c. *Toxoplasma sp*
 - d. *Plasmodium sp*
48. Mature cyst of *Giardia lamblia* contains:
- a. no nuclei
 - b. two to four nuclei
 - c. four nuclei
 - d. eight nuclei
49. Erythrophagocytosis is the main cause of anaemia in:
- a. trypanosomosis
 - b. pigeon malaria
 - c. malaria
 - d. all of the above
50. Winter coccidiosis is caused by:
- a. *Eimeria zurnii*
 - b. *Eimeria brunette*
 - c. both of the above
 - d. *Emeria bovis*

ANSWER KEY

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

ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY PUBLIC HEALTH AND EPIDEMIOLOGY**Dr. Arun Kharate and Dr. Lina Dhote**

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I. Choose the correct answer

1. Borrelliosis is also called as:
 - a. atypical pneumonia
 - b. lyme disease
 - c. lyme arthritis
 - d. erythema chronicum migrans
2. Human being is must for completion of life cycle in:
 - a. non obligatory cylozoonoses
 - b. metazoonoses
 - c. obligatory cyclozoonoses
 - d. all of the above
3. Circling disease in sheep is caused due to:
 - a. *Listeria monocytogenes*
 - b. *Leishmania donovani*
 - c. *Leptospira interrogans*
 - d. None of the above
4. Q fever is frequently found in the following:
 - a. blood and sputum
 - b. milk and urine
 - c. placenta and spleen
 - d. all of the above
5. The *Brucella* organisms have affinity for:
 - a. erythritol
 - b. dulcitol
 - c. lactose
 - d. mannitol
6. The term zoonoses was first used by:
 - a. Pasteur
 - b. Lister
 - c. Virchow
 - d. Ostertag
7. 17 D vaccine is used as preventive measure in:
 - a. yellow fever
 - b. brucellosis
 - c. west Nile fever
 - d. Japanese encephalitis
8. In metazoonoses no. of host requirement is / are:
 - a. 1
 - b. 2

- c. 3
 - d. 4
9. The most important portal entry of leptospirosis is:
- a. ingestion
 - b. skin
 - c. air borne
 - d. none of the above
10. Example of metazoonoses is:
- a. cutaneous larva migrans
 - b. listeriosis
 - c. brucellosis
 - d. plague
11. Epidemiology is the study of disease in:
- a. herd
 - b. population
 - c. drone
 - d. group of animals
12. Mallein test is employed for the diagnosis of:
- a. John's disease
 - b. Glanders
 - c. Tuberculosis
 - d. None of the above
13. *Echinococcus granulosus* a cause of hydatidosis which is a:
- a. cestode
 - b. nematode
 - c. trematodes
 - d. none of the above
14. Example of synanthropic animal is:
- a. cattle
 - b. fish
 - c. rodent
 - d. dog
15. Ringworm infection is caused by:
- a. *Dermatophillus*
 - b. *Tricophyton*
 - c. *Nocardia*
 - d. *Candida*
16. Vertically transmitted parasitic zoonotic disease is:
- a. trypanosomiasis
 - b. hydatidosis
 - c. toxoplasmosis
 - d. leishmaniasis
17. The laboratory animal of choice for rabies diagnosis is:
- a. rabbit
 - b. pig

- c. mouse
 - d. all of the above
18. KFD is transmitted through bite of ticks belonging to genus:
- a. *Aedes aegypti*
 - b. *Haemophysalis spinigera*
 - c. *Haemophysalis intermedia*
 - d. *Culex*
19. Transovarian type of transmission is:
- a. biological
 - b. mechanical
 - c. direct
 - d. none of the above
20. Example of poikilothermic vertebrate is:
- a. fish
 - b. cattle
 - c. dog
 - d. monkey

II. Fill-up the blanks with most appropriate answer:

MEAT SCIENCE

1. Rigor mortis time of
2. Chilled meat temperature is
3. Chilled offal temperature is
4. Frozen temperature of meat is
5. Cooked meat temperature is
6. Thawing temperature of meat is
7. Freezing point of meat is
8. Presence of watery or blood stained fluid from frozen meat is called
9. Scalding temperature of pig is
10. Black cartridge used for slaughtering
11. In electrical stunning low voltage temperature is
12. In stunning if current is not sufficient it lead to
13. Act of slaughter in jewish method is
14. First slaughter house
15. Phosphorous level of meat and blood
16. Mould formation is common in
17. Process of freeze drying called
18. Sterilization by radiation called
19. Marbling absent in
20. Musky odour seen in
21. PSE occurs mostly in pig, DFD is common in
22. One animal unit =one bovine=2 pigs=3 calves = 5 sheep
23. Overhead rails should be placed at the height of
24. Meat of deer is called
25. Dressing % of veal
26. Art of removing skin/hide is called

27. Fresh, emulsion type of pork sausage called
28. is higher in pork
29. Water level of meat is
30. Milk has an excellent source of Ca and P and low in.....
31. Self life of vacuum packaging is.....
32. Musty/earthy odour due to and fishy odour due to
33. is the name of young guinea fowl
34. Cow slaughter is banned in India except in states of and.....
35. is responsible for development of brown colour on the surface of cured meat
36. Black rot in eggs is cause by and
37. Lateral retro pharyngeal lymph node is used to rule out
38. Hemal lymph node absent in and
39. Water : protein ratio of young animal
40. Muscle : Bone ratio for healthy animals
41. Red rot caused by
42. Buffalo meat is white due to absence of
43. Vitamin A present in beef and mutton absent in, And.....
44. Giblet consisting of, and
45. Poultry meat contain high level of..... and acid and low level of
46. The onset of rigor mortis is enhanced at ambient temperature above
47. In plate type freezer achieved at the temperature of°C and blast type freezer achieved at°C
48. Canned meat products have a shelf life of
49. consumption of horse meat
50. consumption of dog meat
51. Weight taken 24hrs prior to slaughter is considered as of the animal
52. PLUCK in cattle, and Sheep also Pigs also
53. Meat inspector in his one day work (8hrs) can examine – cattle/..... pigs/..... calves/..... sheep
54. Glycogen content in horse 0.5-1%
55. Refractive index is high in
56. Feed efficiency >..... >..... >.....
57. Dressing percentage of pig
58. Ritual method practiced in India is and method
59. Gut sweat bread
60. Reducing agent used in curing is.....
61. Ultimate pH level of meat is.....
62. Process of conversion of muscle to meat called.....
63. Rigor mortis occurs hrs after slaughtering

ENVIRONMENTAL HYGIENE

64. The candle of Pasteur Chamber land filter is made of and that of Berkefeld filter is made of
65. The bactericidal action of Ktadyn filter is due to the ation of silver ions
66. The UV rays disinfection of water involves the exposure of a fim of water about
67. The most effective and cheapest way of disinfecting wells is by and should not use
68. Chlorine demand of well water can be estimated by using
69. The double pot method of chlorination is a method devised by.....
70. Water with turbidity of more than nephelometric turbidity units (NTU) is usually noticeable to the naked eyes
71. The WHO (2011) guideline value for colour of drinking water is
72. The standard prescribed level for chloride in drinking water is and maximum permissible level is.....
73. Levels of ammonia in ground and surface water are and that in anaerobic ground water is.....
74. Acceptable pH of drinking water is between ANS: 6.5 and 8.5
75. The taste and odour threshold of hydrogen sulphide in water are estimated to be between.....
76. Water with total dissolved solids (TDS) below is usually acceptable and that with a TDS level below is considered to be good.
77. The presence of faecal indicate recent faecal pollution of water
78. Disinfection with 0.5mg/L of free chlorine residual after contact period of..... minutes at a pH of..... is sufficient to inactivate virus
79. Cadmium accumulates primarily in the.....
80. is the main target organ for inorganic mercury and that for methyl mercury is
81. The upper limit of concentration of carbon tetrachloride in water is
82. The upper limit of concentration of DDT in water is
83. High levels of fluoride causes of dental enamel
84. High nitrate content of water is associated with
85. is an estimate of the amount of a substance in food or drinking water that can be ingested daily over a lifetime without appreciable health risk.
86. is the highest dose or concentration of a chemical in a single study, found by experiment that causes no detectable adverse health effect.
87. is the lowest observed dose or concentration of a substance at which there is detectable adverse health effect.
88. The effects of radiation exposure are called if they become manifest in the exposed individual, and if they affect the descendants.
89. is the most important delayed somatic effect of radiation
90. In membrane filtration technique for testing the presence of coliform organisms membranes are used.
91. The hardness in water is caused mainly by the bicarbonates and sulphates of

92. One milli-equivalents per litre of hardness producing ion is equal to of CaCO_3 .
93. Level of hardness in soft water is
94. Level of hardness of moderately hard water is
95. Level of hardness in hard water is L
96. Level of hardness in very hard water is
97. Water of zero hardness has action
98. The recommended maximum limit of concentration of Arsenic in drinking water is
99. The recommended maximum limit of conc of Antimony in drinking water is
100. The recommended maximum limit of concentration of Cd in drinking water is
101. The recommended maximum limit of concentration of Fluoride in drinking water is
102. The recommended maximum limit of concentration of Lead in drinking water is
103. The recommended maximum limit of concentration of Manganese in drinking water is
104. The recommended maximum limit of concentration of Mercury (total) in drinking water is
105. The recommended maximum limit of concentration of Nitrate in drinking water is.....
106. The recommended maximum limit of concentration of Nitrite in drinking water is ...
107. The recommended maximum limit of concentration of Selenium in drinking water is
108. As per WHO, potable water should have coliform count.
109. Slow sand filter removes up to microorganisms from water.
110. is known as heart of biological filter.
111. Minamata disease is caused by metal
112. The commercially available bleaching powder contains of available chlorine.
113. Excessive amount of in drinking water causes interference in calcification of teeth resulting in mottled teeth.
114. The gas Bhopal gas tragedy was in the year
115. The drainage area of well is times that of its depth.
116. Hardness in water is expressed in terms
117. Mercury is present in form in surface water.

EPIDEMIOLOGY

118. Investigate relationship between disease and hypothetical causal factors in specified population.
119. is comparison of exposed group with non exposed group to the factors with respect to development of disease.
120. is any observable event that can vary.
121. Survey records events occurring for a long period of time.....
122. Factors are associated with the definite onset of disease.
123. Time of occurrence of a disease constitute..... distribution
124. Place of occurrence of disease constitute distribution
125. is the number of instance of disease or related attribute in a known population at designated time, without distinction of new and old cases.

126. is the number of new cases occur in a known population over a specified period of time.
127. is the proportion of cases of a contagious disease that develop as a result of contact with primary cases.
128. If all animal in a population are surveyed then it is known as.....
129. If relative risk is more than one it denotes
130. is the decrease in mortality and morbidity.
131. Examples for primary prevention
132. Animal which excrete agents during recovery period is known as
133. Constant occurrence of disease in a population or usual frequency of occurrence of disease is known as
134. Sudden unpredictable number of cases in a population
135. Widespread epidemic
136. Irregularly and haphazardly occurring diseases are known as.....
137. Amount of disease in a population is given by.....
138. Amount of death in a population is given by.....
139. Extinction of an agent
140. Culling of infected animals during epidemic is often accompanies by the slaughter of animals that may have been exposed to infection and therefore be at risk of developing disease is known as.....
141. Proportion of animals that are resistant to infection or disease in population
142. Foci of infection.
143. An area that has ecological, social, and environmental condition that can support a disease is known as.....
144. is a nosogenic territory in which a particular disease is present.

ZOONOSSES

145. Hydatidosis in man is termed as
146. Visceral leishmeniasis is known as
147. Young animals are more susceptible to while old animals are more susceptible to.....
148. World zoonoses day is observed on
149. Bovine spongiform encephalopathy is known as
150. Disease transmitted by *Xenopsylla cheopis* is
151. Leptospirosis is also called as
152. Hospital acquired disease s termed as
153. Father of modern microbiology is
154. are found in hydatidosis.
155. is synonym for Aspergillosis.
156. Vector that transmits chikungunya is.....
157. Chandipura virus was first observed in

EXPAND THE FOLLOWING ABBREVIATION

158. OIE
159. PAHO
160. CDC

161. FAO
162. WHO
163. HSADL
164. NICD:
165. NEERI:
166. NIVEDI:
167. WOAHA:
168. CPCB:
169. ICMSF:
170. NDDB:
171. FSSAI
172. IAMFES:

MILK SCIENCE

173. The test used for neutralisers in milk is
174. The process of freeze-drying is called as
175. The quality standard for grading, packaging and marketing of ghee and butter are given by
176. The test for detection of icterus fat is
177. In India the milk-market industry started in the year.....
178. Operation flood was started in the year.....
179. In pig, iodine value of fat.....
180. *Serratia marcescens* gives which colour to milk
181. Refractive index in horse is
182. Test specifically done to detect cotton seed oil in ghee
183. Father of Veterinary public health
184. As per the BIS, pasteurised milk has SPC/ml of milk.
185. Equipment used for assessing the freshness of fish
186. Fecal coliform in dairy product are detected by.....
187. Commonly used colouring agent in the milk to make is more attractive is
188. The sterilization by radiation is called as.....
189. The iron binding milk protein, which inhibit the multiplication of bacteria by depriving of iron is
190. Present director general of WHO is
191. World health day falls on
192. Flavouring agent used in butter is
193. Milk sourness is due to
194. Cooked flavour of heated milk is due to formation of
195. The fat content of milk is calculated by
196. Fat is present in milk as
197. Hortwet apparatus is used to measure
198. Vitamins lost during process of pasteurization and sterilization of milk are..... and
199. is responsible for milk fat synthesis.
200. is responsible for milk sugar.
201. Size of fat globule in homogenised milk is

202. Natural preservative present in milk.....
203. Biological values of cow and buffalo milk are and
204. Milk protein contain essential amino acids in an adequate amount. They are particularly rich in and (amino acids)
205. Viscosity of milk is measured by
206. Refractive index of milk is measured by.....
207. Density of milk is measured by.....
208. Surface tension of milk is measured by.....
209. Pasteurization of milk under reduced pressure by direct steam is known as
210. The test used to detect inadequacy of pasteurization is
211. Material that is mainly used for the manufacturing of dairy utensils is
212. The heart of the milking machine is known as
213. Milking utensil should be sanitised with before use.
214. The product obtained by acid coagulation fo hor milk and subsequent drainage of whey is known as
215. milk is always preferred for khoa making
216. Adulteration of milk fat with hydrogenated vegetable oils like vanaspathi is detected by test.
217. The casein content of buffalo milk and cow milk are respectively and
218. is self carbonated milk beverage
219. Kumiss is originally prepared only from milk(species)
220. The ideal interval between two successive milking should be Hrs.
221. test is used for detection of mixing of cow and buffalo milk.
222. Adulteration of milk with water is best judged by determination of
223. Commercially most important constituent of milk is
224. Milk component responsible for the texture and miscibility of millk product is
225. The method adopted for cleaning the equipment sin bigger dairies is which saves time and labour and is cost effective.
226. The time temperature combination for LTLT/batch Pasteurization is
227. The time temperature combination for HTST Pasteurization is
228. The three essential component of LP system are and
229. and when added at the rate of 30:30 mg/lit improves the keeping quality of millk to 10 hrs at 37°C.
230. Lactoperoxidase present in bovine milk in the concentration of
231. are those which ensure elimination of hazard and those designated as are either points at which a hazard can be controlled but not eliminated.
232. The establishment of system is very essential for ISO 9000 recognised methods of quality certification.
233. MBRT standard for pasteurised milk is hrs.

234. About (number) components of compliment are present in human milk, and they are associated with antibacterial properties of milk.
235. is nitrogen containing oligosaccharide present in the human milk which supports the growth of *Bifidobacteria* in infants. This organism helps in the maintenance of intestinal health.
236. test gives an indication about the susceptibility of milk to heat processing and its keeping quality.
237. test can be used to rapidly and specifically determine Gram negative bacteria which produce lipopolysaccharide(endotoxins) in foods.
238. Technique is one of the direct methods for enumeration of bacteria in milk and milk products which is inexpensive and correlates well with SPC.
239. is a rapid method for enumeration for both viable and non-viable organisms in milk.
240. technique is used for counting viable bacteria in milk.
241. A storage temperature of°C is recommended for the shelf-life tests.
242. test is used to determine the efficacy of the sterilization process and aseptic package of dairy products.
243. test estimates the bacterial density in the milk.
244. The most important source of phages is
245. ions are essential for the proliferation of phage and for its penetration into the bacterial cell.
246. For completer destruction of phages heating at°C for minutes is necessary.
247. The ingestion of viable pathogenic bacteria along with food leads to their lodgement and establishment tin consumers organs is known as
248. Ingestion of toxins already produced by microorganism in the food brings about poisoning syndrome in the consumers is known as
249. Certain group of organisms which can infect intestine when ingested along with the food and produce toxin in-situ to bring about symptoms of poisoning is known as
250. The radionucleotide likely to be found in milk are,, and
251. Prevention of food adulteration (PFA) was enacted in the year.....
252. The abbreviated form of “Agricultural Marketing” is
253. The BIS (Formerly known as Indian Standards Institution) was established under provision of India Standard Act in the year.....

MEAT SCIENCE

254. The preservation of food in a hermetically sealed container through the agency of heat resulting in sterilization or pasteurization of product id known as
255. The removal of skin is termed as
256. is the addition of salt and nitrate/nitrite or nitric oxide to the meat, which results in a conversion of meat pigments, predominantly myoglobin, to nitroso or cured meat.

257. During transportation of food animals the speed of the truck should not exceed km per hour.
258. is an area intended for providing rest to the animals arriving at the abattoir for slaughter.
259. In no circumstances the detention of animals in lairage should exceed hrs.
260. Bleeding time required for cattle is mins while that for sheep and pig is mins.
261. A sharp pointed instrument is introduced at the junction of atlas and occipital bone to sever the medulla oblongata which makes the animal unconscious is adopted in method of slaughtering.
262. Bright red colour of meat is due to
263. Brown colour of meat is due to
264. Pink colour of cured meat is due to
265. Vitamin found in highest amount in animal meat
266. Vitamin found in highest amount in poultry meat
267. Meat filled casing is known as
268. The most commonly used method of disposal of carcass is
269. Preferred method of disposal of anthrax carcass is
270. Incinerator temperature for carcass disposal is
271. rays are the cheapest and most frequently used radiation in food preservation.
272. Chilling temperature should not exceed for carcass and for offals.
273. Space required in lairage per animal m² for buffalo/cattle and m² for small ruminants
274. Intramuscular fat is known as while intermuscular fat is known as
275. Eating of horse flesh is known as while eating dog flesh is known as
276. The process of tanning sheep's skin with fish oil to make it soft and pliable is known as
277. Recovery of fat from the dead carcass is known as
278. Too high current and too low current during electrical stunning may cause and respectively
279. Carcass fit for Jewish consumption is stamped with
280. Carcass unfit for Jewish consumption is stamped with
281. Pre-slaughter anaesthesia with CO₂ is mainly used for stunning in
282. Concentration of CO₂ and exposure time in case of chemical stunning should be
283. In method feeding and watering done before slaughtering.
284. Most widely used method of stunning in cattle and buffalo is
285. Puntilla is used in method
286. Meat is generally a good source of all minerals except
287. Slaughter without prior stunning is known as

288. Average biochemical oxygen demand (BOD) of effluent of an abattoir is
289. Stiffness during Rigor Mortis is mainly due formation of
290. The strength of chlorine required for sanitation of abattoir plat is in the range of PPM
291. Animal should be bled within seconds after electrical stunning to avoid muscle splashing.
292. The organ which is quickly affected by rigor mortis , usually within one hr of slaughter is
293. The best system of dressing of carcass for medium to large size abattoir is
294. A narrow distance between lairage and slaughter house is known as race, the length of race should be
295. The most widely used method of preservation of meat for short term storage is
296. The method of choice for long term preservation of meat is
297. The shelf life of carabeef, beef, mutton and chevon at freezing temperature of -18°C is
298. The shelf life of pork and poultry meat at freezing temperature of -18°C is
299. The shelf life of cured and salted meat freezing temperature of -18°C is
300. The oldest method of preservation of meat is
301. Permitted level of nitrates and nitites in cured meat are and respectively.
302. Loss of weight during storage of meat is known as
303. Canned meat product have a shelf life of at least at ambient temperature.
304. 12-D concept is mainly used in industries.
305. Central cleaning system is generally used in processing plants.
306. Glycogen content and myoglobin content is highest in meat.
307. Natural casings are prepared from
308. Condensation of water vapour on meat, brought from a cold store to ordinary room temperature is called as
309. Maximum fat and minimum water content present in meat.
310. Cold shortening and thaw rigor is commonly seen in
311. National research centre on meat is situated at
312. When pre rigor meat is fast chilled below 15°C upto 0°C and 40% muscle shortening takes place is known as
313. When prerigor meat is frozen, a severe type of rigor mortis occurs during thawing and 60-80% muscle shortening takes place is known as
314. In India the working of the e slaughter house is governed by
315. PSE is common in.....
316. DFD meat is common in

317. Fatigue, excited and inadequately rested animals and animals affected with transit sickness should be slaughtered under
318. The situation where an animal is not in acute pain and in no immediate danger of death but is affected with a chronic condition should be slaughtered under
319. is required when animal is in acute pain or is suffering from condition, where delay in slaughter would be contrary to the philosophy of animal welfare.
320. The mesenteric lymph nodes of ox are in colour.
321. In pig the lymph nodes are in colour except those of head and neck which are in colour.
322. Jatka method of slaughter adopted by community in India.
323. refers to the meat of calves which are fed exclusively on milk and slaughtered at the age of 2-4 months.
324. Porcine stress syndrome is also known as, or
325. The process by which blood vessels of the neck(Jugular vein and carotid arteries) are severed to bleed the animal to death is known as
326. Removal of blood vessels in Jewish method of slaughter is called as

ZOONOSES

327. Zoonotic disease which requires two or more vertebrate hosts to complete transmission cycle of an infectious agent is known as
328. Rabies in post mortem material diagnosed by immune-fluorescence test of impression smear of, and
329. The rabies virus can be grown in and cell lines.
330. According to WHO, there are human death from rabies per year in the world.
331. In LEP and HEP antirabies vaccine strain is used.
332. vaccine is used to control rabies in wild animals.
333. The purified verocell rabies vaccine contains the strain of rabies virus.
334. The rabies vaccination of % dogs is sufficient to break the canine transmission chain.
335. Worldwide million persons undergo antirabies treatment/ vaccination each year.
336. The bacteria that does not appear in animal excreta is
337. Irregular fever, insomnia, chills, sweating and joint pain are characteristic symptoms of
338. Causative agent of swimming pool granuloma is
339. Mallein test is employed for the diagnosis of
340. Infections transmitted within different vertebrate species are called as.....
341. Infectious agent capable of infecting only one species of host are known as
342. Infection chains involving direct transmission between vertebrate only are.....

343. The etiological agent of tuberculosis was discovered by
344. The WHO reference centre for brucellosis is located at
345. Non-animal development site is found in zoonoses.
346. Complete removal of infectious organism is known as
347. The first station of quarantine are
348. Profuse watery diarrhoea after consumption of contaminated food is an indication of food poisoning by
349. Rat bite fever is caused by.....
350. In 1957 due to importation of horses in India diseased has entered in India.
351. Significant ante-mortem finding of cutaneous anthrax is
352. Inter-meadiate stage of tapeworm caused measly pork condition in pig is
353. Visceral larval migrants caused by
354. Arthropods are involved in life cycle of type of zoonoses.
355. Hepatization of lungs can be observed in disease condition.
356. and media could be used for isolation of *Y.pestis* from sputum and lymph node
357. In avian species, the epidemic form of *Pasteurella multocida* infection causes
358. *Bacillus anthracis* spore haves been used as an agent of and
359. Cat scratch disease is caused by and in occurs only in but not domestic animals.
360. The etiological agent of skin tuberculosis in cattle is
361. The term dermatophytes is referred to the three genera of fungi which are, and
362. The clinical presentation of dermatophytosis occurs in two clinical form that is and
363. temperature is required for culture of *Histoplasma capsulatum*.
364. *Corynebacterium pseudotuberculosis* causes in humans.
365. Critical inoculums is needed to produce pulmonary anthrax varies from to spores.
366. The Nipah viral disease was first reported in (Country) in the year
367. About percent of dengue patients are children.
368. The chikun gunya virus was first isolated from (country) in 1953.
369. In India the first outbreak of chikun gunya occurred 1964 in (place).
370. Winter vomiting disease is caused by
371. In brucellosis immunoglobulins appear first and and appear later.
372. Brucellosis causes in horses when it comes in contact with infected cows.
373. Sennetsu fever/glandular fever in human is caused by
374. causes chaga's disease or American trypanosomiasis.

375. is the drug of choice in acute phase of chaga's disease.
376. Oldworld cutaneous Leishmaniasis is also known as
377. The drug of choice for Teniasis is and
378. Ringworm or dermatophytosis infect tissue of body.
379. The gold standard test for *Leptospirosis* is
380. *Listeria* is motile at temperature
381. Anton's eye test is used for the diagnosis of
382. Casoni's test is associated with
383. Scrub typhus is caused by
384. Sabinfeldman dye test is used in the diagnosis of
385. Vector involved in the transmission of Japanese encephalitis is
386. Medusa head shape colonies on nutrient agar is typical characteristic of
387. Botulism type-E toxin is associated with
388. Paragonimiasis belongs to the class of zoonoses.
389. First zoonotic disease discussed in the world health assembly was
390. mCCDA is the recommended medium for the isolation of
391. Tumbling motility is the typical feature of (bacteria)
392. Ring-A-Ring-O-Roses a nursery rhyme is inspired by the disease
393. All India Institute of Hygiene and Public Health is located in (place).
394. Expand NVBDCP:
395. and medium is used in *Listeria* isolation.
396., and are staining techniques used for the *Leptospirosis*.
397. medium is used in the isolation of *Mycobacterium tuberculosis*.
398. is the selective medium for the isolation of *Leptospira*.
399. Liquid media like are very useful for growing *Clostridia*.
400. Heble's mouse inoculation test is used for the diagnosis of

EPIDEMIOLOGY

401. The study of disease in a population and the factors that determine its occurrence is called as
402. Outbreak of disease in avian population is known as
403. is widely known as father of veterinary epidemiology.
404. is usually considered as father of epidemiology.
405. is considered as father of modern epidemiology.
406. The making of routine observation of health, productivity and environmental factors and recording and transmission of all these observations is
407. is more intensive form of data recording which includes type of disease, interpretation of data collected and identifying disease individuals.
408. (type of epidemiology) is first part of an investigation which involves observing and recording a disease and possible causal factors.
409. theory of evolution was derived mainly from subjective observation but, with slight modification which was withstood rigorous testing by plant and animal scientists.

410. The type of epidemiology which describe the disease by time of distribution, place of distribution and characteristics of the hosts who affected is
411. type of epidemiology is the analysis of the observation by using the suitable diagnostic and statistical tests.
412. The type of epidemiology where epidemiologist will observe and analyse the data by conducting experiment and he is having control over the group is known as
413. Mathematical models that simulate naturally occurring disease are used in type of epidemiology.
414. Computational epidemiology involves the application of science to epidemiological studies.
415. Field epidemiology is also termed as epidemiology because the investigator is often required to visit the field to study disease.
416. Intype of epidemiology the epidemiologist actively participate with local people.
417. According to health is a state of complete physical, mental and social well being and not merely an absence of disease.
418. is a factor that affects health of an population.
419., and form a triad in epidemiology and when they interact then only disease occurs.
420. The ability of an infectious agent to invade and multiply in a host is known as
421. The ability of an infectious agent to induce a disease is called as
422. is the disease evoking power of an infectious agent in an particular host.
423. A of a disease is an event , condition or characteristic which plays an essential role in occurrence of a disease.
424. One-agent One-disease concept of disease was given by
425. All drawbacks of Koch postulates have been overcome by postulates.
426. Any observable event that can vary is known as
427. A sufficient cause virtually comprises of range of component causes. If a cause is a component of every sufficient cause then such cause is called as
428. factors increase the level of susceptibility in the host (e.g. age and immune status)
429. factors facilitate manifestation of a disease (e.g. housing and nutrition)
430. factors associated with the definitive onset of a disease(e.g. many toxic and infectious agents)
431. factors tend to aggravate the presence of the disease (e.g. repeated exposure of an infectious agent in the absence of an immune response)
432. In formulating a hypothesis method of argues that the frequency of a disease is different in two different circumstances and a factor is present in one circumstance but is absent from the other, then the factor may be suspected for being causal.

433. In formulating hypothesis the method of reasons the t, if a factor is common to a number of different circumstances in which a disease is present, then the factor may be the cause of disease.
434. In formulating hypothesis the method of involves a search for a factor, the frequency or strength of which varies continuously with the frequency of the disease in different situations.
435. In formulating hypothesis the method of involves comparison of the pattern of the disease under study with that if a disease that already is understood, the cause of the disease that is understood may also be the cause of another poorly understood disease with a similar pattern.
436. The scientist, Proposed criteria for establishing causal association is known as it include time sequence of the events, strength of the association, biological gradient, consistency and compatibility with existinh knowledge.
437. An attribute or an exposure that is significantly associated with the development of a disease is known as a
438. The determinant of disease presents in an animal and can be any characteristics (Species, genetic constitution, breed, sex) of an animal is known as.....
439. inheritance are associated with the X chromosomes and are inherited recessively, the defect being predominant in males.
440. inheritance which occurs when the DNA responsible for the disease is not in the sex chromosomes, but the disease is expressed only in one sex.
441. inheritance, here the threshold for the overt expression of a characteristic is lower in one sex than other.
442. The effect of stress in the laboratory animals which was known as a and is also known as general adaptation syndrome.
443. disease that occurs with a predictable regularity in a population unit with only relatively minor fluctuation in its frequency.
444. When a disease is continuously present at a high level affecting all age groups equally is known as.....
445. The occurrence of an infectious or non-infectious disease to a level in excess of the expected level is known as.....
446. is a large epidemic usually involving several countries or continents.
447. A disease, which occurs rarely and without regularity in a population unit, is known as
448. The times of occurrence of a disease is known as
449. The place of occurrence of a disease is known as
450. refers to the amount of disease in a known population it includes both old and new cases.
451. is an expression of the number of new cases that occur in known population overt period of time.
452. is that expresses a change in one quantity (numerator) with respect to another quantity (denominator).
453. The study of animals and plants in relation to their habits and habitation is known as

454. formulated the concept of ecosystem.
455. ecosystem coming from land itself (eg.tropical rain forest and deserts).
456. ecosystem created by man (eg.cultivated pastures and towns).
457. An extensively ecological community usually with dominant vegetation is known as
458. is the smallest spatial unit providing uniform condition for life.
459. The collection of living organism in a biotope is known as
460. According to the co-existence of two strongly competing species is impossible and co-existence is possibly only if the competition is weak.
461. hypothesis, the animal population is controlled by territoriality, social hierarchy etc and can be considered as a sort of side effects of the behaviour according to this hypothesis.
462. When an organism has occupied its habitat or niche the other similar organism will not occupy the same habitat or niche is known as
463. A junction of two ecosystems and through which infectious disease can be transmitted is known as
464. It is a modified patch of vegetation created by man within a biome that has reached a climax.
465. is an examination of an aggregate of unit.
466. are computerised information system that allow for the captures, storage, manipulation, analysis, display and reporting of geographical referenced data.
467. test applied to apparently healthy members of a population to detect seroprevalence of certain disease, the presence of disease or disease agent, or subclinical infection.
468. test are used to confirm or classify disease status, provide a guide to selection of a treatment, or provide an aid to prognosis.
469. The of a diagnosis method is the proportion of true positive.
470. The is the proportion of true negative.
471. A is a representation of a physical process or system that is designed to increase appreciation and understanding of that system.

ENVIRONMENTAL HYGIENE

472. The heart of the slow sand filter is
473. The chemical compound responsible for Bhopal gas tragedy was in the year
474. Major component of acid rain is
475. Example for non-fecal coliform is
476. Water containing high level of floride can be defloridated by adding
477. Temporary and permanent hardness of water can be removed by
478. The disinfection of chlorine is mainly due to
479. forests grow along with coast especially in river deltas.
480. The method of removal of hardness where ion exchange chemicals are used us called as

481. The well from which water is drawn from below the first impervious layer of earth is called as
482. and are two hotspots of biodiversity in India.
483. The disease or disorder in acute form caused due to exposure of high dosage of radiation is called as
484. The world Environment day is celebrated on
485. The chlorine left in water after satisfying chlorine demand is called as
486. The point at which the chlorine demand of water is met
487. The most commonly used chemical agent for chlorination of water.....
488. When acidic water passes from lead pipes, it dissolves some amount of lead. The action of acidic water is called as
489. Dechlorination of water on large scale can be done by addition of
490. Algal growth in pond water can be removed by
491. The contact period for chlorination should be
492. Distillation is used as method of choice for water purification in
493. Flat and insipid taste of water may be attributed to extremely low concentration of
494. Name of the table used to estimate the Most Probable Number (MPN) of coli forms
495. Confirmatory coli form test is also known as
496. The deposition of calcium and magnesium carbonate in kettle or boiler is known as
497. The practice of disinfectant sprays on wound was first introduced by
498. Germicidal power of disinfectant can be estimated by determining
499. The amount of oxygen required for chemical oxidation of organic matter is referred as
500. The quantity of oxygen required by bacteria for biochemical degradation of organic matter under aerobic condition is referred as
501. Water acceptable to consumer should have Nephelometric turbidity units/litre.
502. Unit of absorbed radiation is
503. Hot fermentation process of disposal of wastes is otherwise known as
504. The effect of cyanide on thyroid and nervous system are observed in the person as consequences of long-term consumption of inadequately processed.....
505. Waste water which doesn't contain human excreta is called as
506. Disease due to inhalation of cotton dust for long-term duration is called as
507. Percentage of available chlorine in bleaching powder is
508. Air (Prevention and control of pollution) act was enforced in year.....
509. was one of the most famous radiation disaster that occurred in 1986 as a result of massive leakage of radioactivity from nuclear reactor
510. A moderate dispersion of minute droplets in the atmosphere is known as

511. The term that refers to the mixture of smoke and fog is
512. The small gas borne particle mainly carbon in nature is known as
513. The term that refers to smoke mixed with dust is known as
514. is the agglomeration of fine carbon particle containing hydrocarbons and mineral matter.
515. is the release of radioactivity into the atmosphere from nuclear explosion or leakages
516. is caused by the constant inhalation of coal dust which results in its accumulation in lungs giving the disease the name, black lung.
517. is caused by dust containing free silica or silicone dioxide.
518. Disease caused by inhalation of baggasse or sugarcane dust is known as
519. is caused by dust containing iron particles.
520. The water (Prevention and control of Pollution) act was enforced in the year
521. The environment (Protection) act was enforced in the year
522. The devise which measure the bed resistance or loss of head in slow sand filter is called as
523. The bacteria coming in contact with the surface of katadym filter are killed by action of silver ion.
524. The most important gas responsible for ozone layer depletion is
525. The technique of collecting air sample through a slit on the surface of liquid media is called
526. The activity of stray animals in India is regulated by act, 1921.
527. The animals which are dead or lying on the ground are called animals.
528. The noise level that can damage to the tympanic membrane is
529. The first UN conference on 'Human environment' was held in
530. The potency of radiation is measured in, and
531. The word 'gray water' is synonymously used for
532. The atmospheric zone found immediately above the earth is
533. The general level of air pollution is indicated by the presence of, and in the air.
534. The BOD value of treated water should be PPM.
535. The COD value of treated water should be PPM.
536. The organism that converts ammonia to nitrates in water is
537. The taste which can detect both free and combined chlorine in water is
538. The reagents used for determining efficiency of chlorination is and
539. When loss of head exceeds its uneconomical to run slow sand filter.
540. The filter candles of Berkfeld filter are made up of
541. The highest desirable level of hardness in drinking water as per WHO should be PPM.

542. The disease which is transmitted by penetration of intact skin while working in water is
543. The presence of free residual chlorine is essential for at least hrs.
544. water borne disease has been eradicated from the India.
545. The presence of garlic odour in expired brick, falling of hair, rough and dry skin and reddening of eye indicates
546. The organic matter that settled down in the bottom of primary sedimentation tank of sewage treatment plant is called as
547. The agency that has mandate of animal welfare activities in India is
548. The radiation unit Rad is now replaced by
549. The radiation unit Rem is now replaced by
550. Pneumococcosis caused by inhalation of mouldy air or grain dust is called as It is caused by the growth of Actinomyces known as

ANSWER KEY:

1-B	2-C	3-A	4-C	5-A	6-C	7-A	8-B	9-B	10-D
11-B	12-B	13-A	14-C	15-B	16-C	17-C	18-B	19-A	20-A

MEAT SCIENCE

- Cattle = 9 hrs, birds = 2 hrs.
- 7°C
- 3°C
- 18°C
- 72°C
- 4-6°C
- 1.5°C
- Weep/drip
- 62-64°C for 6 min
- Medium size of animal
- 70 volts/250mA, 7-10 sec
- Curarisation/Missed Shock
- Shechita
- Deonar, Mumbai
- 55-60% and 80%
- Chilled meat
- Lyophilisation
- Radapperization
- Horse flesh and venison
- Buffalo meat
- PSE occurs mostly in pig, DFD is common in beef
- One animal unit = one bovine = 2 pigs = 3 calves = 5 sheep
- 3.3 m for cattle dressing
- Venison
- 63%

26. Flaying
27. Salami
28. Vitamin B1 (thiamine) is higher in pork
29. 65-80%
30. Fe, cu, I and vitamin C.
31. 8-10 weeks at 0°C
32. *Achromobacter* and *E.coli*
33. Keet
34. Kerala and west Bengal
35. *Proteus* and *Pseudomonas*
36. TB
37. Horses and pigs
38. > 4:1
39. 4:1
40. *Serratia*
41. Carotene
42. Absent in Buffalo, Chevon And Pork
43. Heart, liver, gizzard
44. Poultry meat contain high level of oleic and linoleic acid and low level of cholesterol
45. Above 20°C
46. -10°C & -10°to -30°C
47. 2 yrs at ambient temperature
48. Hippophagia
49. Kynophagia
50. Live weight of the animal
51. PLUCK in cattle – larynx, trachea, lungs, heart and liver
 Sheep – spleen also
 Pigs – esophagus also
52. 75 cattle/200 pigs/250 calves/400 sheep
53. 0.5-1%
54. Horse fat
55. Poultry(1:1.8)>rabbit(1:2)>pig(1:3)>cattle(1:5)
56. 70-75%
57. Halal and jhatka method
58. Pancreas
59. Sodium Ascorbate(0.2-1%)
60. 5.5-5.7
61. Rigor mortis
62. 8-12 hrs after slaughtering
- ENVIRONMENTAL HYGIENE**
64. Kieselgurh (infusorial earth)
65. Oligodynamic
66. 120mm thick.
67. bleaching powder and potassium permanganate
68. Horrock's apparatus

69. National Environmental Engineering Research Institute, Nagpur
70. 4 nephelometric turbidity units (NTU)
71. 15 true colour units (TCU)
72. 200 mg/L and 600 mg/L
73. 0.2 mg/L and 3 mg/L
74. 6.5 and 8.5
75. 0.05-0.1 mg/L
76. 1000 mg/L, 600mg/L
77. Streptococci
78. 8
79. Kidney
80. Kidney and central nervous system
81. 2 microgram/L
82. 2 microgram/L
83. Mottling
84. Methaemoglobinemia
85. Tolerable daily intake (TDI)
86. NOAEL (no-observed-adverse-effect level)
87. LOAEL (lowest-observed-adverse-effect level)
88. somatic and hereditary
89. Malignant Disease
90. cellulose ester
91. Calcium & Magnesium
92. 50 mg/L of CaCO₃
93. <50 mg/L
94. 50-150 mg/L
95. 150-300 mg/L
96. > 300 mg/L
97. Corrosive
98. 0.01 mg/L
99. 0.02 mg/L
100. 0.003 mg/L
101. 1.5 mg/L
102. 0.01 mg/L
103. 0.4 mg/L
104. 0.006 mg/L
105. 50 mg/L
106. 3 mg/L
107. 0.04 mg/L
108. Nil
109. 99.90-99.99 %
110. Vital Layer
111. Mercury metal
112. 33 Percent
113. Fluoride

- 114. 1984
- 115. 4
- 116. mg/lit
- 117. Inorganic

EPIDEMIOLOGY

- 118. Cross sectional study
- 119. Cohort study
- 120. Variable
- 121. Longitudinal study
- 122. Precipitating factors
- 123. Temporal
- 124. Spatial
- 125. Prevalence
- 126. Incidence
- 127. Secondary attack rate
- 128. Census
- 129. Positive statistical association between factor and disease
- 130. Control
- 131. Vaccination and quarantine
- 132. Convalescent carriers
- 133. Endemic
- 134. Epidemic
- 135. Pandemic
- 136. Sporadic
- 137. Morbidity
- 138. Mortality
- 139. Eradication
- 140. Pre emptive slaughtering
- 141. Herd immunity
- 142. Nidi
- 143. Nosogenic area
- 144. Nosoarea
- 145. *Cul – de – sac*
- 146. Kala azar
- 147. Tuberculosis, Brucellosis
- 148. 6th July
- 149. Mad cow disease
- 150. Plague
- 151. Rice field workers disease
- 152. Nosocomial infections
- 153. Luise Pastuer
- 154. Casonie's bodies
- 155. Brooder pneumonia
- 156. *Aedes aegepti*
- 157. Nagpur

158. OIE World Organisation for Animal Health
159. PAHO Pan American Health Organization
160. CDC Centers for Disease Control and Prevention
161. FAO Food and Agriculture Organization
162. WHO World Health Organization
163. HSADL High Security Animal Diseases Laboratory
164. NICD: National Institute of Communicable Diseases
165. NEERI: National Environmental Engineering Research Institute
166. NIVEDI: National Institute of Veterinary Epidemiology and Disease Informatics
167. WOA: World Organisation for Animal Health
168. CPCB: Central Pollution Control Board
169. ICMSF: International Commission on Microbiological Specifications for Foods
170. NDDB: National Dairy Development Board
171. FSSAI: Food Safety and Standards Authority of India
172. IAMFES: International Association of Milk, Food and Environmental Sanitarians
173. Rosalic acid test
174. Lyophilization
175. AGMARK
176. Remington and fowrie test
177. 1950-51
178. 1970
179. Pig-iodine value-50-70
180. Red
181. 53.5
182. Halphene's test
183. James Harlan Steele
184. 30,000
185. Torrymeter
186. Eijakman's test
187. Coal tar dye/Annato
188. Redappertization
189. Lactoferin
190. Dr.Tedros Adhanom
191. 7 April
192. Diacetyl
193. Volatile acids
194. Sulfhydryl compound
195. Gerbers butyrometer
196. Emulsion
197. Freezing point
198. Vit B and Vit C
199. Acetate (VFA)
200. Propionate
201. 2Microns
202. Lactoperoxidase,Lactoferin and conglutinin

203. Cow-86.90 & Buffalo-84.04
204. Lysine and valine
205. Centipoise
206. Zeiss apparatus
207. Hydrometer
208. Dyne cm⁻¹
209. Vacuum Pasteurization
210. Phosphates test
211. Aluminium/stainless steel
212. Pulsator
213. Hypochlorite
214. Channa
215. Buffalo
216. Baudoin test
217. 4.3% and 3%
218. Kefir
219. Mare Milk
220. 12 hour
221. Hansa test
222. Freezing point
223. Fat
224. Lactose
225. CIP
226. 63°C for 30 minute
227. 72°C for 15 sec
228. Lactoperoxidase, thiocyanate, hydrogen peroxide
229. Sodium thiocyanate & hydrogen peroxide
230. 30 µg/ml
231. CCP₁ & CCP₂
232. HACCP
233. 4 hour
234. 9
235. Bifidus factor
236. Clot on boiling
237. Limulus amoebocyte lysate test
238. DEFT-Direct Epifluorescent filter technique
239. DMC-Direct microscopic count
240. Membrane filtration technique
241. 5-7⁰ C
242. Sterility test
243. Pyruvate test
244. Whey
245. Calcium
246. 70-75⁰C for 30 minute
247. Food Infection

248. Food Intoxication
249. Food Toxi-infection
250. 137 c_s, 131 I, 90 S_r, 89 S_r
251. 1954
252. AGMARK
253. 1987
254. Canning
255. Flaying
256. Curing
257. 40
258. Lairage
259. 72
260. 6 min ,5 min
261. Puntilla method
262. Oxymyoglobin
263. Metmyoglobin
264. Nitro-haemochromogen
265. Vit B₁₂
266. Niacin
267. Sausage
268. Burial Method
269. Burning or Incineration method
270. 600-800°C
271. Gamma rays
272. 7°C and 4°C
273. 2.8 m² and 0.6 m²
274. Marbling of meat and seam fat
275. Hippophagy and Kynophagy
276. Shammoying
277. Rendering
278. Splash and missed shock
279. Kosher seal on brisket
280. Terefa
281. Pig
282. 70 % CO₂ for 45 Sec
283. Jhataka and halal method
284. Mechanical
285. Evernazine
286. Calcium
287. Ritual Slaughter
288. 1500-2000 mg/l_t
289. Acto-myosin bond
290. 130-250 ppm
291. 30
292. Heart

293. Rail/line system
294. 10 meter
295. Chilling
296. Freezing
297. 6 month
298. 4 month
299. 2 month
300. Curing
301. 500 ppm and 200 ppm
302. Shrinkage
303. 2yr
304. Canning
305. Abattoir and meat process plant
306. Horse meat
307. Submucosa
308. Sweating
309. Pork
310. Pre-rigor meat
311. Hyderabad
312. Cold shortening
313. Thaw rigor/ Freezing shortening
314. FSSAI
315. Pig
316. Cattle
317. Delayed slaughter
318. Casualty slaughter
319. Emergency slaughter
320. Black
321. White and reddish
322. Sikh/Hindu
323. Veal
324. Fatal syncope, heart failure syndrome
325. Sticking
326. Porging
327. Cyclozoonose
328. Medulla, cerebellum and hippocampus
329. Vero , BHK 21
330. 60,000
331. Flury's
332. Bait
333. Wistar
334. 80%
335. 10 million
336. *Bacillus anthracis*
337. Brucellosis

338. *Mycobacterium tuberculosis*
339. Glanders
340. Homogenous-Heteromonous
341. Monophagous
342. Homonomous
343. 1882
344. IVRI, Bareilly
345. Saprozoonoses
346. Eradication
347. In Marseillus at 1383
348. *Camoylobacter enteritidis*
349. *Streptobacillus moniliformis*
350. African Horse Sickness
351. Carbuncle
352. *Cysticercus cellulosae*
353. *Toxocara cati*
354. Metazoonoses
355. CBPP
356. MacConkey, Cefsulodin-irgasan-novobiocin agar
357. Fowl Cholera
358. Bioterrorism and Biological warfare
359. *B. henselae*, Human
360. *Mycobacterium farcinogenes*
361. Microsporum, trichophyton and epidermophyton
362. Tinea capitis and tinea corporis
363. 30°C
364. Granulomatous necrotizing lymphadenitis
365. 8000, 50000
366. Malaysia 1999
367. 90
368. Tanzania
369. South India (Pondicherry, Chennai, Vellore)
370. Norovirus
371. IgM, IgG and IgA
372. Osteo-articulate lesion-Fistulous wither
373. *Ehrlichia sennetsu*
374. *Trypanosoma cruzi*
375. Nifurtimox and benzenidazole
376. Oriental sore
377. Niclosamide and Praziquantel
378. Keratinized (Stratum corneum hair or nail)
379. Leptospirosis
380. 25°C
381. Listeriosis
382. Hydatidosis

383. *Orientia tsutsugamushi*
384. Toxoplasmosis
385. *Culex triataenorrhynchus*
386. *Bacillus anthracis*
387. Fishes
388. Metazoonoses type II
389. Rabies
390. *Campylobacter*
391. *Listeria*
392. Plague
393. Kolkata
394. National Vector Borne-Disease Control Programme
395. UVM I & UVM II
396. Fontana's staining, Modified staining method by becker's, Levaditi's method
397. LJ medium
398. EMJH Medium
399. Robertson's cooked meat broth or thioglycollate media
400. Rabies
401. Epidemiology
402. Epornitics
403. Calvin W. Schwabe
404. Hippocrates
405. John Snow
406. Monitoring
407. Surveillance
408. Descriptive Epidemiology
409. Darwin's theory
410. Descriptive Epidemiology
411. Analytical Epidemiology
412. Experimental Epidemiology
413. Theoretical Epidemiology
414. Computer
415. Shoe-leather Epidemiology
416. Participatory Epidemiology
417. WHO
418. Determinant
419. Agent, Host and Environment
420. Infectivity
421. Pathogenicity
422. Virulence
423. A cause
424. Robert Koch
425. Evan's postulates
426. Variable
427. Necessary

- 428. Predisposing
- 429. Enabling
- 430. Participatory factors
- 431. Reinforcing factors
- 432. Difference
- 433. Agreement
- 434. Concomitant variation
- 435. Analogy
- 436. Austin Bradford, Hill, Hill's criteria
- 437. Risk factor
- 438. Intrinsic determinant
- 439. Sex linked
- 440. Sex limited
- 441. Sex influenced
- 442. Seyle's hypothesis
- 443. Endemic
- 444. Hyperendemic
- 445. Epidemic
- 446. Pandemic
- 447. Sporadic
- 448. Temporal distribution
- 449. Spatial distribution
- 450. Prevalence
- 451. Incidence
- 452. Rate
- 453. Ecology
- 454. A.G. Tansley (1935)
- 455. Autochthonous ecosystem
- 456. Anthropurgic ecosystem
- 457. Biome
- 458. Biotope
- 459. Biocenosis
- 460. Lotka-Volterras equation
- 461. Wynne Edwards Hypothesis
- 462. Epidemiological interference
- 463. Ecological interfaces
- 464. Ecological Mosaic
- 465. Survey
- 466. Geographical information system
- 467. Screening test
- 468. Diagnostic test
- 469. Sensitivity
- 470. Specificity
- 471. Model
- 472. Vital layer

473. Methyl Isocyanate, 1984
474. H_2SO_4
475. *Klebsiella aerogenes*
476. Phosphate
477. Sodium Carbonate
478. Hypochlorous acid
479. Mangrove
480. Permutit process
481. Deep well
482. Eastern Himalaya and Western Ghats
483. Radiation sickness
484. 5th June
485. Residual chlorine
486. Breakpoint
487. Bleaching powder
488. Plumbosolvency
489. SO_2
490. Copper Sulphate
491. 30 Min
492. Ship, Laboratory, Arabian countries
493. TDS
494. McCrady's table
495. Eijakaman's test
496. Furring
497. Joseph Lister
498. Inhibition Co-efficient
499. COD
500. BOD
501. <5
502. Rad
503. Bangalore Method
504. Cassava
505. Sullage
506. Byssinosis
507. 33%
508. 1981
509. Chernobyl
510. Mist
511. Smog
512. Smoke
513. Smurt
514. Soot
515. Radioactive fallout
516. Anthracosis
517. Silicosis

- 518. Bagassosis
- 519. Siderosis
- 520. 1974
- 521. 1986
- 522. Venturimeter
- 523. Oligodynamic
- 524. CFC
- 525. Impeingement
- 526. Cattle Trespass
- 527. Fallen
- 528. 162Db
- 529. Stockholm
- 530. Rad, Rem, Roentgen
- 531. Sullage
- 532. Troposphere
- 533. Smoke, SPM, SO₂
- 534. 30mg/L
- 535. 250mg/L
- 536. Nitrosomonas
- 537. Orthotoludine test
- 538. Chlortex and Orthotoludine
- 539. 1.3 meters
- 540. Kaolin
- 541. 150PPM
- 542. Leptospirosis
- 543. One hour
- 544. Guine worm disease
- 545. Arsenic toxicity
- 546. Sludge
- 547. Animal Welfare Board
- 548. Grey (Gy)
- 549. Sivert (Sy)
- 550. Farmer's lung, *Micropolyspora facni*

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
GYNAECOLOGY AND OBSTETRICS**

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I . Choose the correct answer

1. Estrus cycle length in ewe is:
 - a. 21 days
 - b. 16 days
 - c. 12 days
2. Unfertilized ovum can remain viable for:
 - a. 24 hrs
 - b. 48 hrs
 - c. 72 hrs
3. Life of corpus luteum is terminated by the release of:
 - a. oxytocin
 - b. PGF2 α
 - c. inhibin
4. The newly formed structure on the ovary if the animal is pregnant called as:
 - a. corpus luteum hemorrhagica
 - b. corpus luteum verum
 - c. corpus luteum albican
5. Cervical seal is being formed in cattle pregnancies by the secretion of:
 - a. clitoris
 - b. ovula nabotthi
 - c. vagina
6. Introduction of vaginal speculum for vaginal examination started by:
 - a. Prof. Lagerloff
 - b. Soranus
 - c. Hippocrates
7. Sexual health programme in herd was introduced by:
 - a. Prof. Lagerloff
 - b. Soranus
 - c. Hippocrates
8. The dose of Buserelin in treating anoestrus cows is:
 - a. 10 μ g
 - b. 20 μ g
 - c. 30 μ g
9. Very first heat after foaling of mare is termed as:
 - a. False heat
 - b. True heat
 - c. Foaling heat
10. A bitch should be allowed to breed:
 - a. after stoppage of bleeding
 - b. alternate days in estrus up to end of estrus

- c. at the end of estrus
- 11. Spinnbarkeit test is related to:
 - a. elasticity of CVM
 - b. exfoliatory cytology
 - c. fern pattern
- 12. Market product with trade name Duraprogen ® contains:
 - a. hydroxyprogesterone caproate
 - b. medroxy progesterone acetate
 - c. melengesterol acetate
- 13. Trade named Lutalyse contains:
 - a. tiaprost
 - b. dinoprost
 - c. cloprostenol
- 14. Embryos are collected on day:
 - a. 4 to 5th day after breeding
 - b. 6 to 8th day after breeding
 - c. 8 to 10th day after breeding
- 15. Binucleate giant cells secrete:
 - a. bPSB
 - b. placental lactogen
 - c. both
- 16. The “days open” period should not exceed:
 - a. 60-65 days
 - b. 80-85 days
 - c. 90-95 days
- 17. Pneumobart -K is injected even in pregnant mares during 5, 7 and 9th month of gestation for:
 - a. equine viral arteritis
 - b. leptospira
 - c. equine herpes virus
- 18. By ultra sound machine one can diagnose the pregnancy of cattle:
 - a. 16-18 days
 - b. 21-22 days
 - c. 26-28 days
- 19. The ovaries of the mare are:
 - a. almond shaped
 - b. grape shaped
 - c. kidney shaped
- 20. Approximate number of primary follicles found in young female calf is:
 - a. 50000
 - b. 75000
 - c. 100000
- 21. Rhythmic administration of melatonin to adult ewes exerts a similar effect of:
 - a. Increased dark hrs
 - b. decreased dark hrs

- c. normal dark hrs
- 22. Mare is seasonal breeder but will be switched on by:
 - a. increased dark hrs
 - b. decreased dark hrs
 - c. normal dark hrs
- 23. Cow is having its cyclicity of following type:
 - a. polyestrus
 - b. seasonally polyestrus
 - c. monoestrus
- 24. Queens are of following type of ovulation:
 - a. spontaneous
 - b. induced
 - c. multiple
- 25. Ovary of sow is like:
 - a. kidney shape
 - b. bunch of grapes
 - c. almond shape
- 26. Females used in estrus detection will be injected with:
 - a. oxytocin
 - b. estrogen
 - c. testosterone
- 27. Prolactin inhibitor is:
 - a. cabergoline
 - b. melengesterol acetate
 - c. oxytocin
- 28. Estradiol benzoate following unplanned mating to prevent pregnancy is:
 - a. 5µg
 - b. 10 µg
 - c. 15 µg
- 29. Main luteotrophic hormone in bitch is:
 - a. FSH
 - b. LH
 - c. prolactin
- 30. Cyclox and cyclox procine of Intervet, UK Ltd. Contains:
 - a. dinoprost
 - b. tiaprost
 - c. cloprostenol
- 31. The regressed corpus luteum of earlier cycle on the ovary is:
 - a. CL hemorrhagicum
 - b. CL verum
 - c. CL albican
- 32. Estrus manifestation during the gestation is called as:
 - a. gestational estrus
 - b. split estrus
 - c. false estrus

33. Introduction of abortifacient in gynaecological practice was by:
- Prof. Lagerlöf
 - Soranus
 - Hippocrates
34. The dose of natural PGF₂ α to lysis the CL in cattle is:
- 10 mg
 - 25 mg
 - 50 mg
35. The dose of Buserelin in treating anoestrus cows is:
- 10 μ g
 - 20 μ g
 - 30 μ g
36. A bitch should not be bred when:
- there is bleeding
 - after stoppage of bleeding
 - in both a and b
37. Which hormone very important in synchronization programme of cyclic cattle
- LH
 - PGF₂ α
 - GnRH
38. Generally OPU technique is applied on the animals:
- live
 - dead
 - both
39. Cervix bifida is a normal nature in:
- sows
 - rabbits
 - deers
40. Following frequencies of ultra sound probes are being used in veterinary practice:
- 3.5 -7.0 MHZ
 - 7.0 -10.0 MHZ
 - 10-12.5 MHZ
41. Eversion of the bladder from the urinary meatus is:
- hydrocoele
 - hysterocoele
 - vaginal cystocoele
42. Dystocia due to pelvic abnormalities in the followings:
- exhaustion
 - exostosis
 - mitosis
43. Distortion method of uterine torsion developed by Ludhiana Veterinary College:
- rotation of animal
 - belt method of rotation
 - plank method of rotation
44. In a traction of large fetus there are chances of:

- a. spondylosis
 - b. obturator nerve paralysis
 - c. fracture of pelvis
45. Long standing un-attended cow with RFM may lead to:
- a. metritis
 - b. toxic metritis
 - c. pyometritis
46. Ruminants are more prone to RFM due to the type of placenta they have:
- a. cotyledonary
 - b. diffused
 - c. discoidal
47. In mare implantation of zygote starts by 40 days and completes by:
- a. 60 days
 - b. 80 days
 - c. 100 days
48. Hormone eCG is produced by:
- a. uterine glands
 - b. endometrial cup
 - c. adrenal glands
49. In a dystotic cow, the dorsum of the fetus was palpable in the pelvic cavity, the defect is:
- a. dorso sacral
 - b. dorso transverse
 - c. dorso pubic
50. Downward deviation of the head is also termed as:
- a. torticollis
 - b. wry neck
 - c. vertex
51. Transuterine migration of embryo is absent in:
- a. bitch
 - b. cattle
 - c. sow
52. Hippomanes are usually found in:
- a. yolk sac
 - b. amniotic fluid
 - c. allantoic fluid
53. In sow, the villi near the endometrial glands are enlarged and specialized to form structures called:
- a. hippomanes
 - b. areolae
 - c. placentomes
54. The period of resuming the ovarian activities after the parturition is called as:
- a. dry period
 - b. wet period
 - c. hot period

55. The post partum anoestrus period should not go beyond:
- 45 days
 - 65 days
 - 85 days
56. Half life of hormone oxytocin is:
- 2-3 minutes
 - 5-7 minutes
 - 8-10 minutes
57. Bisiliac diameter is measured in lower fourth of pelvic cavity between two:
- os-coxae
 - psoas tubercle
 - pin bones
58. In felines type of placenta is:
- diffused
 - discoidal
 - zonary
59. In equine, swine and ruminants type of placenta is:
- epitheliochoreal
 - haemochoreal
 - endotheliochoreal
60. Induction of parturition is initiated by:
- dam
 - sire
 - fetus
61. Hydrocephalus is abnormal fetus in which there will be accumulation of fluid in:
- cranium
 - peritoneum
 - uterus
62. More number of rotations in the torsioned cow may lead to:
- uterine rupture
 - uterine inertia
 - uterine eversion
63. Fetal ascitis is nothing but dropsy of:
- peritoneum
 - subcutaneous tissues
 - uterus
64. The cross between the female donkey and male horse is:
- mule
 - hinny
 - binny
65. Fetal anasarca is an excess fluid in:
- peritoneum
 - uterus
 - subcutaneous tissues
66. X chromosome aneuploidy in female is:

- a. triploidy
 - b. klinefelter's syndrome
 - c. triple x syndrome
67. Hypoplasia or aplasia of spinal cord which ends in thoracic region is:
- a. schistosoma reflex
 - b. ferguson's reflex
 - c. persomus elumbis
68. If fetal death occurs after ossification of bones, complete resorption of fetal material cannot take place and may lead to:
- a. mummification
 - b. maceration
 - c. pyometritis
69. Mummification is very common in pig and is a particular characteristics of infection with the:
- a. Herpes virus
 - b. Myxo virus
 - c. SMEDI virus
70. Foot nape posture of foal may lead to:
- a. rupture of cervix
 - b. vaginal roof
 - c. uterine body
71. Ideal timing of expulsion of placenta in dairy cows is:
- a. 24 hrs
 - b. 12 hrs
 - c. 48 hrs
72. In the transverse presentation the axis of fetus to its mother will be:
- a. parallel
 - b. perpendicular
 - c. oblique
73. Lenea-alba is the site of incision for caesarian section in bitches is preferred due to:
- a. speedy healing
 - b. less blood vessels
 - c. easy to incise
74. Episiotomy can be done in following condition:
- a. undilated of cervix
 - b. constricted vagina
 - c. constricted vulval lips
75. Amniotic fluid contains:
- a. amniotic flakes
 - b. allantoic flakes
 - c. hippomans
76. Raised temperature in RFM cow indicates:
- a. palcentitis
 - b. metritis
 - c. septic metritis

77. The best ecboic in retained placenta used should be:
- prostaglandin
 - calcium
 - oxytocin
78. Post partum ovarian regulation can be made by injecting hormone on 15 the day post parturition:
- Oxytocin
 - PGF2 α
 - GnRH
79. In equine, swine and ruminants type of placenta is:
- epitheliochoreal
 - haemochoreal
 - endotheliochoreal
80. Prolapse retainer a plastic device is used to keep in vagina to avoid recurrence in:
- ovine
 - bovine
 - equine

ANSWER KEY:

Veterinary Gynaecology									
1-B	2-A	3-B	4-B	5-B	6-B	7-A	8-B	9-C	10-B
11-A	12-A	13-B	14-B	15-C	16-B	17-C	18-B	19-C	20-B
21-A	22-B	23-A	24-B	25-B	26-C	27-A	28-B	29-C	30-C
31-C	32-A	33-C	34-B	35-B	36-A	37-B	38-A	39-B	40-A
41-C	42-B	43-B	44-B	45-B	46-A	47-C	48-B	49-B	50-C
51-B	52-C	53-B	54-A	55-C	56-A	57-B	58-C	59-A	60-C
61-A	62-A	63-A	64-B	65-C	66-C	67-C	68-A	69-C	70-B
71-B	72-B	73-B	74-C	75-A	76-C	77-C	78-C	79-A	80-A

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
GYNAECOLOGY AND OBSTETRICS**

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I . Choose the correct answer

1. Embryological structure which forms the testes is:
 - a. mesonephrons
 - b. mesonephric duct
 - c. mesonephric tubules
 - d. none
2. Embryological structure which forms the seminal vesicle is:
 - a. mesonephrons
 - b. mesonephric duct
 - c. mesonephric tubules
 - d. none
3. In bovine fetus, testes descend into scrotal sac by:
 - a. day 60 of gestation
 - b. day 106 of gestation
 - c. day 150 of gestation
 - d. none
4. Testis is pulled into scrotum during testicular descent by:
 - a. gubernaculum
 - b. scrotal ligament
 - c. pampiniform plexus
 - d. spermatic cord
5. Thermoregulatory mechanism for testis is regulated by:
 - a. scrotal muscles
 - b. pampiniform plexus
 - c. presence of sweat glands
 - d. all
6. Scrotal circumference is:
 - a. indicator of daily sperm production
 - b. highly repeatable and heritable measure
 - c. indicator of bull puberty
 - d. all
7. Which of the following species have a vertical presentation of testis:
 - a. dog and cat
 - b. bull, ram and stallion
 - c. bull, ram and buck
 - d. boar and dog
8. Which of the following is also called as nurse cell or sustentacular cells of testis:
 - a. germ cells
 - b. leydig cells
 - c. sertoli cells

- d. none
- 9. The cells which are most sensitive to irradiation is:
 - a. spermatogonia
 - b. leydig cells
 - c. sertoli cells
 - d. spermatocyte
- 10. Warehouse of spermatozoa is:
 - a. testes
 - b. epididymis
 - c. vas deference
 - d. penis
- 11. Epididymal maturation of sperm involves:
 - a. change in Ca ion concentration
 - b. change in cAMP level
 - c. change in pH
 - d. all of above
- 12. Incidence of cryptorchidism is more in:
 - a. horse
 - b. cattle
 - c. goat
 - d. dog
- 13. Inositol in boar semen, is mainly contributed by:
 - a. bulbourethral gland
 - b. seminal vesicle gland
 - c. prostate gland
 - d. ampulla
- 14. Anti-agglutinin in semen is secreted by:
 - a. seminal vesicle
 - b. bulbourethral gland
 - c. prostate gland
 - d. epididymis
- 15. Which of the following accessory sex gland is absent in cat:
 - a. seminal vesicle
 - b. bulbourethral gland
 - c. prostate gland
 - d. both a and b
- 16. Which of the following species do not have fibroelastic penis:
 - a. bovine
 - b. swine
 - c. equine
 - d. caprine
- 17. Penile papillae (spines) are present in:
 - a. boar
 - b. stallion
 - c. dog

- d. cat
- 18. Sigmoid flexure is post scrotal in:
 - a. bull
 - b. ram
 - c. buck
 - d. all
- 19. Erectile tissue of bovine penis is:
 - a. corpus spongiosum
 - b. corpus cavernosum
 - c. both
 - d. none
- 20. Secretion of prepuce mixed with cast, epithelial cells and bacteria form foul smelling product called:
 - a. smegma
 - b. pheromones
 - c. hippomanes
 - d. none
- 21. Reaction time is defines as time elapsed between:
 - a. exposure of female/dummy to bull and mounting
 - b. exposure of female/dummy to bull and intromission
 - c. exposure of female/dummy to bull and ejaculation
 - d. all
- 22. Flehmen reaction do not occur in:
 - a. buffalo bull
 - b. ram
 - c. boar
 - d. stallion
- 23. Pheromones specifically present in boar saliva:
 - a. transverbenol
 - b. 4-methylphenol
 - c. 5a-androst-16-ene-3-one
 - d. none
- 24. Copulatory tie is observed during mating of:
 - a. cat
 - b. dog
 - c. both
 - d. both b and c
- 25. In which of the following species, flagging movement of tail is exhibited after ejaculation:
 - a. bovine
 - b. ovine
 - c. equine
 - d. swine
- 26. Unnatural tactile stimulation and ejaculation is known as:
 - a. onanism

- b. coolidge effect
 - c. pederasty
 - d. balling up
27. Which of the following is a vice of bull:
- a. masturbation
 - b. slowness in breeding
 - c. viciousness
 - d. all of the above
28. Inability to withdraw penis back into prepuce is called as:
- a. phimosis
 - b. paraphimosis
 - c. priapism
 - d. phallocampsis
29. Most common type of penile deviation in bull is:
- a. spiral deviation
 - b. ventral deviation
 - c. lateral deviation
 - d. all of above
30. Pizzel rot in ram is due to:
- a. renale
 - b. high protein diet
 - c. excessive hair around prepuce
 - d. all
31. Most recommended method of semen collection from bull suffering from impotentia couendi is:
- a. AV method
 - b. gloved hand method
 - c. electro-ejaculation method
 - d. digital manipulation
32. High percent of abnormal sperm in semen is called as:
- a. teratozoospermia
 - b. asthenozoospermia
 - c. aspermia
 - d. necrozoospermia
33. Medusa cells are chiefly found in:
- a. testicular degeneration
 - b. testicular hypoplasia
 - c. both
 - d. none
34. Most common type of canine testicular tumor is:
- a. interstitial cell tumor
 - b. sertoli cell tumor
 - c. seminoma
 - d. all
35. Best treatment for prostatic hyperplasia in dog is:

- a. administration of antibiotics
 - b. hormonal therapy
 - c. both a and b
 - d. castration
36. In knobbed spermatozoa, which organelle is defective:
- a. mitochondria
 - b. ribosome
 - c. golgi complex
 - d. centriole
37. Dag defect is a:
- a. primary abnormality
 - b. secondary abnormality
 - c. tertiary abnormality
 - d. none
38. Length of bull spermatozoa ranges from:
- a. 30-40 μ
 - b. 40-50 μ
 - c. 50-60 μ
 - d. 60-70 μ
39. Genetic material of sperm is present in:
- a. sperm head
 - b. middle piece
 - c. principal piece
 - d. end piece
40. Spermatozoa are hook shaped in:
- a. boar
 - b. cock
 - c. rat
 - d. bull
41. Transformation of round spermatid into elongated spermatozoa is termed as:
- a. spermiogenesis
 - b. spermiation
 - c. spermateliosis
 - d. both a and c
42. Duration of spermatocytogenesis in ram is:
- a. 62 days
 - b. 45 days
 - c. 54 days
 - d. 62 days
43. The function of glycerylphosphorylcholine in female reproductive tract is:
- a. it acts as an antioxidant for semen
 - b. it acts as osmotic regulator of semen
 - c. it is an energy substrate for semen
 - d. none of the above
44. Principal buffering factor present in bull semen is:

- a. fructose
 - b. citric acid
 - c. GPC
 - d. ascorbic acid
45. Most critical component for semen collection in bulls by artificial vagina (AV) method is:
- a. temperature of AV
 - b. lubrication of AV
 - c. pressure of AV
 - d. all of above
46. Artificial vagina is sterilized by:
- a. dry heat sterilization at 160°C
 - b. dry heat sterilization at 180°C
 - c. autoclaving
 - d. UV radiation
47. Colour of horse, boar and dog semen is:
- a. yellowish
 - b. milky white
 - c. creamy white
 - d. colourless
48. Which of the following animal possess highest sperm concentration per ml of semen:
- a. sheep
 - b. poultry
 - c. bull
 - d. buffalo bull
49. During eosin nigrosin staining, dead sperm stains:
- a. blue
 - b. pink
 - c. black
 - d. colourless
50. HOST was developed by:
- a. Jeyendran
 - b. Blom
 - c. Kramer
 - d. Bhattacharya
51. Reduction of methylene blue in MBRT depends upon:
- a. catalase enzyme activity of sperm
 - b. phosphatase enzyme activity of sperm
 - c. dehydrogenase enzyme activity of sperm
 - d. none
52. Storing diluted semen at reduced temperature help to extend sperm life by:
- a. slowing their metabolism
 - b. inhibiting bacterial growth
 - c. both a and b
 - d. none

53. Optimum temperature for preservation of boar semen is:
- 196°C
 - 15°C
 - 5°C
 - 37°C
54. The purpose of dilution of semen is to:
- to increase ejaculate volume
 - to preserve viability of sperm
 - to inseminate large number of female by a single collection
 - all of the above
55. Protective action of egg yolk is mainly due to:
- lecithin
 - high density lipoprotein
 - oleic acid
 - both a and b
56. Buffer used in Tris dilutor is:
- sodium citrate dehydrate
 - hydroxymethyl aminomethane
 - hydroxymethyl methyl - aminoethane
 - dimethyl sulphoxide
57. Additives which improve freezability of semen based upon anti-oxidant property:
- cysteine, EDTA and glycine
 - caffeine, PGF₂α
 - ascorbic acid and cysteine
 - none
58. Glycerol acts as cryo-protectant by:
- binding intracellular water
 - slowly dehydrating cells
 - decreasing intracellular ice crystal formation
 - all of the above
59. Equilibration of glycerolated semen is carried out at:
- 0°C
 - 10°C
 - 5°C
 - 15°C
60. French straws for packaging frozen semen are made up of:
- PVA
 - plastic
 - PVC
 - polypropylene
61. Spermicidal factor in fresh milk:
- phospholipid
 - lactenin
 - lactalbumin
 - casein

62. Semen straws are sterilized by:
- autoclave
 - UV rays
 - hot air oven
 - none
63. Optimum number of total spermatozoa required per insemination dose to achieve optimum fertility using frozen semen straw in cow is:
- 5 million
 - 20-25 million
 - 10 million
 - 40 millions
64. Site of AI with frozen semen in pigs:
- intravaginally
 - intrauterine
 - intracervical
 - both a and c
65. Prostaglandin in male is secreted by:
- prostate
 - seminal vesicle
 - cowper's gland
 - ampulla

ANSWER KEY:

Veterinary Andrology And Artificial Insemination									
1-A	2-B	3-B	4-A	5-D	6-D	7-C	8-C	9-D	10-B
11-D	12-A	13-A	14-C	15-A	16-C	17-D	18-D	19-C	20-A
21-A	22-C	23-C	24-B	25-C	26-A	27-D	28-B	29-A	30-D
31-C	32-A	33-B	34-A	35-D	36-C	37-A	38-D	39-A	40-C
41-D	42-B	43-C	44-B	45-D	46-C	47-C	48-B	49-B	50-A
51-C	52-C	53-B	54-D	55-D	56-B	57-C	58-D	59-C	60-C
61-B	62-B	6B3-	64-B	65-B					

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
GYNAECOLOGY AND OBSTETRICS**

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I . Choose the correct answer

1. _____ number of caruncles are present in uterine horns of ewe:
 - a. 40 –50
 - b. 70- 80
 - c. 100- 120
 - d. 20-30
2. Intercornual ligament is present in:
 - a. cow
 - b. bitch
 - c. cat
 - d. sow
3. Broad ligament is attached to _____ curvature of uterus in cows:
 - a. middle
 - b. central
 - c. greater
 - d. lesser
4. Duration of oestrus cycle in sows is _____ days:
 - a. 18-23
 - b. 40-42
 - c. 14-15
 - d. 30-35
5. In cattle ovulation occurs on an average _____ hours after end of heat symptoms:
 - a. 24
 - b. 48
 - c. 12
 - d. 36
6. Fertile life of ovum and sperm in genital tract is _____ and _____ :
 - a. 0 , 2 hours
 - b. 2-8 hours, 36-48 hours
 - c. 12-24 hours
 - d. 60-72 hours
7. When fertilization is carried out by more than one sperm it is called:
 - a. polyspermy
 - b. multispermy
 - c. twining
 - d. dualspermy
8. Proliferation of the endometrium occurs under the influence of _____ :
 - a. oestrogen
 - b. oxytocin

- c. FSH
 - d. progesterone
9. Gestation period of cat is _____ days:
- a. 36-42
 - b. 56-65
 - c. 70-80
 - d. 85-95
10. Placentophagy is not seen in _____:
- a. cat
 - b. cows
 - c. mare
 - d. sow
11. PMSG is secreted between _____ days of gestation in mares:
- a. 50-120
 - b. 10-20
 - c. 200-220
 - d. 150-180
12. In bitches lochia is of greenish colour due to _____:
- a. biliverdin
 - b. bilirubin
 - c. uteroverdin
 - d. urobilinogen
13. In bitches, pulse and respiration rate rise whereas temperature drops to _____ °F 24 hour before whelping:
- a. 98-99 °F
 - b. 95-96 °F
 - c. 101-102 °F
 - d. 94-95°F
14. _____ protocol is used for estrus synchronization in cyclic cows:
- a. PGF₂alpha
 - b. PMSG
 - c. LH
 - d. FSH
15. _____ protocol is used for estrus synchronization in non-cyclic cows:
- a. PGF₂ alpha
 - b. PMSG
 - c. LH
 - d. CIDR
16. Early embryonic deaths are recorded in:
- a. brucellosis
 - b. campylobacteriosis
 - c. leptospirosis
 - d. listeriosis
17. Undulating fever in man is caused by _____ organism:
- a. *Leptospira icterohaemorrhagea*

- b. *Brucella anthraxis*
 - c. *Brucella canis*
 - d. *Brucella melitensis*
18. CL of pregnancy is called:
- a. CL verum
 - b. CL positive
 - c. CL devious
 - d. CL spurium
19. Granulosa cell ovarian tumor produces symptom of:
- a. nymphomania
 - b. silent heat
 - c. pseudo-pregnancy
 - d. abortion
20. Uterine torsion is rare in _____ pregnancy:
- a. single
 - b. bovine
 - c. twin
 - d. surti buffalo
21. In unipara both horns are involved in uterine torsion because of the presence of _____ ligament:
- a. inter cornual
 - b. sacral
 - c. ilial
 - d. pelvic
22. Bandl's contraction rings are seen in _____ uterine inertia:
- a. secondary
 - b. early
 - c. late
 - d. primary
23. Over distention of uterus causes _____ uterine inertia:
- a. secondary
 - b. early
 - c. late
 - d. primary
24. In transverse presentation, position may be _____ or _____:
- a. dorso-pubic, dorso-iliac
 - b. cephalo-sacral, cephalo-iliac
 - c. lumbo-pubic, lumbo-iliac
 - d. lumbo-sacral, lumbo-iliac
25. Death of foetus in a sterile uterus, usually leads to a condition called:
- a. maceration
 - b. dropsy
 - c. monster
 - d. mummification

26. Hypoplasia/ aplasia of spinal cord is the primary abnormality of _____ foetal monster:
- perosomuselumbis
 - double
 - amorphous
 - schistosoma reflexes
27. The papyraceous type of mummification is common in:
- bitch
 - mare
 - pig
 - cow
28. Herniation of uterus is called:
- hysterocele
 - blastocoele
 - cystocoele
 - uterocoele
29. Herniation of bladder is called:
- hysterocele
 - blastocoele
 - cystocoele
 - uterocoele
30. Duration of spermatogenesis in buffalo bull is _____ days:
- 50
 - 38
 - 54.4
 - 70-80
31. Abnormalities of head _____ % spermatozoa are permissible in a normal and good quality semen:
- 2
 - 6
 - 4
 - 8
32. Dilution rate of bull semen depends on _____ and _____:
- time count, volume
 - concentration, initial motility
 - mass activity, density
 - density, volume
33. Volume of semen in Stallion is:
- 5 - 10 ml
 - 15 - 20 ml
 - 25 - 30 ml
 - 60 - 100 ml
34. Sperm concentration of semen in boar is _____ millions/ml:
- 100
 - 200 - 300

- c. 1000
 - d. 500
35. Irregular distribution of mitochondrial sheath results in to _____ defect in sperm:
- a. cork screw
 - b. dag defect
 - c. diadem defect
 - d. pseudo droplet
36. Zero concentration of spermatozoa is known as _____:
- a. non spermia
 - b. aspermia
 - c. azoospermia
 - d. oligozoospermia
37. Invagination of nuclear membrane results in to _____ defect in sperm:
- a. diadem effect
 - b. microcephalic head
 - c. pyriform head
 - d. knobbed sperm
38. For artificial insemination with frozen semen _____ million live motile sperm cells are required per dose after thawing:
- a. 40 - 50
 - b. 10 -15
 - c. 50 - 60
 - d. 70- 80
39. For fertilization _____ million live motile sperm cell are required per dose:
- a. 8-10
 - b. 20
 - c. 15
 - d. 12
40. _____ enzyme secreted by epididymis help in maturation and storage of spermatozoa:
- a. Hyaluronidase
 - b. Protease
 - c. phosphoryl
 - d. peptidase
41. Benign prostate hyperplasia is commonly observed in:
- a. cat
 - b. boar
 - c. dog
 - d. stallion
42. Prolactin has luteotropic activity in _____ species:
- a. dog
 - b. cow
 - c. mare
 - d. goats
43. PMSG is found in _____ of pregnant mares:

- a. urine
 - b. faeces
 - c. blood
 - d. saliva
44. Card test is used screen one of the following diseases:
- a. brucellosis
 - b. tuberculosis
 - c. listeriosis
 - d. compylobacteriosis
45. IBR-IPV can cause abortion during _____ trimester/s in bovines:
- a. first
 - b. second
 - c. third
 - d. all
46. Concentration of BSA in flushing medium used in collection of embryo is:
- a. 1%
 - b. 0.1%
 - c. 0.4%
 - d. 4%
47. Amorphous globosus is a monster of _____ type:
- a. free twin
 - b. conjoined twin
 - c. asymmetrical conjoined twin
 - d. none
48. Following hormones are involved in initiation of parturition in cow:
- a. fetal cortisol
 - b. oxytocin
 - c. both a and b
 - d. none
49. The functional unit of testis is:
- a. seminiferous tubule
 - b. nephron
 - c. germ cells
 - d. uniferous cells
50. Feminization in dog is observed in:
- a. sertoli cell tumour
 - b. klinefelter syndrome
 - c. leydig cell tumor
 - d. all of them

ANSWER KEY:

Veterinary Gynaecology and Obstetrics									
1-B	2-A	3-D	4-A	5-C	6-B	7-A	8-D	9-B	10-C
11-A	12-C	13-A	14-A	15-D	16-B	17-D	18-A	19-A	20-C

21-A	22-A	23-D	24-D	25-D	26-A	27-C	28-A	29-C	30-B
31-C	32-B	33-D	34-B	35-A	36-B	37-A	38-B	39-A	40-C
41-C	42-A	43-C	44-A	45-D	46-B	47-A	48-C	49-A	50-A

II . Answer the following

- Desirable concentration of actively motile spermatozoa per dose of frozen bull semen.
- Commonly used model of AV for bulls.
- Temperature time protocol needed for destroying spermicidal factor in milk.
- Spermicidal factor present in fresh milk.
- Volume of semen dependent upon the secretions from seminal vesicles.
- _____ present in goat seminal plasma causes coagulation when sodium citrate is added.
- Freezing point depression of bull semen
- Dose of penicillin G sodium per ml of extended semen.
- Distance between grill and straw rack during semen freezing
- Which is better? rapid / slow freezing.
- Dose of dihydro-streptomycin sulphate per ml in extended semen.
- _____ ovary is physiologically more active.
- Shape of non-pregnant uterus in mare
- Urethral glands are found in _____ species?
- Fructose and citric acid are secreted from which accessory gland?
- High content of ergothionine and inositol in vesicular glands is characteristics of which species?
- Nerve supplying sensory fibres to vagina, vulva and clitoris.
- Sex cords of female are called _____
- In females _____ ducts develop into gonadal system while in male _____ ducts develop.
- Vestibule arises from _____
- The endocrine cells of ovary originate from _____
- Oocytes surrounded by one layer of flattened cells _____
- Ovulation generally occurs in response to _____
- Follicular development is enhanced / suppressed in ovary containing corpus luteum?
- Second polar body is formed at the time of _____
- At ovulation ova of cattle, sheep and swine contain _____ polar body.
- At ovulation ova of horse, dog and fox are in _____ division
- At ovulation the oocyte liberated in cattle is _____
- At ovulation the oocyte liberated in equines is _____
- Primary spermatocyte gives rise to _____ spermatozoa.
- Primary oocyte gives rise to _____ egg.
- The regression of corpus lutea begins by day _____ in cattle
- Mature corpus luteum is smaller than mature graffian follicle in the _____
- Corpus luteum lysis is _____ induced in cattle and sheep.

35. Intrauterine injection of _____ blocks estrogen induced corpus luteum lysis in cattle
36. The functional segments of oviduct
37. PGE₃ has a _____ effect on oviduct
38. Uterus of cow, ewe and mare is _____
39. Uterus of sow is _____
40. Oviduct is supplied blood by _____
41. Blastokinin, a protein which influences blastocyst formation is secreted by uterus of _____
42. Fern pattern of cervical mucus is associated with high _____ content.
43. pH of vaginal secretion is favourable / unfavourable to spermatozoa?
44. Gartner's ducts are remnants of _____
45. Depleted secretory cells of oviductal musculature
46. Cervix possesses / does not possess glands?
47. FSH and LH are chemically _____
48. _____ causes crop milk production in pigeons.
49. The long half-life of PMSG is due to _____
50. PMSG is formed by endometrial cups which are of _____ origin

ANSWER KEY:

SL	Answer Key	SL	Answer Key	SL	Answer Key
1	10-15 million	18	Medullary cords	35	Indomethacin
2	Danish	19	Mullerian, Wolffian	36	Fimbriae, Infundibulum, Ampulla, Isthmus
3	92-95°C for 10-12 min	20	Urogenital sinus	37	Relaxing
4	Lactanin	21	Ovarian medulla	38	Bipartite
5	Seminal vesicles	22	Primordial cells	39	Bicornuate
6	Lyso lecithin	23	LH surge	40	Utero ovarian
7	- 0.55°C	24	Enhanced	41	Rabbits
8	500-1000 IU	25	Fertilization	42	Chloride
9	4 cm	26	One	43	Unfavourable
10	Rapid	27	First maturation	44	Wolffian duct
11	500-1000 g	28	Secondary	45	Peg cells
12	Right	29	Primary	46	Does not possess
13	Cruciform	30	Four	47	Glycoproteins
14	Man	31	One	48	Prolactin
15	Seminal vesicles	32	15-16	49	Sialic acid
16	Boar	33	Mare	50	Foetal origin
17	Pudic	34	Estrogen		

ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY MEDICINE

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I . Choose the correct answer

1. Which is the site of action for spironolactones:
 - a. proximal convoluted tubules
 - b. loop of henle
 - c. distal convoluted tubules
 - d. collecting duct
2. Cerebro-cortical necrosis is caused by:
 - a. copper deficiency
 - b. thiamin deficiency
 - c. cobalt deficiency
 - d. riboflavin deficiency
3. Which of the following is not a part of udder hygiene in Mastitis control programme:
 - a. pre-milking udder hygiene
 - b. dry cow therapy
 - c. post milk teat disinfection
 - d. efficient removal of milk
4. Continuous or machinery murmur on auscultation is suggestive of:
 - a. myocarditis
 - b. pericarditis
 - c. patent ductus arteriosus
 - d. vegetative endocarditis
5. Which of the following is the most common site of predilection for endocarditis in horses?
 - a. mitral valve
 - b. tricuspid valve
 - c. aortic valve
 - d. pulmonary valve
6. Which of the following is used extensively in endotoxemic shock in farm animals:
 - a. hypertonic dextrose
 - b. hypertonic saline
 - c. hypertonic sodium bicarbonate
 - d. calcium gluconate
7. Frozen colostrum at - 20⁰ C can be stored for:
 - a. one week
 - b. four weeks
 - c. six weeks
 - d. indefinitely
8. Isometamedium chloride is the drug of choice for:
 - a. babesiosis
 - b. theileriosis
 - c. trypanosomiasis

- d. anaplasmosis
- 9. Increased frequency, tenesmus with presence of abundant mucus in faeces is suggestive of:
 - a. small bowel diarrhea
 - b. large bowel diarrhea
 - c. exocrine pancreatic insufficiency
 - d. parasitic diarrhoea
- 10. Impulse oscillometry is an important clinical test to measure:
 - a. cardiac function
 - b. respiratory function
 - c. circulatory function
 - d. urinary function
- 11. Peat scours in calves is due to deficiency of:
 - a. calcium
 - b. selenium and Vit. E
 - c. copper
 - d. cobalt
- 12. Synchronous diaphragmatic flutter (Thumps) in horses is caused by:
 - a. hypocalcaemia
 - b. hypoglycemia
 - c. hypercalcaemia
 - d. hyperkalemia
- 13. Which of the following is major environmental pathogen responsible for mastitis:
 - a. *Staphylococcus aureus*
 - b. *Staphylococcus agalactiae*
 - c. *Streptococcus uberis*
 - d. *Corynebacterium bovis*
- 14. Which of the following plays important role in magnesium homeostasis:
 - a. liver
 - b. kidneys
 - c. alimentary system
 - d. lymphatic system
- 15. Alternate antidote for arsenic poisoning is:
 - a. calcium versenate
 - b. sodium nitrite
 - c. sodium thiosulphate
 - d. calcium chloride
- 16. Normal serum magnesium level in bovines is:
 - a. 3.5 - 7.0 mg/dl
 - b. 8.1- 11.6 mg/dl
 - c. 1.7 - 3.0 mg/dl
 - d. 5.2 - 7.5 mg/dl
- 17. Clinical signs of Milk Fever are observed when the serum calcium level falls below:
 - a. 7.5 mg/dl
 - b. 6.5 mg/dl
 - c. 8.5 mg/dl

- d. 5.5 mg/dl
- 18. Probable reason for nervous signs in bovine ketosis is accumulation of:
 - a. aceto-acetate
 - b. β - OH butyrate
 - c. oxaloacetate
 - d. isopropyl alcohol
- 19. Which of the following is copper containing enzyme:
 - a. ceruloplasmin
 - b. gamma glutamyl transferase
 - c. sorbitol dehydrogenase
 - d. serum arginase
- 20. The therapeutic dose of glucose in bovine ketosis is:
 - a. 5 mg/kg BW
 - b. 5 μ g/kg BW
 - c. 0.5 g/kg BW
 - d. 0.5 mg/kg BW
- 21. The dose of dopamine in anuria is:
 - a. 5 μ g/kg/hour
 - b. 20 μ g/kg/hour
 - c. 5 mg/kg/hour
 - d. 20 mg/kg/hour
- 22. The most important cause of allotriophagia in animals is:
 - a. calcium deficiency
 - b. protein deficiency
 - c. phosphorus deficiency
 - d. vit. D deficiency
- 23. Puerperal tetany in bitches is caused by:
 - a. hypoglycemia
 - b. hypocalcemia
 - c. hypomagnesemia
 - d. hypocalcemia and hypoglycaemia
- 24. Important biochemical change in baby pig disease is:
 - a. hypothermia
 - b. hypoglycemia
 - c. hypocalcemia
 - d. anaemia
- 25. Enzootic ataxia in lambs is due to deficiency of:
 - a. copper
 - b. selenium and Vit. E
 - c. zinc
 - d. vit. A
- 26. Complicated diabetes mellitus is confirmed by presence of:
 - a. glycosuria
 - b. ketonuria
 - c. glycosuria with ketonuria
 - d. proteinuria

27. Crazy chick disease is due to deficiency of:
- vit. A
 - vit. K
 - vit. C
 - vit. E
28. Hypotonic dehydration is having:
- hypokalemia
 - hyponatraemia
 - hypochloremia
 - hypernatremia
29. Which of the following is used as sustained release drug for pasture bloat:
- silica in dimethicon
 - turpentine
 - monensin
 - aluminium hydroxide
30. Which of the following is an uncommon sequel of traumatic reticulo-peritonitis:
- diaphragmatic hernia
 - diffused peritonitis
 - rupture of left gastroepiploic artery
 - congestive heart failure
31. The case fatality rate in abomasal ulcers in dairy cattle is 100 percent in:
- type 1
 - type 2
 - type 3
 - type 2 and 4
32. Which of the following is an excellent intracranial decompressant?
- furosemide
 - spironolactone
 - mannitol
 - mannitol with corticosteroid
33. Parakeratosis is caused by:
- vit. A deficiency
 - vit. E deficiency
 - zinc deficiency
 - manganese deficiency
34. Ovine ketosis is more common during:
- late gestation
 - one week post lambing
 - four weeks post-lambing
 - immediately after lambing
35. Presence of formiminoglutamic acid in urine is confirmation of:
- copper deficiency
 - selenium deficiency
 - cobalt deficiency
 - calcium deficiency

36. Gold standard test used for diagnosis of leptospirosis is:
- RPAT
 - MAT
 - AGPT
 - HAT
37. Turkey egg appearance of the kidneys is pathognomonic PM lesion of:
- transmissible gastroenteritis
 - swine erysipelas
 - hog cholera
 - atropic rhinitis
38. Which of the following a diagnostic feature of Canine Ehrlichiosis:
- thrombocytopenia
 - leucocytosis
 - polycythemia
 - eosinophilia
39. Which of the following is the most common cause of canine hypothyroidism:
- thyroid agenesis
 - thyroid dysharmonogenesis
 - pituitary tumor
 - lymphocytic thyroiditis
40. Identifiable ECG change in hyperkalemia is:
- tall 'P' wave
 - tall 'R' wave
 - tall 'T' wave
 - deep 'S' wave

KEY ANSWERS:

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

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I . Choose the correct answer (bacterial, fungal and rickettsial diseases)

1. Actinomycosis is also called as:
 - a. lock jaw
 - b. wooden tongue
 - c. lumpy jaw
 - d. None
2. Anthrax is characterized by:
 - a. dark blood may ooze from natural orifice
 - b. rigor mortis absent or incomplete
 - c. rapid decomposition of carcass.
 - d. all
3. McFaydean's reaction:
 - a. *Pasturella multocida*
 - b. *Clostridium chauvoei*
 - c. *Bacillus anthracis*
 - d. All
4. *Clostridium hemolyticum* mainly produces:
 - a. beta toxin
 - b. alpha toxin
 - c. epsalon toxin
 - d. all
5. Bacillary hemoglobinuria is caused by:
 - a. *Clostridium chauvoei*
 - b. *Clostridium hemolyticum*
 - c. *Clostridium perfringens*
 - d. *Clostridium septicum*
6. Endocarditis occurs in the pigs affected with erysipelas in the following form of the disease:
 - a. hyperacute
 - b. acute
 - c. both a and b
 - d. chronic
7. The drug of choice in the treatment of BQ:
 - a. Alincomycin
 - b. Gentamicin
 - c. Penicillin
 - d. Tetracycline
8. Shipping fever in cattle and young sheep is caused by:
 - a. *Mannheimia haemolytica*
 - b. *Pasteurella multocida*
 - c. *Mycoplasma mycoides*

- d. *Chlymydia psittaci*
9. The allergic test conducted on horse for the diagnosis of glanders is called:
- Strauss test
 - Mallein test
 - Johnin test
 - Coggin's test
10. Emphysema of guttural pouch seen in:
- glanders
 - tetanus
 - strangles
 - none of the above
11. Gold standard serological test used for diagnosis of leptospirosis is:
- FAT
 - MAT
 - AGPT
 - HAT
12. Braxy in sheep is caused by:
- C. sordellii*
 - C. septicum*
 - C. novyi*
 - C. perfringence*
13. Which form of Anthrax is more common in animals?
- intestinal
 - inhalation
 - cutaneous
 - nervous
14. Big head is caused by:
- C. sordellii*
 - C. novyi*
 - both a and b
 - none
15. Thrombocytopaenia is the persistent character of:
- babesiosis
 - ehrlichiosis
 - leptospirosis
 - theileriosis
16. Actinobcillosis is also called as:
- timber tongue
 - wooden tongue
 - both a and b
 - none
17. Among the poultry birds which is more susceptible to aflatoxicosis and is followed by:
- chicken, duck and turkey
 - duck, chicken and turkey

- c. turkey, chicken and duck
 - d. duck, turkey and chicken
18. Differential stain for mycobacterial organism is:
- a. acid fast staining
 - b. newman's staining
 - c. gram's staining
 - d. methylene blue staining
19. Imidocarb is administered to treat Anaplasma carrier @_____
- a. 1 mg/kg bwt i/m or s/c
 - b. 10 mg/kg bwt i/m or s/c
 - c. 5 mg/kg bwt i/m or s/c
 - d. 15 mg/kg bwt i/m or s/c
20. Brooder pneumonia caused by:
- a. *Aspergillus sp*
 - b. *Salmonella sp*
 - c. *Haemophilus sp*
 - d. *Mycoplasma sp*
21. Ascoli's precipitin test is performed to diagnose:
- a. BQ
 - b. HS
 - c. Anthrax
 - d. Actinobacillosis
22. The pathognomonic lesion noticed in the Bacillary hemoglobinuria affected animal is:
- a. an anemic infarct in the liver
 - b. haemorrhages in the kidney
 - c. abomasal ulcers
 - d. enlargement of lymph nodes
23. Abortion causing zoonotic diseases:
- a. brucellosis
 - b. leptospirosis
 - c. a and b
 - d. none of the above
24. Shipping fever in cattle is caused by:
- a. *Pasteurella haemolytica*
 - b. *Pasteurella multocida*
 - c. *Mycoplasma mycoides*
 - d. *Chlymydia psittaci*
25. Necrotizing myositis is the main pathogenesis found in following disease:
- a. Brucellosis
 - b. JD
 - c. BQ
 - d. Tetanus
26. The cutaneous form of Glanders in horse is called as:
- a. farcy
 - b. carbuncals

- c. urtecaria
 - d. lymphomas
27. Fowl typhoid in poultry is caused by:
- a. *Pasteurella multocida*
 - b. *Salmonella typhimurium*
 - c. *Salmonella gallinarium*
 - d. *Salmonella pullorum*
28. Critical titer value of MAT used for diagnosis of positivity of leptospirosis is:
- a. less than 1:40
 - b. more than 1:400
 - c. less than 1:100
 - d. 1:100 to 1:200
29. Silage feeding, act as major risk factor in transmission of listeriosis since:
- a. acidic pH of silage favours organism
 - b. both a and b
 - c. alkaline pH of silage favours organism
 - d. none of the above
30. Predilection site for *Brucella abortus*:
- a. pregnant uterus
 - b. udder
 - c. testicles
 - d. all of the above
31. The drug of choice in the treatment of wooden tongue is:
- a. alincomycin
 - b. gentamicin
 - c. potassium iodide
 - d. tetracycline
32. Vaginal mucus agglutination is useful to diagnose:
- a. brucellosis
 - b. anthrax
 - c. erysepelosis
 - d. leptospirosis
33. The following species is resistant to botulism:
- a. cattle
 - b. horse
 - c. sheep
 - d. pigs
34. Presence of suspicious foreign material in the fore stomach in post mortem in cattle is suggestive of:
- a. botulism
 - b. anthrax
 - c. black leg
 - d. none of the above
35. Trismus with restricted jaw movement saw horse posture is characteristic symptoms of:

- a. actinobacillosis
 - b. listeriosis
 - c. enteriotoxaemia
 - d. tetanus
36. Optimum age of calf hood vaccination against brucellosis is:
- a. < 4 month
 - b. 4 to 8month
 - c. > one year
 - d. during pregnancy
37. The following antibiotic is effective against anaplasmosis:
- a. fortified procaine penicillin
 - b. streptomycin
 - c. oxytetracycline
 - d. gentamicin
38. Which of the following class of toxins is produced by fungi?
- a. mycotoxins
 - b. endotoxins
 - c. exotoxins
 - d. all of the above
39. Circular hair loss and scaling are the clinical signs of:
- a. malassezia pachydermatis
 - b. moist eczema
 - c. coccidioidomycosis
 - d. ring worm
40. Heart water is an infectious disease caused by:
- a. *Ehrlichia ruminantium*
 - b. *Ehrlichia platys*
 - c. *Ehrlichia canis*
 - d. *Ehrlichia bovis*
41. The soil pH that favors survivability of *Mycobacterium paratubercle* bacilli is:
- a. alkaline
 - b. neutral
 - c. acidic
 - d. both alkaline and acidic
42. Fungi that produce 'Aflatoxin-B₁' by colonizing over the improperly stored grains is:
- a. *Aspergillus flavus*
 - b. *Aspergillus parasiticus*
 - c. both a and b
 - d. none of these
43. *Purpura hemorrhagica* in horses triggered by an allergic-type reaction due to:
- a. *Staphylococcus aureus* protein A
 - b. Tetanospasmin protein
 - c. *Streptococci equi* M protein
 - d. *Botulinum* toxin

44. The pigs affected with Chronic form of erysipelothrux is characterized by:
- arthritis
 - vegetative endocarditis
 - both a and b
 - diamond shaped erythematic lesions
45. Thrombocytopaenia and hyper-gammaglobinaemia are the persistent character of:
- babesiosis
 - theileriosis
 - leptospirosis
 - ehrlichiosis
46. Pink eye condition caused by:
- morexella
 - chlamydia
 - mycoplasma
 - all of these
47. Query Fever is caused by:
- Coxiella burneti*
 - Chlamydia psittaci*
 - Clostridia spp.*
 - Morexella bovis*
48. A typical of "fried egg" appearance colony morphology is a diagnostic feature of:
- Salmonella Pullorum*
 - Salmonella Gallinarum*
 - Avian pathogenic E. Coli*
 - Mycoplasma gallisepticum*
49. Thrush' is a mycotic disease of the poultry which affects the:
- digestive tract
 - uro-genital tract
 - respiratory tract
 - musculo skeletal system
50. Nine-mile fever is a synonym for:
- Ehrlichiosis
 - Q fever
 - Chlamydiosis
 - Histoplasmosis

Viral and parasitic diseases:

51. Bovine viral diarrhea virus is antigenically related to:
- hog cholera and border disease
 - PPR and Measles
 - CD and ND
 - none of the above
52. Dog tapeworm that poses cucumber shape gravid segments:
- Diphyllbothrium latum*
 - Dipylidium caninum*
 - Spirometra mansoni*

- d. *Echinococcus granulosus*
53. Disease caused by *Trypanosoma evansi* in camel is called as:
- surra
 - dubla
 - tibarsa
 - all the above
54. Test used for diagnosis of hydatid disease is:
- Casoni's test
 - Coggin's test
 - Coombs test
 - COFAL test
55. The following parasite uses two intermediate host viz, Land snail and Ant:
- Fasciola hepatica*
 - Dicrocoelium dendriticum*
 - Fasciola gigantica*
 - Fascioloides magna*
56. The metacestode of following tapeworm found in striated muscle of cattle is:
- Taenia saginata*
 - Taenia solium*
 - Taenia asiatica*
 - Taenia ovis*
57. *In-ovo* vaccine in poultry carried out in:
- 10-12 day old chick embryo
 - '0' day old chick
 - 17-19 day old chick embryo
 - first week of chick
58. It is a non inflammatory, degenerative disease of CNS in cattle caused by prion protein:
- scrapie
 - bovine spongiform encephalopathy
 - kumri
 - visna-maedi
59. The insect reported to be the biological vector of bluetongue virus is:
- Mosquitoes
 - Ticks
 - Fles
 - Culicoides midges*
60. The chewing gum type of seizures is classical nervous sign shown in dogs affected with:
- ICH
 - Canine parvoviral gastroenteritis
 - Rabies
 - CD
61. The pigs are referred as amplifier host in:
- Foot and mouth disease

- b. both a and b
 - c. Japanese encephalitis
 - d. Avian influenza
62. The drug of choice in moniezia is:
- a. niclosamide
 - b. ivermectin
 - c. closantal
 - d. levomisol
63. The following species is resistant to FMD:
- a. horses
 - b. elephants
 - c. sheep and goats
 - d. pigs
64. *Culicoides* midges act as vector and transmits:
- a. bluetongue
 - b. ephemeral fever
 - c. african horse sickness
 - d. all of the above
65. The 'chorea' is classical nervous sign shown in dogs affected with:
- a. ICH
 - b. Canine parvoviral gastroenteritis
 - c. CD
 - d. Rabies
66. Different stages of *Theileria* organisms can be seen in:
- a. erythrocytes
 - b. both a and b
 - c. lymphocytes
 - d. thrombocyte
67. Visceral larval migrans does not occur in children affected with:
- a. *Toxocara cati*
 - b. *Toxocara canis*
 - c. *Toxocara leonina*
 - d. *Toxocara vitulorum*
68. *Dirofilaria immitis* is transmitted by:
- a. Mosquitoes
 - b. Ticks
 - c. Iatrogenic
 - d. All of the above
69. Test used for diagnosis of Equine infectious anemia is:
- a. Anton's test
 - b. Hotis test
 - c. Coggin's test
 - d. Strau's test
70. East coast fever is caused by:
- a. *Theileria annulata*

- b. *Theileria parva*
 - c. *Theileria orientalis*
 - d. All of the above
71. Trypanosoma infection that transmits sexually:
- a. dourine
 - b. nagana
 - c. surra
 - d. sleeping sickness
72. Wet pox referred to:
- a. cutaneous form
 - b. nervous form
 - c. diphtheric form
 - d. respiratory form
73. The FMD serotype that was not recorded in last two decades in India is:
- a. O
 - b. C
 - c. A
 - d. Asia-1
74. ORF is caused by a virus:
- a. *Parapox virus*
 - b. *Orbivirus*
 - c. *Orthomyxovirus*
 - d. *Paramyxovirus*
75. Ivermectin can be used to treat:
- a. cestodes
 - b. nematodes
 - c. both a and b
 - d. neither a nor b
76. Type of anaemia recorded in Diphyllbothriasis is:
- a. hemolytic anaemia
 - b. pernicious anemia
 - c. normocytic normochromic anaemia
 - d. aplastic anaemia
77. Pimply gut in cattle was caused by:
- a. *Oesophagostomum columbianum*
 - b. *Oesophagostomum dentatum*
 - c. *Oesophagostomum radiatum*
 - d. All of these
78. After entry in to the peripheral nerves the rabies virus travels at the rate of:
- a. 1-2 mm per hour
 - b. 5-10 mm per hour
 - c. 1-2 cm per hour
 - d. 5-10 cm per hour
79. The genus capripox virus composed of:
- a. goat pox virus

- b. lumpy skin disease virus
 - c. sheep pox virus
 - d. all of these
80. Which of the following disease is caused by herpes virus:
- a. IBR
 - b. *Aujeszky's* disease
 - c. MCF
 - d. all of these
81. Contagious ecthyma / Orf is caused by a virus belongs to the family:
- a. *Picornaviridae*
 - b. *Paramyxoviridae*
 - c. *Orthomyxoviridae*
 - d. *Poxviridae*
82. Bullet -shaped negative sense ssRna virus is a characteristic feature of:
- a. *ephemeral fever virus*
 - b. *rabies virus*
 - c. *vesicular stomatitis viruses*
 - d. all of these
83. The FMD serotype that was not recorded in last two decades in India is:
- a. 'O' serotype
 - b. 'C' serotype
 - c. 'A' serotype
 - d. Asia-1 serotype
84. Test used for diagnosis of Equine infectious anemia is:
- a. Coombs test
 - b. Straus's test
 - c. Casoni test
 - d. Coggins test
85. Wet pox referred to:
- a. cutaneous form of fowl pox
 - b. diphtheritic form of fowl pox
 - c. systemic form of fowl pox
 - d. none of these
86. Canine parvo virus causes severe infection and death in young puppies due to destruction of rapidly dividing cells in:
- a. intestine
 - b. heart
 - c. bone marrow
 - d. all of these
87. Half life of Ivermectin is:
- a. 1 day
 - b. 14 days
 - c. 7 days
 - d. 30 days
88. Type of anaemia recorded in *Dipyllobothrium latum* due to B₁₂ deficiency is:

- a. hemolytic anaemia
 - b. pernicious *anemia*
 - c. normocytic normochromic anaemia
 - d. aplastic anaemia
89. Knotty gut and Pimply gut is caused by:
- a. *Oesophagostomum columbianum*
 - b. *Oesophagostomum radiatum*
 - c. both a and b
 - d. none of these
90. After entry in to the peripheral nerves the rabies virus travels at the rate of:
- a. 1-2 mm per hour
 - b. 1-2 cm per hour
 - c. 5-10mm per hour
 - d. 5-10 cm per hour
91. Development of pustular and scabby lesions on the muzzle and lips of sheep and goats are characteristic symptoms of:
- a. PPR
 - b. RP
 - c. Orf
 - d. BT
92. Brick -shape virus is a characteristic feature of:
- a. *Birna virus*
 - b. *Rabies virus*
 - c. *Pox virus*
 - d. all of these
93. The common FMD serotype that was recorded in India is:
- a. 'O' serotype
 - b. 'C' serotype
 - c. 'A' serotype
 - d. Asia-1 serotype
94. Post exposure prophylaxis for prevention of rabies is recommended as:
- a. 0, 3 and 7
 - b. 0, 3, 7, 14 and 28
 - c. 0 and 21
 - d. 0, 7, 21, 60 and 90
95. Large eosinophilic Intracytoplasmic inclusion bodies in fowl pox are called as:
- a. bollinger bodies
 - b. negri bodies
 - c. guarneiri *bodies*
 - d. poschen bodies
96. Canine parvo virus replicates and destroy highly dividing cells like:
- a. intestinal cells
 - b. cardiac cells
 - c. both a and b
 - d. none of these

97. The type of New castle disease virus is most virulent:
- velogenic
 - mesogenic
 - lentogenic
 - none of the above
98. Raised button ulcers in colonic mucosa of swine is the pathogenic lesion in:
- theileriosis
 - hog cholera
 - swine fever
 - all of the above
99. The following species is resistant to FMD:
- pigs
 - elephants
 - sheep and goats
 - horses
100. Bovine viral diarrhea virus is antigenically related to:
- hog cholera and border disease
 - PPR and Measles
 - CD and ND
 - none of the above
101. *Culicoides* midges act as vector and transmit:
- bluetongue
 - ephemeral fever
 - african horse sickness
 - all of the above
102. The 'chorea' is classical nervous sign shown in dogs affected with:
- ICH
 - Canine parvoviral gastroenteritis
 - Rabies
 - CD
103. Different stages of *Theileria* organisms can be seen in:
- erythrocytes
 - lymphocytes
 - both a and b
 - thrombocyte
104. The drug effective against immature flukes:
- diamphenitide
 - rafoxanide
 - triclabendazole
 - albendazole
105. The drug preferred in the treatment of trematodal infection:
- albendazole
 - fenbendazole
 - mebendazole
 - triclabendazole

106. Visceral larval migrans does not occur in children affected with:
- Toxocara cati*
 - Toxocara canis*
 - Toxocara leonina*
 - Toxocara vitulorum*
107. Ivermectin is effective against:
- ectoparasites and trematodes
 - ectoparasites and nematodes
 - ectoparasites and cestodes
 - ectoparasites and all helminths
108. *Dirofilaria immitis* is transmitted by:
- mosquitoes
 - ticks
 - iatrogenic
 - all of the above
109. Shell less eggs in poultry are characteristic features of _____ disease:
- Infectious Bronchitis
 - Infectious Bursal Disease
 - Marek's Disease
 - New Castle Disease
110. Officially, India was declared free from Rinder pest disease in the year _____:
- 2004
 - 2005
 - 2006
 - 2007

ANSWER KEY:

Preventive Medicine									
1-C	2-D	3-C	4-A	5-B	6-D	7-C	8-A	9-B	10-C
11-B	12-B	13-A	14-C	15-B	16-C	17-D	18-C	19-C	20-A
21-C	22-A	23-C	24-A	25-C	26-A	27-C	28-B	29-A	30-D
31-C	32-A	33-D	34-A	35-D	36-B	37-C	38-A	39-D	40-A
41-C	42-C	43-C	44-C	45-D	46-D	47-A	48-D	49-A	50-B
51-A	52-B	53-D	54-A	55-B	56-A	57-C	58-B	59-D	60-D
61-B	62-A	63-A	64-D	65-C	66-B	67-D	68-A	69-C	70-B
71-A	72-C	73-B	74-A	75-B	76-B	77-C	78-B	79-D	80-D
81-D	82-D	83-B	84-D	85-B	86-D	87-B	88-B	89-C	90-C
91-C	92-C	93-A	94-B	95-A	96-C	97-A	98-B	99-D	100-A
101-D	102-D	103-C	104-A	105-D	106-D	107-B	108-A	109-A	110-B

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY SURGERY
AND RADIOLOGY****Dr. D. Dilip Kumar**Department of Veterinary Surgery and Radiology
Veterinary College, Bidar - 585 226 (Karnataka)**I. Choose the correct answer**

1. Poly diaxanone suture is:
 - a. synthetic mono-filamentous
 - b. polymer of paradiaxanone
 - c. absorbed in 180 days
 - d. all of the above
2. Silk is treated by substance to decrease its capillary:
 - a. oil immersion
 - b. wax immersion
 - c. silicon immersion
 - d. all of the above
3. The disadvantage of silk are:
 - a. capillary action
 - b. tissue reaction
 - c. cutting through tissue
 - d. all of the above
4. Nylon is:
 - a. hexamethylenediamine + adipic acid combination
 - b. inert, non capillary
 - c. monofilament and multifilament
 - d. all of the above
5. Caprolactum:
 - a. vitafil
 - b. multifilament
 - c. herniorrhaphy
 - d. all of the above
6. Suture size used for skin and subcutis is:
 - a. 4-0 to 3-0
 - b. 1 to 2
 - c. 4 to 3
 - d. all of the above
7. Suture for muscle and facial of small animals:
 - a. 3-0 to 0
 - b. 3 to 1
 - c. 6-0 to 8-0
 - d. None
8. Suture for cornea, nerve:
 - a. 6-0 to 5-0
 - b. 6 to 5
 - c. 2-3

- d. none
- 9. The ultrasound cleaner cleans the instrument by:
 - a. cavitation
 - b. vibration
 - c. surface tension
 - d. all of the above
- 10. The basic grips of holding scalpel are:
 - a. pencil grip
 - b. finger grip
 - c. palm grip
 - d. all of the above
- 11. Catgut is prepared from:
 - a. submucosa of sheep intestine
 - b. serosal layer of cattle small intestine
 - c. both
 - d. none
- 12. Collagen suture is prepared from:
 - a. bovine steer flexor tendon
 - b. extensor tendon
 - c. both
 - d. none
- 13. PGA:
 - a. non-collagenous synthetic absorbable suture
 - b. multifilamentous
 - c. pliable
 - d. all of the above
- 14. Which of the following is true regarding PGA suture:
 - a. degraded product of pga is antimicrobial
 - b. absorbed by hydrolysis
 - c. absorbed in 120 days
 - d. all of the above
- 15. Polyglactin 910 is:
 - a. braided synthetic absorbable
 - b. glycolic acid : lactic acid : 9:1 ration
 - c. absorbed by hydrolysis in 40 to 90 days
 - d. all of the above
- 16. The relationship between degree of differentiation and regeneration is:
 - a. direct
 - b. inverse
 - c. indirect
 - d. no relationship
- 17. The cells which regenerate are:
 - a. endodermal
 - b. mesodermal
 - c. ectodermal

- d. all of the above
- 18. The mitotic inhibitors in tissues are:
 - a. bradykinins
 - b. histamine
 - c. serotonin
 - d. epinephrine-chalone complex
- 19. Monocytes may become:
 - a. epitheloid cells
 - b. histocytes
 - c. foreign body giant cells
 - d. all of the above
- 20. The wound healing is retarded by:
 - a. hypoproteinaemia (2g. /100ml.)
 - b. low oxygen supply
 - c. uraemia
 - d. all of the above
- 21. Steroids decrease wound healing by:
 - a. decrease in protein synthesis
 - b. stabilize lysosomal membrane
 - c. inhibit inflammation
 - d. all of the above
- 22. The vitamin A effect on wound healing is:
 - a. increases inflammation
 - b. labelling of lysosome
 - c. stimulate fibroblasts
 - d. all of the above
- 23. Effect of vit. E on wound healing is:
 - a. stabilizes lysosomal membrane
 - b. retards collagen production
 - c. retards wound healing
 - d. all of the above
- 24. Vitamin C in wound healing is needed for:
 - a. hydroxylation of proline
 - b. hydroxylation of lysine
 - c. secretion of collagen
 - d. all of the above
- 25. Effect of zinc on wound healing is:
 - a. component of dna polymerase
 - b. component of reverse transcriptase
 - c. increased levels retard healing
 - d. all of the above
- 26. The wound healing is retarded by:
 - a. radiation and toxic drugs
 - b. dehydration and edema
 - c. infection

- d. all of the above
- 27. The drugs which retards wound healing:
 - a. antiseptics
 - b. hypertonic solutions
 - c. hypotonic solutions
 - d. all of the above
- 28. Golden yellow pus is produced by:
 - a. *Corynaebacterium pyogens*
 - b. *Streptococci*
 - c. *Staphylococcus aureus*
 - d. *Staphylococcus albicans*
- 29. Thin watery pus is produced by:
 - a. *E coli*
 - b. *Pseudomonas*
 - c. *Proteus*
 - d. *Shigella*
- 30. Greenish yellow pus is produced by:
 - a. *Corynaebacterium pyogenes*
 - b. *Spherophorus necrophorus*
 - c. *Pseudomonas*
 - d. *Streptococcus equi*
- 31. Abnormal cavity containing pus is known as:
 - a. abscess
 - b. phlehgman or cellulites
 - c. empyema
 - d. antibioma
- 32. The wounds get infected above the critical level of microbes:
 - a. $10^1/\text{gm./ml}$
 - b. $10^2/\text{gm./ml}$
 - c. $10^3/\text{gm./ml}$
 - d. $10^6/\text{g./ml}$
- 33. The hospital borne infections are known as:
 - a. iatrogenic infection
 - b. nosocominal infection
 - c. super infections
 - d. all of the above
- 34. The example for clean wounds:
 - a. surgically incised skin
 - b. tenotomies
 - c. desmotomies
 - d. all of the above
- 35. Clean contaminated wound produced in:
 - a. tracheotomy
 - b. caslick's operation
 - c. episiotomy

- d. all of the above
- 36. The golden period of wound is:
 - a. 4 hours
 - b. 6-8 hours
 - c. 10 hours
 - d. 12 hours
- 37. The dog bite wound should not be closed because:
 - a. virus carried deeper
 - b. infection spreads quickly
 - c. bite wounds are contaminated
 - d. all of the above
- 38. Opening of ripened abscess is known as:
 - a. lancing
 - b. counter opening
 - c. excision
 - d. all of the above
- 39. Debridement of wound means:
 - a. removal of foreign material
 - b. removal of devitalized tissue
 - c. irrigation of wound under pressure
 - d. all of the above
- 40. The conditions met out in autoclaving are:
 - a. 121°C, 15 mts., 15lb/mm
 - b. 121°F, 15 mts., 15lb/mm
 - c. 121°K, 15 mts., 15lb/mm
 - d. none of the above
- 41. The biological indicator used in autoclaving is:
 - a. *Bacillus stearothermophilus* spores
 - b. paper strip
 - c. both
 - d. none
- 42. Disinfection means:
 - a. destruction of all microorganisms on something
 - b. destruction of pathogenic organisms on inanimate objects
 - c. both
 - d. none
- 43. Antiseptics are used to kill microorganisms on:
 - a. skin
 - b. inanimate object
 - c. air
 - d. all of the above
- 44. Steam destroys microorganisms by:
 - a. co-agulation and penetration of cellular proteins
 - b. by oxidation
 - c. both

- d. none
- 45. The surgical pack placement in autoclave should be:
 - a. vertically and longitudinally
 - b. horizontally and longitudinally
 - c. both ways
 - d. none
- 46. The gravity displacement sterilizer works on the principle of:
 - a. air is heavier than steam
 - b. steam is heavier than air
 - c. both
 - d. none
- 47. The temperature, pressure, time combination is gravity displacement autoclave is:
 - a. 121°C, 15 mts., 15lb/inch
 - b. 250° F, 15 mts., 15lb/ inch
 - c. 250°K, 15 mts., 15lb/ inch
 - d. none
- 48. Prevaccum sterilizer has:
 - a. steam injected in vacuum
 - b. greater steam penetration for short period
 - c. 270 to 275 ° F (132 to 135 ° C) for 3 to 4 minutes
 - d. all of the above
- 49. The flash sterilization is done:
 - a. unwrapped, non sterile item for quick sterilization
 - b. gravity sterilizer is used
 - c. the gravity flash sterilizer used 270 to 285° f for 4 minutes
 - d. all of the above
- 50. Ethylene oxide is:
 - a. inflammable
 - b. explosive
 - c. carcinogenic
 - d. all of the above
- 51. Ethylene oxide flammability is reduced by mixing with:
 - a. CO₂
 - b. neon
 - c. both
 - d. none
- 52. Ethylene oxide can be used for sterilization of:
 - a. endoscopes
 - b. cameras
 - c. plastics
 - d. all of the above
- 53. Ethylene oxide kills the organisms by:
 - a. alkylation
 - b. acetylation
 - c. hydroxylation

- d. all of the above
- 54. The standards of Ethylene oxide are:
 - a. 250 to 15000 mg /Inch
 - b. 30-60° C
 - c. 33 -60 % of humidity
 - d. all of the above
- 55. The items sterilized by Ethylene oxide should be clean and dry because:
 - a. moisture and organic material bids to ethylene oxide
 - b. leaves toxic residues
 - c. acrylic cannot be sterilized by ethylene oxide
 - d. all of the above
- 56. Plasma sterilization:
 - a. low temperature sterilization
 - b. uses reactive ions, electrons, neutral atomic particles
 - c. vapor from of H₂O₂
 - d. all of the above
- 57. Gamma rays are used for sterilization of:
 - a. B.P.blade
 - b. catgut
 - c. tissue grafts
 - d. all of the above
- 58. Operation theatre is sterilised by:
 - a. UV rays
 - b. laser
 - c. infrared rays
 - d. all of the above
- 59. B- propiolactone is not used for sterilization of hospitals due to:
 - a. damage on paints and plastic surface
 - b. toxic
 - c. carcinogenic
 - d. all of the above
- 60. Gluteraldehyde is used for sterilization of:
 - a. endoscope
 - b. gloves
 - c. orthopedic set
 - d. all of the above
- 61. Drug excreted without metabolism in liver is:
 - a. Thiopental
 - b. Fentanyl
 - c. Glycopyrrolate
 - d. Ketamine
- 62. The site of epidural anesthesia in dogs is at the:
 - a. intercoccygeal space between duramater and periosteum
 - b. lumbo-sacral place, between periosteum and duramatter
 - c. lumbosacral place in subarachinoid space

- d. lumbosacral space in between pia mater and arachnoid
- 63. Low epidural anesthesia paralyses:
 - a. hind limb
 - b. abdomen
 - c. perineal region
 - d. thoracic region
- 64. The local anesthesia that blocks both sensory and motor nerve for 2-3 times more than lidocaine or mepivocaine is:
 - a. lignocaine
 - b. tetracaine
 - c. bupivacaine
 - d. novocaine
- 65. Epidural anesthesia is contra indicated in:
 - a. infection
 - b. hypotension
 - c. hemorrhages
 - d. all of the above
- 66. Spinal anesthesia induces hypotension due to:
 - a. post ganglionic sympathetic blockage
 - b. preganglionic sympathetic blockade
 - c. preganglionic para sympathetic blockade
 - d. post ganglionic parasympathetic blockade
- 67. Ketamine causes:
 - a. tachycardia and hyperthermia
 - b. increased iop and intracranial pressure
 - c. increased myocardial oxygen consumption
 - d. all of the above
- 68. Ketamine is anesthetic of choice in:
 - a. bradycardiac dogs with upper airway obstruction
 - b. cats with hyperthyroidosis and tachycardia
 - c. cats with urethral obstruction
 - d. all of the above
- 69. Major drugs which are used as preanaesthetics are:
 - a. phenothiazine derivatives
 - b. anticholinergics
 - c. opioids
 - d. all of the above
- 70. Which of the following statement is correct:
 - a. tiletamine is a benzodiazepine
 - b. propofol is a thiobarbiturate
 - c. thiamylal is a dissociate anesthetic
 - d. zolazepam is a long acting benzodiazepine
- 71. Example for neuroleptic analgesia is:
 - a. glycol pyrrolate and promazine
 - b. etorphine and naloxone

- c. diazepam and neostigmine
 - d. fentanyl and droperidol
72. The drug which produces visceral analgesia is:
- a. succinyl Choline
 - b. glycopyrrolate
 - c. ketamine
 - d. thiopental sodium
73. The animals are premedicated before anesthetic with the intention of:
- a. abolishing pain
 - b. ease out handling
 - c. increase reflex sympathetic activity
 - d. increase margin of safety by reducing the dose of general anesthetic
74. Atropine acts on post ganglions of cholinergic nerves by:
- a. reducing formation of acetyl choline
 - b. blocks release of acetyl choline
 - c. blocks choline esterase enzyme
 - d. competitively blocks acetyl choline at muscarinic receptor
75. Atropine produces tachycardia by:
- a. vagolytic action
 - b. vagotonic action
 - c. cardiac chronotropism
 - d. myocardial stimulation
76. The main difference between atropine and Robinol V is:
- a. atropine produces more tachycardia than robinol – v
 - b. robinol – v produces more tachycardia than atropine
 - c. both produce equal chronotropism on heart
 - d. atropine is powerful antisialogogue than glycopyrrolate
77. Phenothiazine does not produce which of the following effects on the CNS:
- a. depression of chemoreceptor trigger zone
 - b. α_2 adrenoceptor agonist action
 - c. tranquilization
 - d. antihistaminic action
78. Acepromazine produces paraphimosis in:
- a. Colts
 - b. Stallions
 - c. Geldings
 - d. Fillies
79. Guaifensin, a muscle relaxant:
- a. acts on CNS
 - b. acts at myoneural junction
 - c. acts as internuncial neurons at spinal cord
 - d. acts at ANS
80. A tranquilizer having muscle relaxation effect is:
- a. glycopyrrolate
 - b. butorphanol

- c. succinyl choline
 - d. diazepam
81. In equines, deaths are associated with:
- a. respiratory muscle paralysis
 - b. skeletal muscle rigidity with cardiac arrest and respiratory failure
 - c. hypotension
 - d. respiratory centre depression
82. If you administer 100ml of 5 % solution of guanfensin to 200Kg. horse, what is the dose:
- a. 250 mg
 - b. 75 mg
 - c. 300 mg
 - d. 5000 mg
83. Succinyl choline:
- a. should be used with IPPV
 - b. can be used without IPPV
 - c. produces effect on CNS
 - d. relaxes cardiac muscles
84. Altracurium has advantage over succinyl choline:
- a. it causes direct muscle relaxation
 - b. it causes muscular rigidity
 - c. does not relax diaphragm
 - d. does not relax respiratory muscles
85. Patients under general anesthesia with sever bradycardia , the administration of nestigmine produces:
- a. tachycardia
 - b. bradycardia due to inhibition Ach
 - c. bradycardia due to inhibition AchE
 - d. no effect on heart rate
86. In the CNS, Medetomidine causes:
- a. antagonism to K receptor
 - b. agonist to sigma receptor
 - c. agonist to presynaptic alpha 2 adrenergic receptor
 - d. antagonist to post synaptic alpha 1 adrenergic receptor
87. In cattle, xylazine premedication causes:
- a. tachycardia
 - b. bradycardia
 - c. increased cardiac output
 - d. decreased CVP
88. Xylazine contraindicated in:
- a. pregnancy
 - b. ETT
 - c. urolithiasis
 - d. all of the above
89. Narcotic pure agonists produce analgesia by primarily their effect on:

- a. alpha 2 receptor
 - b. GABA receptor
 - c. mu-opiate receptor
 - d. sigma opiate receptor
90. Most potent narcotic among the following is:
- a. morphine
 - b. fentanyl
 - c. carfentanyl
 - d. etorphine
91. The perfect reversal agent of narcotics is:
- a. diprenorphine
 - b. levallorphan
 - c. nalaxone
 - d. nalorphine
92. The drug producing cycloplegic effect on ciliary body is:
- a. triflupromazine
 - b. promazine
 - c. atropine
 - d. acepromazine
93. Phenothiazines are used in urolithiasis because:
- a. they relax urinary bladder
 - b. they relax retractor penis muscle
 - c. they cause diuresis
 - d. they reduce calculi formation
94. Atropine sulphate is contraindicated in:
- a. intussusceptions
 - b. bovines premedication
 - c. equines
 - d. all of the above
95. The patients with Mendelson syndrome are premeditated with:
- a. atropine
 - b. hom atropine
 - c. glycopyrrolate
 - d. all of the above
96. Preanaesthetic of choice in equines is:
- a. chlorpromazine
 - b. triflu promazine
 - c. acepromazine
 - d. promazine
97. Morphine produces:
- a. increased tone in gastrointestinal sphincter
 - b. decreased tone in gastrointestinal sphincter
 - c. increased peristaltic movement
 - d. atonic gastrointestinal effect
98. I/V administration of Fentanyl to dogs causes:

- a. tachycardia
 - b. hypertension
 - c. bradycardia
 - d. SA block
99. Opiate induced respiratory depression can be reversed perfectly by:
- a. xylazine
 - b. nalorphine
 - c. nalaxone
 - d. doxapram
100. Thiobarbiturates:
- a. Produce transient apnea and cardiac arrhythmia
 - b. Long acting
 - c. Prolonged induction time
 - d. Do not under go ionization plasma
101. General anesthesia induced with thiamylal sodium in dog and maintained with halothane in closed circuit and animal develops apnea cases can be managed by:
- a. dorapram injection
 - b. IPPV with slow breath rate
 - c. pure oxygen administration
 - d. coramine with lidocaine I/V
102. Thiopental in cats produce:
- a. barbiturate slough on i.m. administration
 - b. laryngeal and cough reflex in light levels
 - c. transient apnea
 - d. all of the above
103. Propofol:
- a. Dissolved in soyabean oil-egg lecithin emulsion
 - b. Should be used as single dose
 - c. Can be stored at room temperature
 - d. All of the above
104. Ketamine is used in animals with:
- a. impaired CV functions
 - b. produces seizures in dogs
 - c. can be combined with $\alpha 2$ adrenoreceptor agonists
 - d. all of the above
105. Dobutamine administration to cattle under halothane produces:
- a. Ventricular bigeminy
 - b. ventricular trigeminy
 - c. inverted T- wave
 - d. sinus tachycardia
106. Telazol prolonged recovery in pigs is due to:
- a. tletamne
 - b. mannitol
 - c. zolazepam
 - d. lorazepam

107. Drug having oxytocic effect on bovine uterus in 3rd trimester of pregnancy is:
- detomedine
 - xylazine
 - trifupromazine
 - medazolam
108. Fasting in equines helps in:
- preventing stomach rupture
 - reduces the extent of lung collapse
 - prevents residual food material of mouth entering trachea
 - all of the above
109. In a to and fro anesthesia breathing system:
- canister is placed between patient and rebreathing bag
 - mechanical dead space is less than circle system
 - gases pass through canister not during inhalation and exhalation
 - all of the above
110. In I/V retrograde regional anesthesia:
- adrenaline containing local anesthetic should not be used
 - haematoma formation can occur in vein used for local anesthetic administration
 - tourniquet should not be left in situ for more than 30 minutes
 - all of the above
111. The Peterson block desensitizes:
- V cranial nerve
 - X cranial nerve
 - VII cranial nerve
 - III, IV and VI cranial nerves
112. Anesthetic technique used for placement of nose ring in bulls:
- mandibular nerve block
 - mental nerve block
 - supraorbital nerve block
 - bilateral infraorbital nerve block
113. The principle of ultrasound scanning is:
- refraction
 - diffraction
 - polarization
 - pulse- echo principle
114. The image produced by bone on the ultrasound machine monitor will be:
- hypo echoic
 - anechoic
 - hyper-echoic
 - none
115. The pregnancy diagnosis in bitch is done as early as by ultrasound:
- 38 days
 - 10 days
 - 45 days
 - 55 days

116. IVD is common in:
- German shepherd
 - Labrador
 - Mastiff
 - Daschound
117. Fredt Ramsted pyloromyotomy is used to correct:
- polyric stenosis
 - GDV
 - gastric ulcer
 - Zollinger Ellison syndrome
118. Ground glass appearance of radiograph seen in:
- fracture
 - dislocation
 - pneumonia
 - ascites
119. Filling defect are seen in:
- gastric ulcer
 - intersusception
 - volvulus
 - torsion
120. Ping sound heard in:
- LDA
 - TRP
 - caecal dilation
 - DH
121. Sausage like mass on per rectal examination in LA:
- intussusceptions
 - hernia
 - prolapse
 - rectal tears
122. Urolithias in bullock:
- urethral pulsation
 - urinary bladder distention
 - both
 - none
123. Slab fractures are common in:
- metatarsal
 - radius and ulna
 - accessory carpal and tarsal
 - none
124. Horn cancer shows:
- cell nests
 - cauliflower like growth
 - bull eye is exfoliative cytology
 - all of the above

125. Eye cancer common seen at:
- lumbus
 - sclera
 - cornea
 - eyelids
126. Phacoemulsification is used for the treatment of:
- keratitis
 - corneal ulcer
 - cataract
 - blephritis
127. Surgical opening of crop in birds is known as:
- ingluvotomy
 - uvalotomy
 - caponisation
 - pinionuy
128. Vincristacin for the treatment of TVT is used at dose rate of for 4 weeks at weekly interval:
- 0.025 mg/kg i/v
 - 0.25mg/kg i/v
 - 2.5mg/kg i/v
 - 25mg/kg i/v
129. The orthopaedic implant which neutralizes all forces acting on bone:
- DCP
 - IMP
 - K-Nail
 - V-nail
130. Bocor's operation is used for:
- teat fistula
 - string halt
 - gonitis
 - spavin

ANSWER KEY:

Veterinary Surgery And Radiology									
1-D	2-D	3-D	4-D	5-D	6-B	7-A	8-A	9-A	10-D
11-C	12-A	13-D	14-D	15-D	16-B	17-A	18-D	19-D	20-D
21-D	22-D	23-D	24-D	25-D	26-D	27-D	28-C	29-A	30-C
31-A	32-D	33-B	34-D	35-D	36-B	37-A	38-D	39-D	40-A
41-A	42-B	43-A	44-A	45-A	46-B	47-A	48-D	49-D	50-D
51-C	52-D	53-A	54-D	55-D	56-D	57-D	58-A	59-D	60-D
61-B	62-B	63-C	64-C	65-D	66-A	67-D	68-D	69-D	70-D
71-D	72-C	73-D	74-D	75-A	76-B	77-B	78-B	79-C	80-D
81-B	82-D	83-A	84-A	85-C	86-B	87-D	88-C	89-D	90-C
91-C	92-C	93-B	94-D	95-C	96-D	97-A	98-C	99-C	100-A
101-B	102-D	103-D	104-D	105-A	106-C	107-B	108-D	109-D	110-D
111-D	112-D	113-D	114-C	115-A	116-D	117-A	118-D	119-A	120-A
121-A	122-C	123-C	124-D	125-A	126-C	127-A	128-A	129-A	130-B

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY SURGERY
AND RADIOLOGY****Dr. Bhagavantappa B.**Department of Veterinary Surgery and Radiology
Veterinary College, Bidar - 585 226 (Karnataka)**I. Choose the correct answer**

1. Cunean tenotomy is performed for:
 - a. curb
 - b. stringhalt
 - c. thoroughpin
 - d. spavin
2. The basis of therapeutic ultrasound is:
 - a. pulse-echo
 - b. absorption
 - c. refraction
 - d. reflection
3. The massage is done in the direction of:
 - a. venous flow
 - b. arterial flow
 - c. muscle fibre
 - d. against the hair fall
4. Psuedoluxation of patella is corrected by:
 - a. median patellar desmotomy
 - b. middle patellar desmotomy
 - c. lateral patellar desmotomy
 - d. medial patellar desmotomy
5. Chronic ostitis of the navicular bone and inflammation of bursa is known as:
 - a. spavin
 - b. corn
 - c. navicular disease
 - d. curb
6. Backward deviation of knee is known as:
 - a. goat knee
 - b. sheep knee
 - c. bench knee
 - d. knock knee
7. The costoconjugal ligament prevents:
 - a. spondolysis
 - b. scoliosis
 - c. kyphosis
 - d. IVD
8. Seedy toe is seen in:
 - a. carpitis
 - b. fracture of carpal
 - c. acute laminitis

- d. chronic laminitis
- 9. Click sound is heard while in motion, in animals affected with:
 - a. spavin
 - b. navicular disease
 - c. hip joint dysplasia
 - d. iliac-thrombosis
- 10. Paralysis of femoral nerve affects:
 - a. infraspinatus
 - b. quadriceps femoris
 - c. supraspinatus
 - d. biceps femoris
- 11. The plaster of Paris contains:
 - a. CaCO_3
 - b. MgSO_4
 - c. CoSO_4
 - d. CaSO_4
- 12. Spiral fracture is common in:
 - a. radius
 - b. humerus
 - c. femur
 - d. tibia
- 13. Fibrous thickening of the bursitis is best treated by:
 - a. needle point firing
 - b. drainage
 - c. extirpation
 - d. lancing
- 14. Wind galls in horses produce:
 - a. pain
 - b. lameness
 - c. both pain and lameness
 - d. lameness absent
- 15. Most common bone fracture observed in dogs is:
 - a. radius
 - b. scapula
 - c. ulna
 - d. femur
- 16. Repeated movement at fracture site leads to:
 - a. non union
 - b. delayed union
 - c. mal union
 - d. none of the above
- 17. Distension of tarsal sheath due to chronic synovitis is known as:
 - a. curb
 - b. wind galls
 - c. thoroughpin

- d. none of these
- 18. Canker is a disease condition affecting:
 - a. navicular bursa
 - b. hoof wall
 - c. tendon
 - d. ospedis
- 19. Separation of wall from sub cornual tissue is seen in:
 - a. none of these
 - b. canker
 - c. quitter
 - d. seedy toe
- 20. The following ligament is incised in a buffalo with upward fixation of patella:
 - a. median patellar ligament
 - b. middle patellar ligament
 - c. lateral patellar ligament
 - d. medial patellar ligament
- 21. The simple fracture of mid shaft of radius bone in a pup can be treated by:
 - a. Velpaue sling
 - b. Ehmer sling
 - c. Robert –Jones bandage
 - d. Bone plating
- 22. Posterior deviation of knee in horse is known as:
 - a. goat knee
 - b. sheep knee
 - c. calf knee
 - d. knock knee
- 23. Which of the following procedure is indicated in comminute fracture of tibia?
 - a. intramedullary pinning
 - b. cross pinning
 - c. plaster of paris cast
 - d. bone plating
- 24. The initial phase of fracture healing wound has pH:
 - a. acidic
 - b. alkaline
 - c. none of these
 - d. neutral
- 25. The portion of bone helps in lay down of cells in injured site for fracture healing is:
 - a. periosteum
 - b. endostium
 - c. both a and b
 - d. none of the above
- 26. Thrombosis of posterior aorta is caused by:
 - a. strongylosis
 - b. fasciolosis
 - c. ascariasis

- d. low BP
- 27. The strength of fiber glass cast is:
 - a. more than plaster cast
 - b. equal to plaster cast
 - c. less than creep bandage
 - d. equal to Robert –Jones bandage
- 28. First pair of rib fracture may cause damage to:
 - a. radial nerve
 - b. ulnar nerve
 - c. musculo cutaneous nerve
 - d. all of the above
- 29. Interdigital vegetative dermatitis in cattle is due to:
 - a. hyperplasia
 - b. tumour
 - c. infection
 - d. soiling
- 30. Bumble foot in poultry is characterised by:
 - a. abscess
 - b. cold abscess
 - c. acute abscess
 - d. none of these
- 31. Scoliosis is a curvature of the vertebral column to a:
 - a. down side
 - b. dorsal side
 - c. lateral side
 - d. all of these
- 32. Axial micro movement at fracture site is observed in:
 - a. DCP
 - b. LCP
 - c. Recon Plating
 - d. Ilizarov technique
- 33. The fracture of humerus at musculospiral groove leads to injury of which nerve:
 - a. ulnar nerve
 - b. radial nerve
 - c. median nerve
 - d. none of these
- 34. Knuckling occurs due to the contraction of which tendons:
 - a. extensor tendon
 - b. both flexor and extensor
 - c. flexor tendon
 - d. none of these
- 35. Shoe boil in horses which bursa is affected:
 - a. navicular bursa
 - b. ulnar bursa
 - c. bicipital bursa

- d. knee joint bursa
- 36. The normal process by which animal removes gass from rumen is:
 - a. rumination
 - b. regurgitation
 - c. mastication
 - d. eructation
- 37. Confirmative method to know the presence of sharp foriegn body in rumen is:
 - a. USG
 - b. radiography
 - c. clinical signs
 - d. physical examinations
- 38. Emergency surgery performed in buffaloe affected with pasturella multocida is:
 - a. oesophagotomy
 - b. laryngotomy
 - c. tracheotomy
 - d. tracheostomy
- 39. In bullocks urethral obstruction presence of calculi is confirmed by:
 - a. palpation
 - b. catheterisation
 - c. dribbling of urine
 - d. massage of urethra
- 40. Ortoloni sign is used for the diagnosis of joint abnormality in dogs:
 - a. stifle joint
 - b. elbow joint
 - c. shoulder joint
 - d. hip joint
- 41. The chemical compostion of calculi in bullocks urine is governed by:
 - a. specific gravity
 - b. cells
 - c. pH
 - d. RBC
- 42. Presence of liver in umbilical hernia is confirmed by:
 - a. X-ray
 - b. palpation
 - c. USG
 - d. none of these
- 43. The term eupnoea refferes to:
 - a. abnormal breathing
 - b. difficulty in breathing
 - c. hurried respiration
 - d. normal breathing
- 44. The surgical resection of part or all of tongue refferes to:
 - a. glandectomy
 - b. glassectomy
 - c. glossectomy

- d. none of these
45. Shoulder slip is a sign observed in:
- a. sweeny
 - b. fracture of radius
 - c. stringhalt
 - d. none of these
46. Green stick fractures are commonly observed in animals:
- a. adult
 - b. old
 - c. young
 - d. none of these
47. Ehimer sling is commonly applied to which limb for immobilisation:
- a. fore limb
 - b. fore arm
 - c. foot
 - d. femur fracture
48. The most common joint dislocation occurs in cow after slippery surface is:
- a. fetlock joint
 - b. knee joint
 - c. hock joint
 - d. hip joint
49. Rotation of third phalanx is observed in which condition of horse:
- a. acute laminitis
 - b. chronic laminitis
 - c. ring bone
 - d. side bone
50. Cystic calculi means presence of:
- a. urolith
 - b. cystolith
 - c. nephrolith
 - d. entrolith
51. Corneal suturing penetrates upto which layers of cornea from outside to inside:
- a. endothilium layer
 - b. descmet's layer
 - c. bowmans layer
 - d. epithilium layer
52. In horse rectal examination is important to know the abnormality of:
- a. lameness
 - b. peritonitis
 - c. colic
 - d. none of these
53. Which is the nerve block preferred over other blocks for eye surgery:
- a. infra orbital
 - b. supra orbital
 - c. petersons

- d. infratrochlear
- 54. Mention the name of catheter used for drainage of pus from guttural pouch through nose:
 - a. catheter
 - b. Gunthers catheter
 - c. Foleys catheter
 - d. none of these
- 55. Occurrence of sharp molar is common in:
 - a. dog
 - b. cow
 - c. horse
 - d. cat
- 56. Connecting the bladder to skin by catheter through artificial route is called as:
 - a. cystotomy
 - b. tubectomy
 - c. tube cystostomy
 - d. urethrotomy
- 57. In horse roaring condition which cartilage fails to function during inspiration:
 - a. arytenoid
 - b. cricoid
 - c. corniculate
 - d. thyroid
- 58. The pug breeds are more sensitive to general anaesthesia because:
 - a. short head
 - b. small size
 - c. pendulous soft palate
 - d. respiration insufficiency
- 59. The MAC stands for:
 - a. ED 50
 - b. ED 100
 - c. ED 200
 - d. ED 25
- 60. Nitrous oxide administered to patient through the:
 - a. vaporizer
 - b. flow meter
 - c. ambu bag
 - d. none of these
- 61. Patients less than 10 kg body weight inhalant anaesthesia is given by:
 - a. closed circuit
 - b. rebreathing circuit
 - c. non rebreathing circuit
 - d. none of these
- 62. In closed circuit when pressure is built inside the breathing tubes it is reduced by:
 - a. pop of valve
 - b. flow meter knob

- c. flush valve
 - d. none of these
63. The size of selection of rebreathing tube should be how much time of tidal volume:
- a. 6 times
 - b. 10 times
 - c. 5 times
 - d. 8 times
64. The CRI is a route used in maintenance of general anaesthesia refers to:
- a. intra arterial
 - b. intravenous
 - c. intramuscular
 - d. intra peritoneal
65. The injectable general anaesthesia is safe in pregnancy:
- a. ketamine
 - b. thiosal
 - c. propofol
 - d. tiletamine
66. The glucose effect is observed in which general anaesthesia:
- a. ketamine
 - b. thiosal
 - c. propofol
 - d. tiletamine
67. The birds are safely anaesthetised by using:
- a. ether
 - b. isoflurane
 - c. halothane
 - d. nitrous oxide
68. The physical method used for restraining snakes is:
- a. snakes hook
 - b. net
 - c. gunny bags
 - d. tongs
69. The only muscle relaxant safely used in animals without ventilator is:
- a. glycerol glycolate
 - b. pancuronium
 - c. scopolamine
 - d. D-tubocurine
70. The knob setting in ventilator for inspiratory to expiratory ratio is:
- a. 1:1
 - b. 2:1
 - c. 1:2
 - d. 2:2
71. The dose of ketamine in horse mg/kg is:
- a. 1.1
 - b. 2.1

- c. 1.2
 - d. 2.2
72. The dose of alfaxalone in dog mg/kg is:
- a. 1-3
 - b. 5-6
 - c. 4-5
 - d. 8-9
73. Acepromazine along with other hypotensive drug it causes effects on blood pressure is:
- a. increases
 - b. not much difference
 - c. remain same
 - d. decreases
74. Uroabdomen in a bullock refers to:
- a. rupture of bladder
 - b. urine in abdomen
 - c. urolith
 - d. all of these
75. Apex of enlarged heart resting on floor of sternum in a chest X- ray of dog is due to:
- a. DCM
 - b. pleurisy
 - c. pneumonia
 - d. none of these
76. The common site of choke in a buffalo is:
- a. pharynx
 - b. cardia
 - c. cervical
 - d. thoracic
77. The common site of occurrence of SQCC in a eye of a bullock is:
- a. cornea
 - b. limbus
 - c. conjunctiva
 - d. eyelids
78. The cow is quidding means:
- a. dental tartar
 - b. dental caries
 - c. sharp molar
 - d. loose tooth
79. Atheroma in a horse refers to:
- a. hemangioma
 - b. swelling
 - c. tumour
 - d. cyst
80. In pigs for open castration incision is given on:
- a. cranial to scrotum

- b. individual testicle
 - c. scrotal base
 - d. caudal to scrotum
81. Viborgs triangle approach is a method used in:
- a. dog
 - b. cow
 - c. camel
 - d. horse
82. Chronic affection of sinuses in a bullock is surgically treated by:
- a. trephining
 - b. osteotomy
 - c. cautery
 - d. none of these
83. The medial patellar ligament is absent in which species:
- a. cow
 - b. buffalo
 - c. camel
 - d. horse
84. The cow affected with pseudoluxation of patella shows signs like:
- a. extension of limb
 - b. dragging of toe
 - c. lameness in hind limb
 - d. all of these
85. The bull eye appearance of USG image of abdomen in a dog is diagnosed as:
- a. foreign body in intestine
 - b. intussusception
 - c. twisting of intestine
 - d. none of these
86. The barium bolus in a dog is used for diagnosis of:
- a. choke
 - b. tracheal rupture
 - c. oesophagus rupture
 - d. none of these
87. The contrast agent used for kidney imaging is:
- a. barium sulphate
 - b. haloquinone
 - c. iohexal
 - d. none of these
88. The transposition of reticulum into thoracic cavity is known as:
- a. reticulcele
 - b. DH
 - c. protrusion of reticulum
 - d. all of these
89. The presence of cast in urine refers to:
- a. urolith

- b. inflammatory cells
 - c. RBC
 - d. none of these
90. The immobilising agent contains etorphine and methotrimeprazine is:
- a. immobilon LA
 - b. immobilon SA
 - c. droperidol
 - d. haloperidol
91. The antidote for the telazol is:
- a. flumazenil
 - b. yohimbine Hcl
 - c. droperidol
 - d. diprenorphine
92. Oro pharyngeal functions are not abolished in which class of drugs in animals:
- a. propofol
 - b. thiosal
 - c. phencyclidine
 - d. etomidate
93. The lateral position is preferred in elephants after darting because to avoid:
- a. bloat
 - b. pressure on diaphragm
 - c. pressure on heart
 - d. none of these
94. Hanging pin cast is used to treat which bone fracture:
- a. metacarpal
 - b. metatarsal
 - c. radius and ulna
 - d. tibial
95. Formalin foot bath is used in animals because:
- a. reduce infection
 - b. harden foot
 - c. decrease swelling
 - d. increase circulation
96. Tension band wiring technique is used for treatment of:
- a. simple fracture
 - b. compound fracture
 - c. slab fracture
 - d. avulsion fracture
97. Bunny hopping of hind limbs is seen in dogs affected with:
- a. fracture
 - b. arthritis
 - c. luxation
 - d. ligament injury
98. Hoof tester is used to locate pain lesion in:
- a. frog

- b. sole
 - c. sensitive lamina
 - d. all of these
99. An example for rigid internal fixation is:
- a. wiring
 - b. pinning
 - c. plating
 - d. ESF
100. Thumb rule in placement of number of pins on either side of fracture in ESF is:
- a. 3
 - b. 4
 - c. 2
 - d. 1

ANSWER KEY:

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

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
PHYSIOLOGY AND BIOCHEMISTRY**

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I. Choose the correct answer

1. Thermal resistance of hair coat:
 - a. increases linearly with increasing air velocity
 - b. increases curvilinear with increasing air velocity
 - c. increases linearly with decreasing air velocity
 - d. decreases linearly with increasing air velocity
2. Maximum renewing cell population is present in:
 - a. skeletal tissue
 - b. mesoderm
 - c. epidermis
 - d. connective tissue
3. Growth curve is sigmoid shaped in except in:
 - a. man
 - b. dog
 - c. sheep
 - d. cat
4. Energy efficient method of evaporative heat loss:
 - a. panting
 - b. sweating
 - c. saliva spreading
 - d. urination
5. Psychrometer is used to measure:
 - a. min and max temperature
 - b. atmospheric pressure
 - c. relative humidity
 - d. wind velocity
6. Sweat glands of footpad of dog:
 - a. apocrine
 - b. eccrine
 - c. both a and b
 - d. merocrine
7. Reliable indicator of heat stress:
 - a. heart rate
 - b. respiration rate
 - c. skin temperature
 - d. rectal temperature
8. Probes are used for measuring back fat thickness in:
 - a. pigs
 - b. dogs
 - c. chicken

- d. goats
- 9. Muscles and bones originates from:
 - a. ectoderm
 - b. endoderm
 - c. mesoderm
 - d. heteroderm
- 10. Highest levels of cortisol in the blood of animals is found during:
 - a. morning
 - b. noon
 - c. evening
 - d. midnight
- 11. The centre for integrating thermal information and regulating body temperature is:
 - a. thalamus
 - b. median eminence
 - c. hypothalamus
 - d. pineal gland
- 12. Melatonin is a stimulator for reproductive behaviour in:
 - a. long day breeder
 - b. short day breeder
 - c. both in long day and short day breeder
 - d. not a stimulator at all
- 13. Sweating rate is stimulated by:
 - a. sympathetic nervous system
 - b. parasympathetic nervous system
 - c. enteric nervous system
 - d. central nervous system
- 14. The substance which selectively inhibit the mitotic activity of the specific tissue are:
 - a. promines
 - b. retines
 - c. chalones
 - d. none of the above
- 15. Among the following domestic animals, sweating ability is highest in:
 - a. cattle
 - b. horse
 - c. sheep
 - d. goat
- 16. Major route of heat loss in cattle during high environmental temperature is by:
 - a. conduction
 - b. convection
 - c. radiation
 - d. evaporation
- 17. The breeds which inhabit warm and humid regions have more melanin pigmentation than those of the same species in cooler and drier region is:
 - a. Allen's rule
 - b. Bergman's rule

- c. Gloger's rule
 - d. Wilson's rule
18. Chalones are mitotic inhibitors produced by:
- a. thymus
 - b. liver
 - c. brain
 - d. heart
19. Positive growth response in ruminants fed on alfa alfa is due to the presence of naturally occurring compounds of:
- a. progestogens
 - b. estrogens
 - c. vitamins
 - d. minerals
20. A biological rhythm of 24 hrs duration is known as:
- a. ultradian rhythm
 - b. circadian rhythm
 - c. infra-red rhythm
 - d. annual rhythm
21. The term 'Milieu interior' was introduced by:
- a. Cunningham
 - b. E.S.E Hafeez
 - c. Claud Bernard
 - d. Arthur C Guyton
22. Gradual quantitative change of response which may lead to a loss of response as a result of repeated stimulation is called:
- a. habituation
 - b. learning
 - c. adaptation
 - d. conditioning
23. Torpid sleeping state during the summer is called:
- a. hibernation
 - b. estivation
 - c. fever
 - d. hyperthermia
24. Evaporation of 1 liter of water requires _____ of energy:
- a. 380 Kcal
 - b. 480 Kcal
 - c. 580 Kcal
 - d. 680 Kcal
25. The growth of reproductive organs from birth to puberty when compared with total body growth is:
- a. isometric growth
 - b. positive allometric growth
 - c. negative allometric growth
 - d. none

26. Balance of stimulating and inhibiting factors regulates organ growth is proposed by which of the following theories?
- Bullough theory
 - Weiss and Kavanau theory
 - Pavlov theory
 - Brody theory
27. Which among the following does not indicate true growth?
- hyperplasia
 - hypertrophy
 - accumulation of adipose tissue
 - accumulation of cellular DNA
28. Adaptation to cold is done by:
- increased heat production
 - decreased heat production
 - increased respiration
 - decreased insulation of body
29. The refractory period of atrial muscle compared with ventricles is:
- equal
 - shorter
 - longer
 - none of the above
30. The respiratory quotient of carbohydrate is:
- 1.0
 - 0.70
 - 0.80
 - 2.0
31. Which of the following respiratory gasses has highest solubility coefficient in body fluids?
- oxygen
 - carbon dioxide
 - nitrogen
 - carbon monoxide
32. Capacity of muscle to receive and respond to a stimulus is known as:
- excitability
 - contractility
 - extensibility
 - elasticity
33. S₃ and S₄ cardiac sounds are very common in:
- horse
 - cattle
 - goat
 - dog
34. According to Van't Hoff's law, osmotic pressure (π) can be calculated as:
- $\pi = CRT$
 - $\pi = C^2RT$

- c. $\pi = CR^2T$
 - d. $\pi = CRT^2$
35. The most effective stimulus for cerebral circulation is:
- a. oxygen deficiency
 - b. baro-receptor reflex
 - c. decreased glucose
 - d. excess CO_2
36. S.A Node is the pacemaker of heart because of:
- a. location in the right atrium
 - b. neural control
 - c. natural leakiness to Na^+
 - d. natural leakiness to K^+
37. Avascular structure of eye is:
- a. cornea
 - b. lens
 - c. acetylcholine
 - d. dopamine
38. Fick's principle is used to measure:
- a. arterial pressure
 - b. cardiac output
 - c. stroke volume
 - d. venous pressure
39. Delay in the passage of cardiac impulse from the atria to the ventricles is due to:
- a. SA node
 - b. AV node
 - c. AV bundle
 - d. Intermodal pathways
40. In birds, main site of erythrocyte destruction is:
- a. lymphnode
 - b. spleen
 - c. bone marrow
 - d. liver
41. Which of the following theory explains that the effect of CO_2 and hydrogen ions on the ability of Hb to yield or receive O_2
- a. Bohr effect
 - b. Haldane effect
 - c. Hamburger effect
 - d. none of the above
42. Which of the following is vasodilator:
- a. norepinephrine
 - b. endothelin
 - c. angiotensin II
 - d. bradykinin
43. The conduction of cardiac impulses is highest in:
- a. SA Node

- b. AV Node
 - c. purkinje fibers
 - d. AV bundle
44. According to the Frank-Starling mechanism of the heart:
- a. left ventricle ejects a large volume of blood with each systole than the right ventricle
 - b. intrinsic rate of heart's pacemaker is 100 beats/min
 - c. cardiac output increases with increased heart rate
 - d. stroke volume increases with increased venous return
45. Thirst is stimulated by:
- a. increase in plasma osmolality and volume
 - b. increase in plasma osmolality and decrease in volume
 - c. decrease in osmolality and increase in volume
 - d. decrease in plasma osmolality and volume
46. Anterograde amnesia is caused by the lesion in:
- a. amygdala
 - b. hypothalamus
 - c. thalamus
 - d. hippocampus
47. Hemoglobin combined with carbon dioxide is called as:
- a. carboxyhemoglobin
 - b. carbaminohemoglobin
 - c. methemoglobin
 - d. myoglobin
48. Contractile protein present in platelets that helps in clot retraction in:
- a. thrombomodulin
 - b. platelet factor III
 - c. calmodulin
 - d. thrombosthenin
49. Backflow of blood from greater arteries to ventricles is prevented by:
- a. tricuspid valve
 - b. mitral valve
 - c. semilunar valve
 - d. AV bundle
50. Which one of the following circulatory division has the lowest pressure:
- a. capillaries
 - b. arteries
 - c. veins
 - d. arterioles
51. In ECG, the interval between the beginning of excitation of atria and the beginning of excitation of ventricles represented by:
- a. P-Q interval
 - b. Q-T interval
 - c. R-R interval
 - d. P-P interval

52. Visceral brain is:
- limbic system
 - mid brain
 - cerebellum
 - cerebral cortex
53. If the plasma concentration of glucose is 100mg/dl and renal plasma flow is 200 ml/min, then the plasma load of glucose will be:
- 50 mg/min
 - 50 ml/min
 - 200 mg/min
 - 200 ml/min
54. Modern theory of urine formation was proposed by:
- Claudeum Galen
 - Carl Rudwig
 - Bowmann
 - Arthus cushney
55. Which of the following is the body's most powerful Na^+ retaining hormone:
- renin
 - angiotensin I
 - angiotensin II
 - anti diuretic hormone
56. Which of the following is also called as third factor:
- epinephrine
 - nor epinephrine
 - ADH
 - atrial natriuretic peptide
57. Renal portal system is exists in which of the following species:
- mammals
 - birds
 - amphibians
 - both b and c
58. Which type of nephrons in birds lack typical structure of loop of Henle:
- reptalian type
 - mammalian type
 - both a and b
 - none of the above
59. The nitrogenous waste product excreted through the kidney of birds is:
- urea
 - ammonia
 - uric acid
 - nitrogen
60. Which of the following hormones/autocoids decreases the GFR:
- nitric oxide
 - prostaglandin
 - bradykinin

d. epinephrine

ANSWER KEY

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

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
PHYSIOLOGY AND BIOCHEMISTRY**

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I. Choose the correct answer

1. Normal pH of blood is :
 - a. 7.0
 - b. 7.4
 - c. 7.8
 - d. none
2. Higher percentage of lymphocytes than neutrophils is seen in :
 - a. Horse
 - b. dog
 - c. cat
 - d. pig
3. _____ enzyme is present in the eosinophilic granules:
 - a. collagenase
 - b. peroxidase
 - c. histaminase
 - d. oxidase
4. Examples for secondary messengers include:
 - a. cAMP
 - b. cytosolic Ca
 - c. IP3
 - d. all of the above
5. Hormone secreted from the gonadotrope cells include:
 - a. LH
 - b. FSH
 - c. GnRH
 - d. both a and b
6. In sheep, extra pituitary oxytocin is secreted during
 - a. follicular phase
 - b. luteal phase
 - c. pregnancy
 - d. none of the above
7. Milk letdown hormone is _____
 - a. prolactin
 - b. GH
 - c. oxytocin
 - d. dopamine
8. In pigs _____ form of vasopressin is present:
 - a. arginine vasopressin
 - b. lysine vasopressin
 - c. methionine vasopressin

- d. none of the above
- 9. Skeletal muscle accounts _____ percent of body weight.
 - a. 20
 - b. 40
 - c. 60
 - d. 80
- 10. Slow twitch muscle is also called as:
 - a. type I
 - b. red muscle
 - c. type II
 - d. both a and b
- 11. 1, 25 dihydroxycholecalciferol formed in:
 - a. liver
 - b. kidney
 - c. pancreas
 - d. none
- 12. Prolactin is luteotropic in which species?
 - a. mice
 - b. rat
 - c. hamster
 - d. all of the above
- 13. Placentallactogen (PL) has properties and chemical makeup similar to:
 - a. prolactin (PRL)
 - b. growth hormone
 - c. relaxin
 - d. both a and b
- 14. Neutrophils number increases rapidly during:
 - a. acute viral infection
 - b. chronic viral infection
 - c. acute bacterial infection
 - d. none
- 15. How the neutrophils proceed to inflammatory sites:
 - a. ameboid movement
 - b. flagellar movement
 - c. ciliary movement
 - d. none
- 16. The leukocyte comparable to the neutrophil in birds is known as:
 - a. heterophil
 - b. neutrophil
 - c. basophil
 - d. none
- 17. Which of the following are usually the largest leukocytes seen on a stained blood film:
 - a. lymphocytes
 - b. monocytes

- c. neutrophils
 - d. eosinophils
18. Circulating monocyte can phagocytise:
- a. bacteria
 - b. virus
 - c. Ag-Ab complex
 - d. all of the above
19. Oxytocin during milk letdown act on:
- a. alveolar cell
 - b. fatty cell
 - c. myoepithelial cell
 - d. all of the above
20. Which of the following is not a steroid hormone:
- a. testosterone
 - b. estrogen
 - c. cortisol
 - d. inhibin
21. All of the following are produced by the corpus luteum EXCEPT:
- a. estrogen
 - b. progesterone
 - c. relaxin
 - d. FSH
22. The hormone that stimulates gall bladder contraction and release of pancreatic enzymes:
- a. gastrin
 - b. secretin
 - c. cholecystokinin
 - d. pancreatic polypeptide
23. Biological action of hCG is similar to that of
- a. FSH
 - b. LH
 - c. Prolactin
 - d. Inhibin
24. Which of the following is a placental hormone:
- a. TSH
 - b. hCG
 - c. FSH
 - d. LH
25. The hormone that is most important for maintenance of lactation is:
- a. estrogen
 - b. oxytocin
 - c. progesterone
 - d. prolactin
26. Regulatory protein in muscle tissue is:
- a. actin and myosin

- b. tropomyosin and troponin
 - c. titin and myomesin
 - d. all of the above
27. Structural protein in muscle tissue is:
- a. actin and myosin
 - b. tropomyosin and troponin
 - c. titin and myomesin
 - d. all of the above
28. Troponin protein has _____ subunits:
- a. 2
 - b. 3
 - c. 4
 - d. 5
29. The increased liberation of heat in a stimulated muscle when it is allowed to do mechanical work is called:
- a. latch effect
 - b. fenn effect
 - c. wind kessel effect
 - d. latch mechanism
30. Synaptic vesicles are synthesized within:
- a. golgi apparatus
 - b. endoplasmic reticulum
 - c. cytosol
 - d. ribosomes
31. During stress eosinophilic counts will be:
- a. increased
 - b. decreased
 - c. remains same
 - d. none
32. Basophil and mast cells have receptors on their cell membrane:
- a. Ig E
 - b. Ig A
 - c. Ig D
 - d. Ig M
33. With regards to allergic reactions, basophils will:
- a. enhance allergic reactions
 - b. reduces allergic reactions
 - c. no effect on allergy
 - d. none
34. Physiological action of ADH on kidney tubule is mediated by which of the following second messenger:
- a. IP3
 - b. DAG
 - c. cytosolic calcium
 - d. cAMP

35. In which of the following species hypothalamic regulation of prolactin release is stimulatory
- pigs
 - horse
 - birds
 - cattle
36. All the hypophysiotropic hormones are peptides except:
- GnRH
 - TRH
 - CRH
 - Dopamine
37. Circadian pattern of hormone secretion is seen in:
- Cortisol
 - GH
 - Thyroid hormone
 - PTH
38. Which of the following hormone is glycoprotein in nature?
- LH
 - FSH
 - TSH
 - all of the above
39. Excessive secretion of GH during fetal life causes:
- acromegaly
 - gigantism
 - dwarfism
 - none of the above
40. Melatonin is synthesized from
- pituitary gland
 - adrenal gland
 - pineal gland
 - pancreas
41. Thyroid gland secretes _____ hormone:
- T₃
 - T₄
 - calcitonin
 - all of the above
42. Amino acid required for thyroid hormone synthesis is:
- tyrosine
 - tryptophan
 - lysine
 - arginine
43. T tubules absent in:
- smooth muscle
 - atrial cardiac muscle
 - ventricular cardiac muscle

- d. both a and b
- 44. Calcium induced calcium release is a feature unique for :
 - a. skeletal muscle
 - b. cardiac muscle
 - c. smooth muscle
 - d. both a and b
- 45. Primary energy source for cardiac muscle is:
 - a. creatine phosphate
 - b. glucose
 - c. fatty acid
 - d. lactate
- 46. The contractile protein of skeletal muscle involving ATPase activity is:
 - a. actin
 - b. myosin
 - c. troponin
 - d. tropomyosin
- 47. Which of the following is the contractile protein of a muscle?
 - a. tubulin
 - b. myosin
 - c. plasmic reticulum
 - d. all of the above
- 48. Muscle fatigue results in due to non-availability of:
 - a. calcium
 - b. ATP
 - c. actin binding site
 - d. Mg cofactor
- 49. For thyroid hormone receptors are located at:
 - a. on the cell membrane
 - b. in the cytosol
 - c. in the nucleus
 - d. all of the above
- 50. IGF-1 is secreted from:
 - a. hypothalamus
 - b. pituitary
 - c. liver
 - d. kidney
- 51. _____ is the major glucocorticoid in animal body:
 - a. cortisol
 - b. aldosterone
 - c. corticosterone
 - d. progestins
- 52. _____ is the precursor of all steroid hormones:
 - a. acetate
 - b. cholesterol
 - c. vegetable oil

- d. mineral oil
- 53. The organ important for detection of pheromone in mammals is:
 - a. sensilla
 - b. hair cell
 - c. vomeronasal organ
 - d. all of the above
- 54. The pregnancy termination in rodent due to exposure of female to genetically different male:
 - a. bruce effect
 - b. whitten effect
 - c. lee boot effect
 - d. coolidge effect
- 55. Seasonal singing in birds is mainly influenced by:
 - a. testosterone
 - b. prolactin
 - c. progesterone
 - d. oxytocin
- 56. Which among the following is not a short day breeder?
 - a. sheep
 - b. goat
 - c. horse
 - d. deer
- 57. Higher percentage of neutrophils than lymphocytes is seen in:
 - a. cow
 - b. sheep
 - c. goat
 - d. horse
- 58. Ingestion of particulate matter is known as:
 - a. phagocytosis
 - b. pinocytosis
 - c. endocytosis
 - d. none
- 59. The ingestion of extracellular fluid is known as:
 - a. phagocytosis
 - b. pinocytosis
 - c. endocytosis
 - d. none
- 60. Granule present in cytoplasm of neutrophils are:
 - a. azurophilic granules only
 - b. specific granules
 - c. both a and b
 - d. None
- 61. _____ are the large phagocytic cells:
 - a. macrophages
 - b. neutrophils

- c. eosinophils
 - d. none
62. Monocytes number increases during:
- a. chronic infections
 - b. acute infections
 - c. sub-acute infections
 - d. none
63. Which of the following thyroid hormone have least biological potency:
- a. T_3
 - b. rT_3
 - c. T_4
 - d. none of the above
64. PTH is secreted from _____ cells of parathyroid gland:
- a. chief cell
 - b. oxyphil cell
 - c. parafollicular cell
 - d. none of the above
65. Pancreas secretes following hormone, except
- a. somatostatin
 - b. insulin
 - c. glucagon
 - d. secretin
66. Zinc mineral component is present in _____ hormone:
- a. TRH
 - b. GH
 - c. Insulin
 - d. PTH
67. Deficiency of lack of insulin secretion leads to a condition known as:
- a. diabetes mellitus
 - b. diabetes insipidus
 - c. both a and b
 - d. none of the above
68. Somatostatin is secreted from:
- a. D cells in pancreas
 - b. hypothalamus
 - c. retina and intestine
 - d. all of the above
69. Zona glomerulosa of adrenal cortex secretes:
- a. cortisol
 - b. corticosterone
 - c. aldosterone
 - d. cortisone
70. Glucocorticoids are secreted from which zone of the adrenal cortex:
- a. zona glomerulosa
 - b. zona reticularis

- c. zonafasciculata
 - d. both b and c
71. The half-life of aldosterone is:
- a. 60 minutes
 - b. 40 minutes
 - c. 20 minutes
 - d. 50 minutes
72. All the following hormones use cAMP as a second messenger EXCEPT:
- a. Estrogen
 - b. FSH
 - c. LH
 - d. Glucagon
73. Liquid component of blood is:
- a. erythrocyte
 - b. leukocytes
 - c. platelets
 - d. plasma
74. Which of the following species is having more darker yellow plasma:
- a. horse
 - b. cow
 - c. dog
 - d. sheep
75. Blood volume is generally
- a. 8 -10 % of body weight
 - b. 6 -8 % of body weight
 - c. 10 -15% of body weight
 - d. 10 -20 % of body weight
76. pH of the arterial blood is
- a. alkaline
 - b. acidic
 - c. more acidic
 - d. none
77. Venous blood is more acidic than alkaline blood due to:
- a. higher concentration of CO_2 exist in venous blood
 - b. higher concentration of O_2 exist in venous blood
 - c. both a and b
 - d. none
78. Normal range of circulating leukocytes among the domestic animal is
- a. 7000 to 15000/ml
 - b. 20000 to 25000/ml
 - c. 30000 to 40000/ml
 - d. 1000 to 2000/ml
79. Osteoclastic activity is favored by:
- a. parathyroid hormone
 - b. calcitonin

- c. thymulin
 - d. vitamin D
80. The first hormone isolated in 1904 by Bayliss and Starling is:
- a. secretin
 - b. epinephrine
 - c. gastrin
 - d. prolactin
81. First hormone synthesized in lab is:
- a. secretin
 - b. insulin
 - c. epinephrine
 - d. gastrin
82. Metabolic rates in mammals is controlled by:
- a. liver
 - b. pancreas
 - c. thyroid
 - d. pituitary
83. The endocrine gland which contributes to setting the body's biological clock is the:
- a. pituitary
 - b. hypothalamus
 - c. pineal
 - d. parathyroid
84. In adults sufficient thyroine will leads to:
- a. cretinism
 - b. acromegaly
 - c. myxedema
 - d. goiter
85. Muscles get fatigue due to accumulation of:
- a. lactate
 - b. phosphate
 - c. carbon dioxide
 - d. ATP
86. Which one of the following sets of ions are necessary in the chemical events for muscle contraction:
- a. Ca^{2+} and Mg^{2+}
 - b. Na^{+} and Ca^{2+}
 - c. Na^{+} and K^{+}
 - d. Ca^{2+} and K^{+}
87. Upon stimulation of skeletal muscle calcium is immediately made available for binding to troponin from:
- a. blood
 - b. sarcoplasmic reticulum
 - c. lymph
 - d. both b and c
88. An action potential spreads over sarcolemma and moves into:

- a. sarcoplasm
 - b. sarcoplasmic reticulum
 - c. T tubules
 - d. all of the above
89. Smooth muscle cells of _____ shape:
- a. Star shape
 - b. Cylindrical shape
 - c. Spindle shape
 - d. Circular shape
90. In smooth muscle actin filaments are anchored with:
- a. Z line
 - b. M line
 - c. Dense bodies
 - d. Caveolae
91. Smooth muscle is able to stay contracted for some time without the use of much ATP called:
- a. contracted state
 - b. latch state
 - c. kinase state
 - d. active state
92. The plasma protein that mainly regulates and maintains colloidal osmotic pressure of blood is
- a. albumin
 - b. globulin
 - c. fibrinogen
 - d. plasmin
93. The principal place of erythrocyte destruction in most of domestic animals is:
- a. spleen
 - b. liver
 - c. bone marrow
 - d. lymphnodes
94. The oxygen-haemoglobin dissociation curve of muscle haemoglobin is:
- a. hyperbolic
 - b. sigmoid
 - c. parabolic
 - d. straight
95. The fluid present in brain , synovial fluid and intra ocular space is called:
- a. interstitial fluid
 - b. intra cellular fluid
 - c. interstitium
 - d. trans cellular fluid
96. The fascicles in skeletal muscles are wrapped in connective tissue sheaths called:
- a. epimysium
 - b. endomysium
 - c. perimysium

- d. myofibrils
97. Hypertrophy can be observed in
- a. skeletal muscle cells
 - b. cardiac muscle cells
 - c. smooth muscle cells
 - d. all of the above
98. Most of the CO₂ is transported in the blood as:
- a. dissolved in plasma
 - b. bound to chloride
 - c. bicarbonate ions
 - d. carboxy haemoglobin
99. Site of formation of CSF is:
- a. astrocytes
 - b. choroid plexus
 - c. meninges
 - d. neuroglia cells
100. Sympathetic post-ganglionic neurotransmitter is:
- a. serotonin
 - b. nor-epinephrine
 - c. acetyl choline
 - d. dopamine
101. Which of the following enzyme is very active in acidic medium:
- a. trypsin
 - b. pepsin
 - c. chymotrypsin
 - d. carboxy peptidase
102. Storehouse of Ca²⁺ in skeletal muscles is:
- a. mitochondria
 - b. sarcoplasmic reticulum
 - c. tropomyosine
 - d. golgi apparatus
103. Ca²⁺ binding protein in smooth muscles is called:
- a. troponin
 - b. calmodulin
 - c. tropomyosine
 - d. myosine
104. The anterior pituitary hormone having similar action to prolactin:
- a. GH
 - b. Gonadotropins
 - c. ACTH
 - d. TSH
105. The hormones secreted by group of cells which have actions on nearby cells are known as:
- a. endocrine
 - b. autocrine

- c. paracrine
d. neurocrine
106. Which of the following is not a protein hormone?
a. FSH
b. growth hormone
c. thyroxine
d. relaxin
107. Diabetes insipidus is because of deficiency of:
a. insulin
b. inulin
c. insulin receptors
d. ADH
108. Blood calcium level is increased by:
a. calcitonin
b. parathyroid hormone
c. thymulin
d. aldosterone
109. Haemoglobin combined with carbon dioxide is called as:
a. carboxyhemoglobin
b. carbaminohemoglobin
c. methemoglobin
d. myoglobin
110. Cation that plays an important role in blood coagulation:
a. sodium
b. cobalt
c. calcium
d. selenium

KEY ANSWERS

Veterinary Physiology and Biochemistry									
1-B	2-D	3-C	4-D	5-D	6-B	7-C	8-B	9-B	10-D
11-B	12-D	13-D	14-C	15-A	16-A	17-B	18-D	19-C	20-D
21-D	22-C	23-B	24-B	25-D	26-B	27-C	28-B	29-B	30-A
31-B	32-A	33-A	34-D	35-C	36-D	37-A	38-D	39-B	40-C
41-D	42-A	43-A	44-B	45-C	46-B	47-B	48-B	49-C	50-C
51-A	52-B	53-C	54-A	55-A	56-C	57-D	58-A	59-B	60-C
61-A	62-A	63-B	64-A	65-D	66-C	67-A	68-D	69-C	70-D
71-C	72-A	73-D	74-A	75-B	76-A	77-A	78-A	79-A	80-A
81-B	82-C	83-C	84-C	85-A	86-A	87-B	88-C	89-C	90-C
91-B	92-A	93-C	94-A	95-D	96-C	97-D	98-C	99-B	100-B
101-B	102-B	103-B	104-A	105-C	106-C	107-D	108-B	109-B	110-C

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY
PHYSIOLOGY AND BIOCHEMISTRY**

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I. Choose the correct answer

1. Motor neurons in the myenteric plexus that stimulate the contraction of visceral smooth muscle in the gastrointestinal tract release:
 - a. acetylcholine
 - b. vasoactive intestinal polypeptide
 - c. nitric oxide
 - d. somatostatin
2. Postganglionic parasympathetic neurons innervating circular and longitudinal layers of gastrointestinal smooth muscle are located in:
 - a. myenteric plexus
 - b. submucosal plexus
 - c. paravertebral ganglia
 - d. prevertebral ganglia
3. The term “brain of the gut” is used to refer to the:
 - a. autonomic ganglia
 - b. enteric nervous system
 - c. migratory motor complex
 - d. interstitial cells of Cajal
4. Which of the following strategies would **most likely** be therapeutic in an individual with achalasia?
 - a. injection of tetanus toxin into the lower esophageal sphincter
 - b. surgical division of the lower esophageal sphincter
 - c. administration of a muscarinic receptor agonist
 - d. administration of a nitric oxide synthase inhibitor
5. Which of the following **inhibits** gastric acid secretion by an action on the parietal cell?
 - a. acetylcholine
 - b. epinephrine
 - c. gastrin
 - d. prostaglandin E
6. Vagally mediated increase in gastric acid secretion is partly mediated by:
 - a. gastrin releasing peptide (GRP)
 - b. gastric inhibitory peptide (GIP)
 - c. vasoactive intestinal polypeptide (VIP)
 - d. somatostatin
7. The ‘postprandial alkaline tide’ is abolished by:
 - a. antrectomy
 - b. gastrin
 - c. parietal cell vagotomy

- d. total inhibition of gastric H^+-K^+ ATPase
8. The release of gastrin from G cells in the antrum of the stomach is **inhibited** by:
- activation of vagal efferent fibers to the stomach
 - circulating epinephrine
 - blood-borne calcium
 - somatostatin
9. The basal acid output / maximum acid output ratio is normally closest to:
- 0.1
 - 0.4
 - 0.7
 - 0.9
10. The optimum pH for the activity of pepsin is:
- less than 1
 - between 1.6 and 3.2
 - between 3 and 5
 - between 6 and 7
11. From a physiologic standpoint, the advantage of a 'parietal cell vagotomy' over truncal vagotomy for treating duodenal ulcer is that in parietal cell vagotomy:
- gastrojejunostomy is not required
 - only basal acid output is reduced
 - G cells are also denervated
 - pyloric sphincter is also denervated
12. Which of the following hormone(s) is/are normally released by the stomach into the systemic circulation?
- ghrelin
 - gastrin
 - pepsinogen
 - secretin
13. Gastric emptying is **slowest** after a meal containing:
- fat
 - carbohydrate
 - protein
 - indigestible fiber
14. In which of the following segments in the splanchnic circulation is pressure **least** in a healthy individual at rest?
- hepatic arteriole
 - hepatic sinusoid
 - hepatic vein
 - terminal branches of portal vein in the liver
15. The **least oxygenated** and consequently the zone in the hepatic acinus **most vulnerable** to ischemia is:
- zone I
 - zone II
 - zone III
 - none

16. Conjugation of bilirubin with glucuronic acid in the liver:
 - a. makes it hydrophobic
 - b. makes it hydrophilic
 - c. enables bilirubin to easily cross cell membranes
 - d. is always increased in neonatal jaundice
17. Normally, the rate-limiting step in the metabolism of bilirubin is:
 - a. uptake by ligandin
 - b. conjugation with glucuronic acid
 - c. secretion into bile
 - d. none
18. Which of the following is a bile acid synthesized by the hepatocyte?
 - a. sodium taurocholate
 - b. chenodeoxycholic acid
 - c. deoxycholic acid
 - d. lithocholic acid
19. Bile acids are synthesized starting from:
 - a. cholesterol
 - b. fatty acids
 - c. lecithin
 - d. bile salts
20. The most abundant bile acid is:
 - a. cholic acid
 - b. chenodeoxycholic acid
 - c. deoxycholic acid
 - d. lithocholic acid
21. Which of the following transporters is present only in the sinusoidal membrane of hepatocytes?
 - a. Bile Salt Export Pump
 - b. LDL-cholesterol receptors
 - c. MDR 3 (Flippase)
 - d. Multidrug Resistance associated Protein - 2 (MRP-2)
22. Bile salts are essential for absorption of fat because they:
 - a. solubilize dietary lipids in micelles
 - b. increase surface tension
 - c. are hydrophobic
 - d. contain pancreatic enzymes
23. Micelles in bile are formed by:
 - a. bile salts and phospholipids
 - b. bile acids and bile salts
 - c. cholesterol and bile salts
 - d. cholesterol and phospholipids
24. The total circulating bile salt pool is approximately:
 - a. 35 mg
 - b. 3.5 g
 - c. 150 mg

- d. 30 g
- 25. The normal rate of bile salt synthesis is:
 - a. 0.05 - 0.1 g/day:
 - b. 0.2 - 0.4 g/day
 - c. 0.8 - 1.2 g/day
 - d. 2 - 2.5 g/day
- 26. Physiologically, the most important choleretic(s) is/ are:
 - a. bile salts
 - b. CCK
 - c. Secretin
 - d. Gastrin
- 27. Removal of the liver is fatal because:
 - a. blood urea rises
 - b. jaundice develops
 - c. clotting time is prolonged
 - d. progressive hypoglycemia occurs
- 28. *Slow waves* in the GIT are believed to be initiated by:
 - a. I cells
 - b. K cells
 - c. interstitial cells of Cajal
 - d. S cells
- 29. The most alkaline exocrine secretion is:
 - a. Bile
 - b. pancreatic juice
 - c. intestinal juice
 - d. saliva
- 30. The term 'hormone' was coined by Ernest H. Starling to describe the actions of:
 - a. secretin
 - b. insulin
 - c. growth hormone
 - d. glucagon
- 31. Trypsinogen, a pancreatic proenzyme, is activated by:
 - a. enterokinase
 - b. hydrochloric acid
 - c. HCO_3
 - d. pancreatic trypsin inhibitor
- 32. Most pancreatic zymogens are activated in the duodenal lumen by:
 - a. enterokinase (enteropeptidase)
 - b. trypsin
 - c. trypsin activator protein
- 33. Trypsin inhibitor:
 - a. inhibits the action of pancreatic enzymes in the lumen of the duodenum
 - b. inhibits activation of trypsin in the pancreas
 - c. deficiency is implicated in acute pancreatitis
 - d. both b and c

34. Which of the following enzymes is **not** synthesized by the pancreas?
- DNAase
 - Proelastase
 - Aminopeptidases
 - Pepsin
35. Which of the following is an endopeptidase?
- carboxypeptidase A
 - deoxyribonuclease
 - trypsin
 - dipeptidase
36. Which of the following enzymes is located in the brush border of enterocytes in the small intestine?
- lactase
 - colipase
 - cholesterol ester hydrolase
 - lingual lipase
37. Disaccharidases are present in:
- pancreatic acinar cells
 - brush border of enterocytes
 - D cells of pancreas
 - Brunner's glands
38. Quantitatively, the most important enzyme in the digestion of fat is:
- lingual lipase
 - gastric lipase
 - pancreatic lipase
 - lipoprotein lipase
39. Normally, instillation of acid into the duodenum to reduce pH in its lumen to 4 would **most likely**:
- stimulate gastrin release
 - increase output of trypsin
 - increase secretion of Brunner's glands
 - relax the pyloric sphincter
40. The major humoral mediator of meal- stimulated enzyme secretion is:
- Secretin
 - CCK
 - GIP
 - Gastrin
41. The major humoral mediator of pancreatic duct cell secretion of bicarbonate rich juice is:
- secretin
 - CCK
 - somatostatin
 - none
42. The major humoral mediator of gall bladder contraction in response to a fat meal is:

- a. CCK
 - b. gastrin
 - c. secretin
 - d. somatostatin
43. Which is the most important cholagogue?
- a. Secretin
 - b. CCK
 - c. gastrin
 - d. GIP
44. The most potent stimulus for release of secretin from the duodenum is:
- a. reduction in duodenal lumen pH to < 4.5
 - b. peptides
 - c. fatty acids with > 8 carbons
 - d. carbohydrates
45. Which of the following statements about CCK is **incorrect**?
- a. it causes gall bladder contraction
 - b. it relaxes the sphincter of oddi
 - c. it relaxes the pyloric sphincter
 - d. it stimulates the secretion of an enzyme-rich pancreatic juice
46. Which of the following statements regarding somatostatin is **incorrect**?
- a. it inhibits release of growth hormone
 - b. it inhibits release of insulin
 - c. it decreases blood flow to the intestine
 - d. it stimulates gastric acid secretion
47. In which of the following conditions is a long acting analog of somatostatin of therapeutic value?
- a. acute mesenteric ischemia
 - b. bleeding from esophageal varices
 - c. cholelithiasis
 - d. pancreatic exocrine insufficiency
 - e. pernicious anemia
48. In healthy humans, the maximal rate of glucose absorption from the intestine is estimated to be about:
- a. 10 g/hour
 - b. 40 g/hour
 - c. 120 g/hour
 - d. 180 g/hour
49. Intestinal absorption of which of the following does **not** directly utilize a Na^+ gradient?
- a. fructose
 - b. galactose
 - c. glucose
 - d. phenylalanine
50. Which of the following mechanisms allows complete absorption of glucose from the intestinal lumen into the cytosol of the enterocyte?

- a. simple diffusion through GLUT-5
 - b. Na-glucose cotransporter-1 (SGLT-1)
 - c. Na channels in enterocyte membrane
 - d. paracellular uptake via gap junctions
51. Which of the following proteins is a regulator of iron absorption by enterocytes?
- a. ferritin
 - b. hemosiderin
 - c. hepcidin
 - d. transferrin
52. The major protein that transports iron in the plasma from the site of absorption to cells engaged in erythropoiesis is:
- a. hepcidin
 - b. transferrin
 - c. ferritin
 - d. haemosiderin
53. In healthy humans, iron in tissues other than red blood cells is stored principally in combination with:
- a. ferritin
 - b. transferrin
 - c. hepcidin
 - d. haemosiderin
54. Which of the following statements regarding the thermic effect of feeding is **incorrect**?
- a. It is most prominent at the time of eating
 - b. It is *aka* specific dynamic action of food
 - c. It is greater following a protein meal
 - d. It is enhanced by sympathetic neural activity
55. Normally, most of the water in the GI lumen is absorbed from:
- a. Stomach
 - b. Duodenum
 - c. Jejunum
 - d. Colon
56. The Oral Rehydration Solution is helpful in rehydration in diarrheas **because**:
- a. Na-glucose symporter is unaffected in toxigenic diarrheas
 - b. 1Na-1K-2Cl symporter is located only in the basolateral membrane
 - c. cAMP regulated Cl secretion is reduced
 - d. toxins inhibit facilitated glucose transport
57. The most frequent type of movement in the small intestine in the digestive state is:
- a. peristalsis
 - b. antiperistalsis
 - c. slow wave
 - d. segmentation contraction
58. The pattern of intestinal motility that hastens transit of chyme in the small intestine in the digestive state is:
- a. peristalsis

- b. segmentation contraction
 - c. tonic contraction
 - d. migrating motor complex
59. The type(s) of contraction that normally occur(s) only in the colon is/are:
- a. Peristalsis
 - b. antiperistalsis and mass peristalsis
 - c. segmentation
 - d. none
60. The pattern of electrical and motor activity in the gastrointestinal tract during periods of fasting is called:
- a. basic electrical rhythm
 - b. migrating motor complex
 - c. peristalsis
 - d. segmentation
61. Enterocytes are replenished by mitotically active undifferentiated cells located in:
- a. Brunner's glands
 - b. crypts of Lieberkuhn
 - c. Peyer's patches
 - d. gut associated lymphoid tissue
62. Which of the following cells sample the antigenic milieu of the gastrointestinal lumen?
- a. P cells
 - b. I cells
 - c. K cells
 - d. M cells (microfold cells)
63. In healthy humans, active absorption of bile acids and bile salts occurs mainly in the:
- a. Duodenum
 - b. Jejunum
 - c. terminal ileum
 - d. colon
64. Calcium absorption from the intestine:
- a. is facilitated by vitamin D
 - b. is decreased by phytates and oxalates
 - c. occurs mainly in the upper small intestine
 - d. all of the above
65. Vitamin B₁₂ is mainly absorbed in the:
- a. terminal ileum
 - b. upper jejunum
 - c. duodenum
 - d. stomach
66. In healthy humans, the earliest the first part of a test meal reaches the cecum is in about:
- a. 4 hours
 - b. 6 hours

- c. 9 hours
 - d. 12 hours
67. Normally, the main function of the colon is absorption of:
- a. Na, Cl and H₂O
 - b. Triacylglycerols
 - c. secondary bile acids
 - d. iron
68. Normally, there is a net secretion of which ion in the colon?
- a. sodium
 - b. potassium
 - c. chloride
 - d. calcium
69. The defecation reflex is integrated in the:
- a. brain stem
 - b. pons
 - c. medulla
 - d. spinal cord
70. The odor of feces is partly due to:
- a. Stercobilinogen
 - b. indole, skatole and sulphides
 - c. primary bile acids
 - d. secondary bile acids

ANSWER KEY:

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

ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF LIVESTOCK PRODUCTION AND MANAGEMENT

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IMPORTANT TIPS:

ACTS YEAR

- ✓ Livestock importation act 1898 modified on 1952
- ✓ The Glanders and Farcy act 1899
- ✓ The dourine act 1910 modified on 1957
- ✓ The poisoning act 1919 modified on 1952
- ✓ Dangerous drugs act 1930
- ✓ Drugs and cosmetics act 1940
- ✓ Drugs and cosmetics rules 1945
- ✓ Prevention cruelty to animals act 1960
- ✓ Prevention cruelty to animals to drought and pack animals rules 1965
- ✓ Prevention cruelty to animals (licensing of Farriers rule) 1965
- ✓ Prevention cruelty to captured and wild animals 1972
- ✓ Wild life (protection) act 1972
- ✓ Project Tiger 1973
- ✓ Prevention cruelty to animals registration of cattle Premise 1978
- ✓ Transportation of animals rules 1978
- ✓ Experimental animals act 1982
- ✓ Animal welfare board of India 1982
- ✓ Project Elephant 1992
- ✓ Livestock importation act 1898 not permitting transport of following diseased
- ✓ animals -Tickpest, Anthrax, Glanders, Farcy, Scabies

Applicable in all states of India except in J & K state

- ✓ **Cloning in sheep - 1997, DOLLY.**
- ✓ **Phook or doomdev** injecting air or any materials in to the female genital organ

Four pillars of livestock management (or) LPM

- 1) Breeding 2) Weeding 3) Feeding 4) Heeding

Scientific name

- ✓ Turkey - *Meleagris gallopavo*
- ✓ J. Quail - *Coturnix coturnix japonica*
- ✓ Guinea fowl - *Numida meleagris*
- ✓ Duck - *Anas platyrhynchos*
- ✓ Goose - *Anser anser*

Common Terms and Definitions

Horse

- ✓ Geld (or) gelding - castrated male horse.

- ✓ Broken horse - A well trained horse
- ✓ Unbroken horse - Untrained horse
- ✓ Colt foal - Male young one
- ✓ Filly foal - Female young one
- ✓ Double rig - Cryptorchid (both testicles retained in the abdomen)
- ✓ Foaling - Act of giving birth to young one.
- ✓ Mule - **Mare** x **jack ass**
- ✓ Jennet/Jenny/hinny/Genet - **stallion** x **she donkey**

Cattle

- ✓ **Heifer** - *Young female over one year, which has just attained maturity*
- ✓ **Slink calf** - *An aborted calf*
- ✓ **Bobby calf** - *Male calf about 1 week old*
- ✓ **Free martin** - *Twin calves of different sexes are born*
- ✓ **The bull calf** - *Sexually normal*
- ✓ **Female calf** - *Sterile (always)*

Sheep

- ✓ **Wedder (or) wether** - *An adult castrated male sheep*
- ✓ **Gimmer** - *Female sheep which is between 1 and 2 shering*
- ✓ **Seggy** - *an adult male castrated after service*
- ✓ **Frog** – *the central elevated portion behind the foot*
- ✓ **Chestnut** – *the horny growth situated below the hock on both the hind limb*
- ✓ **Hogging** – *clipping the mane*
- ✓ **Pouring** – *pouring small quantity of dip into parts of the fleece along the back, sides and belly*
- ✓ **Crutching** – *removing soiled dung-stained wool of perineal and inguinal regions*
- ✓ **Scouring** – *removal of impurities in raw wool*
- ✓ **Mulling** - *castration by crude method*
- ✓ **Ringling** – *removal of wool from the region around the penis*
- ✓ **Eyeing** – *clipping of wool around the eye to prevent wool blindness*

Species	Number of defined breeds
India	
Cattle	43
Buffalo	16
Sheep	43
Goat	34
Equines	07

Source: NBAGR

- ✓ **Watering of livestock**
- ✓ **Species water intake /day**
- ✓ **Cattle and buffalo** 27 – 28 lit
- ✓ **Adult camel** 70 – 90 lit
- ✓ **Sheep and goat** 18 lit

- ✓ **Pigs** 25 – 30 lit
- ✓ **Poultry** 250 ml
- ✓ **Dog and cats** 14 lit
- ✓ **Horse** 36 lit

Species Water req. for all purposes / day

- ✓ Cow - 100 – 110 lit
- ✓ Horse - 72 lit
- ✓ Pigs - 40 -50 lit

Potable water

Standard physical qualities

- ✓ Organic matter *3ppm*
- ✓ PH range 7-8.5
- ✓ Turbidity *5 turbidity scale*

Chemical qualities

- ✓ Chloride, Sulphate 250 ppm
- ✓ Fluoride 1 ppm
- ✓ Ammonia
- ✓ Lead 0.1 ppm
- ✓ Arsenic 0.05 ppm
- ✓ Iron 0.3 ppm

Hardness of water

- ✓ Temporary hardness – **bicarbonates of calcium and Magnesium**
- ✓ Permanent hardness - **Chlorides and sulphates of calcium and magnesium.**
- ✓ Chlorine demand for normal water – **0.9-1.8 ppm**
- ✓ Brackish taste of water is due to presence of **sodium chloride**
- ✓ **Sickle shaped horn – Surti**
- ✓ **Tallest Indian sheep breed – Nellore**
- ✓ **Shortest Indian sheep breed – Mandya**
- ✓ Pelt breed – *karakul*
- ✓ Largest goat breed – *Jamnapari*
- ✓ Dwarf breed of goat – *Barbari*
- ✓ Milk fat percentage highest in *Jakffarabadi* and lowest in *Nili-ravi*
- ✓ *Chegu* and *chanthangi* are pashmina goat
- ✓ Gestation heat is also present in goat
- ✓ Safe sanitary distance is **150-200 feet** away from the sources of contaminations
- ✓ **Glutaraldehyde (2%)** aqueous solution used for sterilization of instruments
- ✓ Trap is a contrivance for preventing **sewar gas** escaping in to house drainage system
- ✓ Presence of iron in water encourages the growth of iron bacteria such as **crenothrix** and **gallionella**
- ✓ Higher concentration of fluoride causes interference with calcification giving rise to dental dystrophy known as **mottled teeth**
- ✓ Cooling power can be measured by **kata thermometer**

- ✓ Air velocity **100ft/min** at **70°C** is found to be comfortable for broilers
- ✓ Percentage of CO₂ present in the atmosphere can be measured by **Haldanes apparatus**
- ✓ Short day breeders – sheep and goat
- ✓ Long day breeders – horse
- ✓ Housing -East- west orientation – temperate regions
- ✓ North – south orientation – tropical regions

Identification of horse

- ✓ **Grey** – skin is black with admixture of black and white hairs
- ✓ **Bay** – varies from dull red to yellowish color, black mane, tail and the limb
- ✓ **Piebald** – irregular patches of white and black
- ✓ **Star** – a white mark on the forehead either large or small
- ✓ **Stripe** – a narrow white marking running down the face, may be thin or broad
- ✓ **Conjoined star and stripe** – stripe in continuation of a star
- ✓ **Blaze** – a white marking covering almost the whole of the forehead between the eyes and extending down the front of the face beyond the width of nasal bone and usually involving the muzzle
- ✓ **White face** – white covers the whole of forehead
- ✓ **Snip** – any isolated white mark in between the nostrils
- ✓ **White muzzle** – both lips will be white
- ✓ **Whorls** – any irregular setting of hairs
- ✓ **Freeze branding** - Dry ice – (- 70°C) , Liquid nitrogen – (-196°C)

Teeth

- ✓ **Canine teeth** absent in mare, cattle
- ✓ **Tushes – canine teeth of pig**
- ✓ **Wolf teeth** – 1st pre molar of upper jaw in horse
- ✓ **Dental star** – a mark seen on the table surface of incisors in horse
- ✓ **Infundibulum** – dark depression on the table surface of incisors in horse
- ✓ **Carnassials / sectorial teeth** – in dogs.
- ✓ 4th cheek tooth of upper jaw (4th pre molar)
- ✓ 5th cheek tooth of lower jaw (1st molar)
- ✓ **Galvaynes groove** is a depression on the labial surface of the corner incisors
- ✓ **Bishoping** is an attempt to make the old animals to be mistaken for a young one

Dental formula Species Temporary (deciduous) and permanent

Species	Temporary		Permanent	
	2(Incisors/canine/premolar)		2 (Incisors/canine/premolar /Molar)	
Cattle	0/4 , 0/0 , 3/3	20	0/4 , 0/0 , 3/3 , 3/3	32
sheep/goat				
Horse	3/3 , 0/0 , 3/3	24	3/3 , 1/1 , 3-4/3 , 3/3	40 - 42
Pig	3/3 , 1/1 , 3/3	28	3/3 , 1/1 , 4/4 , 3/3	44

Dog	3/3 , 1/1 , 3/3	28	3/3 , 1/1 , 4/4 , 2/3	42
Cat	3/3 , 1/1 , 3/2	26	3/3 , 1/1 , 3/2 , 1/1	30
Camel	1/3 , 1/1, 3/2	22	1/3 , 1/1, 3/2 , 3/3	34

- ✓ Double dish face is characteristic of **jersey** and **Guernsey**
- ✓ **Golden yellow** color milk is seen in Guernsey
- ✓ Best milk production of world is **Holstein Friesian**
- ✓ Key stone of arch in animal breeding – **selection**
- ✓ Mass selection can be powerful for **highly heritable traits**

Species	Sperm count/ml	volume
Bull	600-1200 million	2-10 ml
Buffalo	600-1000 million	2-5 ml
Ram	800-4000 million	0.6-2 ml
Stallion	50-200 million	30-280 ml
Boar	25-1000 million	150-450 ml

- ✓ **Calf starter** should be fed at 3 months of age (**TDN -70%, CP -22%**)
- ✓ Additional feeding during the pregnancy period – **Steaming up'**
- ✓ Cows should be bred after calving within **60-90 days**
- ✓ Ear notching is commonly practiced in **pigs**
- ✓ Removal of testicles in fowl – **Caponisation**
- ✓ Draught power of bullock – **0.75 HP**
- ✓ Gestation period of goat is **145-155 days**
- ✓ Best known Indian goat milch breed – **Jamnapari**
- ✓ **Crude Fibre** utilization - **Goat>sheep>buffaloes>cows**
- ✓ In sheep **flushing** is practiced **2-3 weeks** before mating
- ✓ Age of ram for breeding purpose – **2 yrs**
- ✓ Sheep tends to survive best in **drier climates**
- ✓ At 20 wks of age, **16 hrs** of lighting is required
- ✓ Air movement should not exceed **30 ft (9.2m)/min**
- ✓ For production of 1ml of milk **400-500ml** of blood must pass through the udder
- ✓ Major elements (Ca, P , K , Cl , and Na) cannot be changed by altering the levels of these elements in the ration of a cow
- ✓ **STH, ACTH, TSH and Oxytocin** exert their effect in maintaining the normal lactation curve
- ✓ **Galactophore** - a milk duct
- ✓ **Galactosidase** - enzyme which catalyses the splitting of lactose into **glucose + Galactose**
- ✓ **Galactopoiesis** – maintenance of lactation
- ✓ **Lactogenesis** – initiation of milk secretion
- ✓ Concentrate feeding – 0.35 kg per lit of milk

- ✓ Colostrums also known as **Beesting**
- ✓ Best time for castration is **8-10 weeks** for cattle
- ✓ Deworming – with **piperazine adipate** with in 3rd to 7th day, repeat it once in a month upto 6th month of age
- ✓ Calf mortality - **below 8%**
- ✓ Adult mortality – **below 3%**
- ✓ Chemical used for shearing in sheep – **Cyclophosphamide**
- ✓ Limiting amino acid of sheep – **Methionine**
- ✓ Dry matter requirement of sheep - **2.5 – 3 kg /head / day**
- ✓ The only milk producing sheep breed (goat like sheep) –

Sonadi

- ✓ **Fineness of wool** – expressed in terms of **spinning counts (s)**
- ✓ Ratio of secondary to primary follicle in **Fine wool breeds - 20 : 1**

Carpet wool breeds– 1:1 to 3:1

- ✓ Diameter of Wool fiber – **15 – 50**
- ✓ Diameter of Kemp fiber – **100 – 200**

Hair - Medulla is present

Type of wool	Diameter	S unit
Fine wool	<25	64s to 80s
Medium wool	25 – 40	50s to 62s
Coarse wool	>40	<50s

- ✓ The fiber from the Angora goat is known as **Mohair**
- ✓ Fleece contain Suint and Grease
- ✓ **Suint** – water soluble salts present in the wool, which is excretory products from skin
- ✓ The waviness of wool is known as **crimp**, fine wool will have more crimps
- ✓ Mutton – Pale pinkish
- ✓ Chevon – dark red with coarse texture

Floor space per animal (Sq. ft)		
Type of animal	Covered area sq ft	Open area sq ft
Cows	20-30(3.5 m ²)	80-100(7 m ²)
Buffaloes	25 – 35	80-100
Young stock	15 – 20	50-60
Pregnant cows	100 -120	180-200
Bulls	12 m ²	(120 m ²)
Ram /Buck	3.4 m ²	-
Ewe /Doe	1 m ²	-
Boar	9 m ²	9 m ²

POULTRY SCIENCE

- ✓ **BREED:** group of individuals within the species having distinct physical and productive characteristics, which are efficiently transmitted to decedents
- ✓ **Variety:** subdivision of breed mostly decided by type of comb, colour of plumage
- ✓ **Strain:** population of small number of individuals in variety reproducing with well established common characteristics

Breeds

- ✓ **Mediterranean class** (Egg type): **M L A** (Minorca, Leghorn, Ancona)
- ✓ **English class**(Meat type): **C O S A** (Cornish, Orphington, Sussex, Australop)
- ✓ **American class** (Dual type): **R P N W** (Rhode islandred, Plymouthrock, New Hampshire, Wyandotte)
- ✓ **Asiatic class** – Brhaman, Cochin, Langsharn

Duck

- ✓ **Egg layers:** Khaki Campbell, Indian runner
- ✓ **Meat ducks:** white pekin, Aylsburry, Muscovy, Rouven
- ✓ Sex ratio : Male: Female **1:15-16** - Replacement pullets
- ✓ **1:10-12** - broiler breeders

Family selection is useful in low heritability characteristics

- ✓ Low heritability characters **egg production , fertility and viability**
- ✓ Pedigree selection is used for **sex limited traits**
- ✓ Individual selection adopted for traits of **high heritability**,
- ✓ **highly heritable characters** – egg weight, shell quality, sexual maturity, growth rate, confirmation
- ✓ Selection of birds for **Layer Line** – 10-14 weeks of age

Meat Type Line – 8 weeks of age

EGG

- ✓ **NAFED** – National Agricultural Co-Operative Marketing Federation of India

- ✓ In marketing of eggs, state level government organizations like MAFCO, TAPCO, POMFCO, NECC and NAFED are making considerable efforts for **marketing and sale promotion of eggs**
- ✓ **NECC** – National egg coordination committee – **fixes the prices for the eggs**
- ✓ **India** – **3rd largest egg producer** next to china and USA
- ✓ Fertile egg – nucleus is called as **Germ disc**, infertile egg it is called as **Germ spot**
- ✓ **Oviposition** – act of laying, due to the release of **Arginine** and **vasotocin**
- ✓ **Brown color of egg shell** is due to the pigment **Porphyrin**
- ✓ **Blue shelled eggs** – pigment **Oocyanin**
- ✓ The normal depth of air cell is **4 to 8 mm**
- ✓ Shell from outside covered by a layer of cuticle which is **Bacteriostatic**
- ✓ Shell membranes – **0.001 – 0.02 mm thick**
- ✓ Shell - **11 %** of total egg weight
- ✓ Albumen - **58 %** of total egg weight
- ✓ Yolk - **31 %** of total egg weight
- ✓ **Ovomucin** – responsible for firmness of thick albumen
- ✓ **Oviduct**
- ✓ **Infundibulum** - fertilization of ovum, the yolk stays for about **15 min**
- ✓ **Magnum** – major qty of thick albumen secreted here , materials stay about **3 hours**
- ✓ **Isthmus** – 1.25 hrs, egg white, 2 shell membranes, some salt and water is added to egg
- ✓ **Uterus** – major role in egg formation, hard calcareous shell, shell pigment, some minerals and water along with cuticle deposited, egg spends max time 21 hrs at this place
- ✓ **Vagina** – egg just passes without spending time
- ✓ **24 – 26 hrs** required for formation of an egg
- ✓ **Haugh unit (HU)** – Evaluating albumen quality, the HU of good quality egg – **70**
- ✓ Temperature Egg holding room **18 – 20°C**
- ✓ **Physiological Zero** – to arrest the development of embryo before setting at 75-80 % humidity
- ✓ Fumigation – 1x – 40ml of formalin with 20g of $KMnO_4/2.80m^3$
- ✓ **Incubator - temp-**37.5- 37.8°C ,65-70% humidity
- ✓ **Hatcher – temp-** 36.5 – 36.8°C, 75 – 80% humidity
- ✓ **Incubation period** – 20-21 days
- ✓ **Brooding management** – up to 4 weeks – broilers, 6-8 wks – layers
- ✓ **Brooding space** - 50-66 cm²/chick, temperature - 33°C during first week, 2.6°C reduced every week till reaches 21°C
- ✓ **Debeaking** - generally done twice in egg type chicken – Day old and Around 9th day or at 3-4 week of age
- ✓ **Toe-clipping** – breeding males – 6-9 days of age
- ✓ **Dubbing** – removal of comb , around 7-8 weeks of age
- ✓ **Cropping** - removal of wattles
- ✓ **The average stocking density of adult birds**
 - Free range – **250 birds/ha**
 - Semi intensive – **750 birds/ha**
 - Intensive system – **10000-25000birds/ha**

- ✓ **Foul-patch** – the ground immediately surrounding the houses- more danger of infection
- ✓ **Depth of litter** – **5cm** for chicks, **7 -10cm** for growers and layers
- ✓ The **relative humidity in the deep litter** system should be **around 40%**
- ✓ The **moisture content of litter** should not be less than **18%** and should not exceed **>24%**
- ✓ The ammonia level produced by litter should not exceed **25ppm**
- ✓ Orientation of poultry houses – **East-West direction**

Floor space requirement

	Layers Broilers			
	Age (weeks)	Space/bird (cm sq)	Age (weeks)	Space/ bird (cm sq)
Deep litter	0-7	650 - 675	0 - 4	450 - 470
	8-11	900 - 925	5 - 7	750 – 850
	12-19	1800 -2000		
Cage system	0-8	200 - 250		
	9-20	275 - 300		
	20 & above	337 - 375		

- ✓ **Restricted feeding**- increases the size of initial eggs laid and is an important factor **to regulate the size of eggs**
- ✓ **Egg-borne transmission** (Trans ovarian diseases) - Salmonellosis, Mycoplasmosis, Avianleucosis complex, Ranikhet disease, Infectious Bronchitis, Avian Encephalomyelitis, avian Adeno virus infection, IBH (inclusion body hepatitis), EDS-76, Fowl typhoid
- ✓ **Mottled yolk** – Due to coccidiostat, hot weather, gossypol poisoning
- ✓ **Blood spot** – Vitamin A deficiency
- ✓ **Brooder pneumonia** – Aspergillus fumigates
- ✓ **Gape worm** (Forked worms)– Syngamus trachea
- ✓ Vaccine - Drinking water administration – For 10 liters of water **1kg of ice** and **60g of skimmed milk powder** is used
- ✓ The RH of poultry house should range from **45-75%**
- ✓ Hatch weight of broiler chick **35-40 g**
- ✓ Chicks must remain in continuous lighting **up to 8 wks** of age

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF LIVESTOCK
PRODUCTION AND MANAGEMENT**

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I . Choose the correct answer

1. Sub-Order Perissodactyla refers to:
 - a. even-toed ungulates
 - b. odd-toed ungulates
 - c. carnivores
 - d. pouched mammals
2. Scientific name of one-humped camel:
 - a. *Camelus dromedaries*
 - b. *Camelus bactrianus*
 - c. *Camelus camelus*
 - d. *Camelus humpus*
3. Cross between a male horse and female ass is:
 - a. mule
 - b. jennet
 - c. honkey
 - d. hinny
4. Scientific name of domestic sheep:
 - a. Ovis sheep
 - b. Capra hircus
 - c. Ovisovis
 - d. Ovisaries
5. Study of animal behaviour is:
 - a. etymology
 - b. behaviourology
 - c. ethology
 - d. ethos
6. The first farm animal to be domesticated was:
 - a. cow
 - b. horse
 - c. pig
 - d. sheep
7. The first farm animal to be domesticated was:
 - e. cow
 - f. horse
 - g. pig
 - h. sheep
8. India's rank in the world's goat population is:
 - a. 1st
 - b. 2nd
 - c. 3rd

- d. 4th
9. Over the last decade, India's indigenous cattle population is:
- increasing
 - decreasing
 - constant
 - none of the above
10. Contribution of livestock sector to India's GDP is about:
- 2.75%
 - 3.75%
 - 4.75%
 - 5.75%
11. Contribution of livestock sector to India's agriculture sector is about:
- 10%
 - 15%
 - 20%
 - 30%
12. Contribution of buffaloes to milk production in India is about:
- 25%
 - 35%
 - 45%
 - 58%
13. The greater contribution to meat production in India is by:
- poultry
 - sheep
 - goat
 - pig
14. The number of agro-climatic zones of India as per the ICAR are:
- 10
 - 12
 - 15
 - 19
15. Act of mating in sheep:
- ramming
 - eweing
 - tupping
 - coupling
16. Castrated male pig:
- steer
 - gelding
 - wether
 - barrow
17. Young female in horse:
- filly
 - colt
 - gilt

- d. geld
- 18. Smallest piglet in a litter:
 - a. crit
 - b. runt
 - c. card
 - d. all the above
- 19. A cow apparently always in heat:
 - a. heater
 - b. freemartin
 - c. buller
 - d. none of these
- 20. Region between the scrotum and the anus is:
 - a. inguinal
 - b. perineal
 - c. brisket
 - d. croup
- 21. Junction between the skin and the hoof:
 - a. fetlock
 - b. pastern
 - c. coronet
 - d. dew claw
- 22. Milk mirror refers to:
 - a. mammary veins
 - b. mammary arteries
 - c. space just ahead of udder
 - d. space just above udder between buttocks
- 23. Anti-cow kicker is fitted onto:
 - a. achilles tendon
 - b. ligamentum nuchae
 - c. udder ligaments
 - d. suspensory ligaments
- 24. A length of rope looped into a series of knots which is used for restraining cattle is called:
 - a. gag
 - b. halter
 - c. trevis
 - d. none of the above
- 25. In Reuff's method, half hitches are placed:
 - a. on the side on which the animal has to be casted
 - b. opposite to the side on which the animal has to be casted
 - c. both of the above
 - d. none of the above
- 26. Aged animals with one or more broken teeth are referred to as:
 - a. old mouth
 - b. broken mouth

- c. full mouth
 - d. gummer
27. Age of eruption of permanent corners in sheep:
- a. 10-20 mths
 - b. 20-30 mths
 - c. 30-40 mths
 - d. 40-50 mths
28. Total permanent teeth in swine:
- a. 28
 - b. 32
 - c. 36
 - d. 44
29. Ear notching is commonly used to mark:
- a. poultry
 - b. pigs
 - c. sheep
 - d. cattle
30. For removal of dried dung etc., brushing is carried out:
- a. in the same direction as hair flow
 - b. against the flow of hair
 - c. perpendicular to hair flow
 - d. none of the above
31. Outdoor exercise with exposure to sunlight is important in providing supplies of:
- a. Vit. A
 - b. Vit. B₁
 - c. Vit. C
 - d. Vit. D
32. Chemical method of disbudding involves use of:
- a. caustic potash
 - b. caustic soda
 - c. either of the above
 - d. none of the above
33. Male calves should be castrated at the age of:
- a. 1 year
 - b. 2 year
 - c. 3 year
 - d. 4 year
34. Sheep and goat can be castrated using:
- a. burdizzo castrator
 - b. castration knife
 - c. elastrator
 - d. all the above
35. The highest milk producer among the indigenous cow breeds of India is:
- a. red sindhi
 - b. rathi

- c. sahiwal
 - d. deoni
36. The highest milk producer among the indigenous cow breeds of India is:
- a. kangayam
 - b. amritmahal
 - c. haryana
 - d. bachaur
37. Santa Gertrudis breed was evolved in America using:
- a. gaolao
 - b. sahiwal
 - c. ponwar
 - d. ongole
38. Jamaica Hope dairy breed was evolved using:
- a. HF and Sahiwal
 - b. Jersey and Sahiwal
 - c. HF and Kankrej
 - d. Jersey and Kankrej
39. Buffalo breed with highest milk fat content is:
- a. Murrah
 - b. Nagpuri
 - c. Jaffarabadi
 - d. Mehsana
40. Buffalo breed with highest milk yield is:
- a. Murrah
 - b. Surti
 - c. Nili-Ravi
 - d. Mehsana
41. A hilly cattle breed with found in Darjeeling and Sikkim:
- a. Ponwar
 - b. Siri
 - c. Rath
 - d. Nagauri
42. The first Military Dairy Farm was started in India at:
- a. Allahabad
 - b. Bangalore
 - c. Nasik
 - d. Secunderabad
43. Karan Swiss was evolved from:
- a. Brown Swiss
 - b. Sahiwal
 - c. Red Sindhi
 - d. All the above
44. Karan Fries breed was evolved from:
- a. Sahiwal
 - b. Tharparkar

- c. Gir
 - d. Red Sindhi
45. Sunandini breed was evolved from:
- a. Brown Swiss
 - b. Sahiwal
 - c. Tharparkar
 - d. None of the above
46. The buffalo breed evolved out of crossing Surti and Murrah:
- a. Jaffarabadi
 - b. Mehsana
 - c. Nili Ravi
 - d. Nagpuri
47. Buffalo breed found in the Nilgiri hills:
- a. Godavari
 - b. Tarai
 - c. Kundi
 - d. Toda
48. The first Herd Books for Red Sindhi and Sahiwal breed were started in the year:
- a. 1935
 - b. 1941
 - c. 1948
 - d. 1951
49. Key Village Scheme to produce stud bulls of recognized breeds was initiated in the:
- a. first five year plan
 - b. second five year plan
 - c. third five year plan
 - d. fourth five year plan
50. Intensive Cattle Development Project was started in the:
- a. first five year plan
 - b. second five year plan
 - c. third five year plan
 - d. fourth five year plan
51. The region with the largest sheep population in India is:
- a. north-western, central arid
 - b. southern
 - c. eastern
 - d. northern temperate
52. Nilgiri breed of sheep originated from:
- a. Coimbatore
 - b. Tasmanian Merino
 - c. Cheviot
 - d. All the above
53. Superior carpet wool breeds are:
- a. Gaddi
 - b. Rampur Bushair

- c. Poonchi
 - d. All the above
54. Merino breed of sheep originated in
- a. Australia
 - b. Spain
 - c. Russia
 - d. America
55. The important dual-purpose breed imported in India is:
- a. Merino
 - b. Suffolk
 - c. Corriedale
 - d. Southdown
56. Avikalin breed of sheep was evolved using Rambouillet and:
- a. Malpura
 - b. Chokla
 - c. Nali
 - d. Sonadi
57. The tallest breed of sheep in India is:
- a. Deccani
 - b. Nellore
 - c. Rampur Bushair
 - d. Mandya
58. Pashmina fibre is produced from which goat breed:
- a. Chegu
 - b. Angora
 - c. Beetal
 - d. None of the above
59. AICRP on Pigs was initiated in:
- a. 1951
 - b. 1961
 - c. 1971
 - d. 1981
60. National Research Centre on Camel is located at:
- a. Jaipur
 - b. Hisar
 - c. Karnal
 - d. Bikaner
61. An indigenous horse breed are:
- a. Marwari
 - b. Kathiawari
 - c. Spiti
 - d. All the above
62. Annual yield of wool from German Angora rabbit is:
- a. 100-200 gms
 - b. 200-400 gms

- c. 400-700 gms
 - d. 700-1000 gms
63. During the initial period, whole milk is fed to calves at the rate of:
- a. 5% of body weight
 - b. 7.5% of body weight
 - c. 10% of body weight
 - d. 15% of body weight
64. Gestation period in mares is about:
- a. 280 days
 - b. 310 days
 - c. 340 days
 - d. 370 days
65. Milking in cattle should be completed within:
- a. 1-3 minutes
 - b. 3-5 minutes
 - c. 5-7 minutes
 - d. 7-9 minutes
66. Feeding of extra concentrates to ewes prior to and during the breeding season is called:
- a. steaming up
 - b. flushing
 - c. topping up
 - d. all the above
67. Open area floor space requirement for bulls as per ISI Standards is:
- a. 4 m²
 - b. 8 m²
 - c. 12 m²
 - d. 16 m²
68. Covered area floor space requirement for farrowing sows as per ISI Standards is:
- a. 5-7 m²
 - b. 7-9 m²
 - c. 9-11 m²
 - d. 11-13 m²
69. Height of inner wall of manger/water trough for sheep and goats as per ISI Standards is:
- a. 35cm
 - b. 45cm
 - c. 55cm
 - d. 65 cm
70. Standard degree of purity of air for animal houses should not be lower than:
- a. 93.7%
 - b. 94.7%
 - c. 95.7%
 - d. 96.7%
71. Storage space required for a quintal of loose hay is:

- a. 0.8 m^2
 - b. 1.2 m^2
 - c. 1.6 m^2
 - d. 2.0 m^2
72. Drinking water requirements of dairy cows and buffaloes under average feeding conditions is:
- a. 30-35 lits/day
 - b. 40-45 lits/day
 - c. 50-55 lits/day
 - d. 60-65 lits/day
73. Height of guard rails above the floor of the farrowing pen should be:
- a. 15 cm
 - b. 25 cm
 - c. 35 cm
 - d. 45 cm
74. Teats should be dipped in sanitizing solution:
- a. before milking
 - b. after milking
 - c. both of the above
 - d. none of the above
75. Advantages of quaternary ammonium compounds are:
- a. low toxicity
 - b. non-corrosive
 - c. negligible odour
 - d. all the above
76. Among the different grades, 'Good' silage will have a pH of:
- a. 3.7-4.2
 - b. 4.2-4.5
 - c. 4.5-4.8
 - d. More than 4.8
77. A manure pit well suited to Indian conditions is:
- a. alnutt's
 - b. clinton's
 - c. both of the above
 - d. none of the above
78. In livestock houses, gradient of floors towards the drain should be:
- a. 1 in 10
 - b. 1 in 20
 - c. 1 in 30
 - d. 1 in 40
79. Normal respiration rate in pigs is:
- a. 5-10 per minute
 - b. 10-20 per minute
 - c. 20-30 per minute
 - d. 30-40 per minute

80. Normal body temperature of goat is:
- 101°F
 - 102°F
 - 103°F
 - 104°F
81. In a dairy farm, Hohenheim system refers to:
- milking
 - breeding
 - deworming
 - grazing
82. The main structures that support the udder are:
- median suspensory ligament
 - lateral suspensory ligaments
 - skin
 - all the above
83. Hormone responsible for 'let down' of milk is:
- growth hormone
 - parathyroid hormone
 - adrenal corticoids
 - oxytocin
84. Amount of milk remaining in the udder after a normal milking is called:
- residual milk
 - persistent milk
 - hormonal milk
 - fore-milk
85. Dairy cows should be milked:
- once a day
 - at regular intervals
 - both of the above
 - none of the above
86. Relation between milk yield and milk fat:
- directly related
 - inversely related
 - not related
 - none of the above
87. Maximum milk fat percentage is found in:
- fore-milk
 - milk drawn during middle of milking
 - last drawn milk
 - uniform throughout milking
88. As age of the cow increases, milk protein, fat and SNF:
- increase
 - decrease
 - remain constant
 - are not related

89. Ideal dry period in crossbred cattle is:
- 30 days
 - 45 days
 - 60 days
 - 75 days
90. While milking, it is desirable to first milk:
- cows producing abnormal milk
 - cows free of mastitis
 - cows with previous history of mastitis
 - heifers free of mastitis
91. The first few jets of milk from each quarter should be:
- collected in the milking pail
 - collected in a strip cup
 - either of the above
 - none of the above
92. Haylage is:
- low-moisture silage
 - high-moisture silage
 - low-moisture hay
 - none of the above
93. Lola is the synonym of which Indian cattle breed:
- Sahiwal
 - Red Sindhi
 - Gir
 - Tharparkar
94. In the Indian subcontinent, most buffaloes calve between:
- Apr-May
 - Jun-Aug
 - Sep-Oct
 - Nov-Mar
95. As per time motion studies, what percentage of the labour time is spent behind the dairy cow:
- 25%
 - 50%
 - 60%
 - 75%
96. Methods of drying off dairy cows:
- incomplete milking
 - intermittent milking
 - complete cessation of milking
 - all the above
97. Indigenous swine breed of South India:
- Karaknath
 - Ankamali
 - Deccani
 - Nilgiri
98. Central Institute for Research on Buffaloes is located at:

- a. Karnal
 - b. Izatnaar
 - c. Hisar
 - d. Bikaner
99. National Research Centre on Yak is located at:
- a. Guwahati
 - b. Medziphema
 - c. Srinagar
 - d. Dirang
100. Project Directorate on Cattle is located at:
- a. Karnal
 - b. Hisar
 - c. Meerut
 - d. Izatnagar

ANSWER KEY:

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

ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF POULTRY SCIENCE

Dr. VidyasagarDepartment of Livestock Production and Management
Veterinary College, Bidar - 585 226 (Karnataka)**I. Choose the correct answer**

1. As per ICMR per capita consumption of meat should be:
 - a. 8 kg
 - b. 9 kg
 - c. 10 kg
 - d. 4.11 kg
2. Major water reservoir for developing embryo is:
 - a. yolk
 - b. albumen
 - c. yolk membrane
 - d. none of the above
3. CARI NIRBHEEK is cross of:
 - a. Khadaknath
 - b. Naked neck
 - c. Assel
 - d. Plymoth rock
4. The popular egg laying duck is:
 - a. Indian runner
 - b. Khaki Campbell
 - c. Pekin
 - d. Both 1 and 2
5. The zoological name of Guinea fowl is:
 - a. *Numida meleagris*
 - b. *Meleagris gallopavo*
 - c. *Anas platyrhynchos*
 - d. *Gallus domesticus*
6. The sex ratio in egg type chicken for optimum fertility is:
 - a. 1:10-12
 - b. 1:8-10
 - c. 1:15-16
 - d. 1:1-2
7. Genetically the commercials in chicken are:
 - a. single hybrid
 - b. double hybrids
 - c. F₁ offsprings
 - d. F₃ hybrids
8. The positive heterosis in poultry birds is known as:
 - a. hybrid
 - b. vigour
 - c. heterozygosity
 - d. nicking

-
9. Heterosis caused by:
- dominance
 - over dominance
 - epistasis
 - all of the above
10. Lassota vaccine strain used in the disease control:
- MD
 - RD
 - IBD
 - CRD
11. HDEP of farm should be minimum of:
- 85 %
 - 80 %
 - 75 %
 - 70 %
12. Curled toe paralysis is caused by deficiency of vitamin in poultry:
- B₂
 - B₃
 - D
 - B₁₂
13. Improper management of litter causes high levels of:
- methane
 - CO₂
 - CO
 - NH₃
14. Water makes up ____ percent of birds body:
- 70%
 - 60%
 - 75%
 - none of the above
15. Live microbial supplements which beneficially affect the host animal by improving its intestinal microbial balance are known as:
- prebiotic
 - anti biotic
 - probiotic
 - none of the above
16. The feeding space allotted for each finishing broiler is:
- 2.5 cm
 - 5 cm²
 - 10 cm²
 - 10 cm
17. The fumigation strength for disinfection of incubation in case of disease emergence is:
- 2 x
 - 3 x
 - 4 x

- d. all the three
- 18. The commonly encountered disease on deep litter rearing of poultry is:
 - a. coccidiosis
 - b. worms
 - c. brooder pneumonia
 - d. all the three
- 19. For effective cross ventilation, the width of poultry house should not exceed:
 - a. 9 m²
 - b. 12 m
 - c. 5 m
 - d. 9 m
- 20. Reason for cannibalism is:
 - a. overcrowding
 - b. genetic predisposition
 - c. deficiency of salt
 - d. all of the above
- 21. Which of the following disinfectant is more resistant to organic matter:
 - a. iodophores
 - b. quaternaries
 - c. coaltar based
 - d. phenols
- 22. In brooder cage birds are reared _____ weeks:
 - a. 0-8
 - b. 0-16
 - c. 9-16
 - d. 0-12
- 23. For commercial broilers the floor space required up to marketing age per bird is:
 - a. 350 cm²
 - b. 850 cm²
 - c. 1200 cm²
 - d. 450 cm²
- 24. Commonly used roofing material for poultry houses is:
 - a. thatched material
 - b. tiles
 - c. asbestos sheets
 - d. GI sheets
- 25. Disadvantage of cage rearing in broilers is:
 - a. breast blisters
 - b. cage layer fatigue
 - c. none of the above
 - d. both of the above
- 26. For round the year egg production the best housing system is:
 - a. 1:3
 - b. 1:2
 - c. 1:4

- d. 1:1
27. Five feet diameter of brooder can hold upto ____ number of birds:
- a. 200-250
 - b. 250-300
 - c. 150-200
 - d. 300-350
28. At the time of brooding of chicks in deep litter system , the litter material will be spread to a depth of:
- a. 8"
 - b. 6"
 - c. 4"
 - d. 2"
29. The floor space required for commercial layers under deep litter system from 8 to 16 weeks:
- a. 3 sq.ft.
 - b. 1.5 sq.ft.
 - c. 2 sq.ft.
 - d. 2.5 sq.ft.
30. The disinfectant commonly used in fumigator is:
- a. alcohol
 - b. formaldehyde
 - c. iodine
 - d. chlorines
31. At the ambient temperatures, the method by which the heat lost by birds is more:
- a. conduction
 - b. radiation
 - c. evaporative cooling
 - d. conviction
32. The upper lethal temperatures in birds is about:
- a. 27°C
 - b. 37°C
 - c. 47°C
 - d. 57°C
33. MD vaccination is done at:
- a. Zero day
 - b. 1st day
 - c. 7th day
 - d. 5th day
34. During laying period ____ hrs of light is required:
- a. 20
 - b. 22
 - c. 16
 - d. 18
35. For every 10 layers the number of open nests to be provided is:
- a. 10

- b. 5
 - c. 4
 - d. 2
36. The parallel distance between two layer houses must be:
- a. 1 meter
 - b. 2 meter
 - c. 3 meter
 - d. 10 meter
37. The chlorine content of drinking water at the point of drinking should be around:
- a. 1.0 PPM
 - b. 0.6 PPM
 - c. 0.3 PPM
 - d. 0.1 PPM
38. Standard FCR of a broiler bird is:
- a. 1.6
 - b. 1.8
 - c. 1.9
 - d. 2.0
39. In cage rearing the floor space allotted per chick in flat deck cages is:
- a. 250 cm
 - b. 250 cm²
 - c. 300cm²
 - d. 337cm²
40. The side height of a of caged grower house is:
- a. 3.20 m
 - b. 2.75 m
 - c. 2.15 m
 - d. 2.75 m²
41. pH of drinking water should be:
- a. 6.0-6.2
 - b. 6.8- 7.5
 - c. 8.0-8.5
 - d. none of the above
42. The MPN (per 100 ml) in drinking water fit for poultry should not exceed:
- a. 100
 - b. 40
 - c. 40000
 - d. 400
43. Hatching eggs to be stored for seven days are kept at temperature of:
- a. 14⁰C
 - b. 18⁰C
 - c. 21⁰C
 - d. 16⁰C
44. The fat content (%) of chicken egg is:
- a. 12

- b. 11
 - c. 10
 - d. 11.5
45. The example of Mediterranean class of chicken is:
- a. white leghorn
 - b. minorca
 - c. ancona
 - d. all the three
46. The incubation temperature egg is:
- a. 46.5°C
 - b. 37.5°C
 - c. 38.5°C
 - d. 33.0°C
47. Incubation period of quail is (days):
- a. 28
 - b. 21
 - c. 25
 - d. 18
48. The turkey egg weighs (grams):
- a. 58
 - b. 85
 - c. 72
 - d. 80
49. The brooding temperature for chicks in the first week is:
- a. 33.0°C
 - b. 35.0°C
 - c. 30.5°C
 - d. 32.5°C
50. The incubation period of duck egg (days):
- a. 21
 - b. 18
 - c. 28
 - d. 35
51. Crazy chick disease is caused by:
- a. thiamin
 - b. riboflavin
 - c. vit. D
 - d. none of the above
52. As per BIS 2007 specification crude protein requirement during pre starter (0-7days) phase in broiler is:
- a. 21
 - b. 22
 - c. 23
 - d. 20
53. Ant nutritional factor present in raw egg:

- a. ovomucine
 - b. avidin
 - c. transferrin
 - d. ovoglobulin
54. Permissible level of Aflatoxin in poultry feed is:
- a. 20 ppb
 - b. 25 ppb
 - c. 15 ppb
 - d. 30 ppb
55. Infectious bronchitis is caused by:
- a. corona virus
 - b. herpes virus
 - c. picorna virus
 - d. none of the above
56. Green rot in egg is caused by:
- a. *Psuedomonas maltophillicia*
 - b. *Psuedomonas aeruginosa*
 - c. *Psuedomonas floroscence*
 - d. *Psuedomonas putida*
57. The ANF present in Jowar is:
- a. gossypol
 - b. aflatoxin
 - c. tannin
 - d. trypsin inhibitor
58. CO₂ level should not exceed above ____ level in incubator:
- a. 0.03%
 - b. 0.02%
 - c. 0.05%
 - d. 0.04%
59. The litter material used for poultry is:
- a. paddy husk
 - b. saw dust
 - c. groundnut hulls
 - d. all the three
60. The fertility in males in poultry is affected by:
- a. yellow Maize
 - b. carotene
 - c. vit. A
 - d. all of the three

ANSWER KEY:

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

ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF ANIMAL NUTRITION**Dr. Ramachandra B and Dr. Ravindra B. D**Department of Animal Nutrition
Veterinary College, Bidar - 585 226 (Karnataka)**I. Choose the correct answer**

1. Taurine amino acid is dietary essential for:
 - a. cat
 - b. dog
 - c. pig
 - d. monkey
2. The vitamins which contain sulphur are:
 - a. biotin and choline
 - b. riboflavin and thiamin
 - c. choline and riboflavin
 - d. thiamin and biotin
3. The calcium content in the animal body is:
 - a. 1.33%
 - b. 0.33%
 - c. 3.33%
 - d. None of these
4. Which one of the following is an example of feed additives :
 - a. mineral mixture
 - b. fish meal
 - c. antibiotic
 - d. mustard cake
5. Which of the following statement is correct in respect of absorption of Ca in ruminants:
 - a. all of the bellow
 - b. oxalates reduce Ca absorption
 - c. Ca absorption in milk-fed animal is higher than their adult counterpart.
 - d. when need of Ca in body increases Ca absorption also increases.
6. The major mineral required for proper wool growth is
 - a. copper
 - b. calcium
 - c. magnesium
 - d. sulphur
7. Degnala disease is caused by the toxicity of:
 - a. selenium
 - b. arsenic
 - c. mercury
 - d. fluorine pyridoxine
8. Active form of which mineral work as glucose tolerance factor:
 - a. Se
 - b. Zn

- c. Cr
 - d. Mo
9. The net gain of ATP produced from metabolism of acetate in ruminant is:
- a. 17
 - b. 10
 - c. 25
 - d. 129
10. Which one of the following is indigestible in ruminants?
- a. sucrose
 - b. lactose
 - c. lignin
 - d. cellulose
11. Calcium requirement of breeder mash (BIS):
- a. 1.2
 - b. 1.0
 - c. 0.5
 - d. 3.0
12. IUPAC accepted name of Vitamin K:
- a. thiamin
 - b. menaquinone
 - c. tocopherol
 - d. ergocalciferol
13. The vitamin crucial in etiology of FLKS:
- a. vitamin A
 - b. biotin
 - c. ascorbic acid
 - d. vitamin K
14. Glycine is essential amino acids for:
- a. calves
 - b. chicks
 - c. lambs
 - d. piglets
15. Common calcium supplement used in the poultry feed is:
- a. calcite
 - b. limestone powder
 - c. shell grit
 - d. all of the above
16. The common aflatoxin binding agent used in the feed is:
- a. hydrated calcium sodium aluminium silicate
 - b. bentonite
 - c. lignin
 - d. none of the above
17. The common phosphorus supplement used in poultry feed is:
- a. di-calcium phosphate
 - b. di-ammonium phosphate

- c. rock phosphate
 - d. sodium phosphate
17. Excessive salt intake increased the requirement of :
- a. carbohydrates
 - b. protein
 - c. fat
 - d. water
18. The minimum crude protein content in commercial dog foods should be:
- a. 10%
 - b. 5 %
 - c. 15%
 - d. 20%
19. The energy requirement of rats is
- a. 1500 kcal ME
 - b. 2000 kcal ME
 - c. 2500 kcal ME
 - d. 3000 kcal ME
20. Excessive feeding of soobabul in rabbits causes toxicity of
- a. gossypol
 - b. oxalates
 - c. trypsin inhibitor
 - d. mimosine
21. Goose stepping” in pigs is related to deficiency of:
- a. pyridoxine
 - b. biotin
 - c. pantothenic acid
 - d. manganese
22. Structural and reserve material in plants:
- a. protein
 - b. carbohydrate
 - c. silica
 - d. fiber
23. Maintenance type of roughage have DCP % about:
- a. 3-5
 - b. 5-7
 - c. 7-9
 - d. 9-11
24. Who is acknowledged as the “Founder of the science of nutrition/Father of Nutrition?
- a. Santario Sanctorius
 - b. Antoine Laurent Lavoisier
 - c. Lazaro spallanzani
 - d. Francois Magendie
25. Which of the following is having highest biological value?
- a. meat
 - b. egg

- c. milk
 - d. soybean
26. Complete development of rumen occurs at the age of :
- a. 3 months
 - b. 6 months
 - c. 9 months
 - d. 12 months
27. Ascorbic acid is easily destroyed by:
- a. heat
 - b. light
 - c. oxygen
 - d. carbon di-oxide
28. Which volatile fatty acid is responsible for milk fat synthesis:
- a. acetate
 - b. propionate
 - c. butyrate
 - d. none above
29. Which volatile fatty acid is responsible for glucose synthesis in cow:
- a. acetate
 - b. propionate
 - c. butyrate
 - d. none above
30. Urea can replace about percent of DCP requirement:
- a. 10-20
 - b. 20-30
 - c. 30-40
 - d. 50-60
31. Net gain of ATP per mole of acetic, propionic and butyric acid are..... moles, moles andmoles respectively:
- a. 10, 17, 25
 - b. 10, 20, 30
 - c. 5, 14, 18
 - d. 15, 10, 27
32. Net yield of ATP per mole of glycerol is:
- a. 11
 - b. 19 or 22 in optimum condition
 - c. 33
 - d. 44
33. In poultry the feed intake will be higher when:
- a. feed rich in energy
 - b. feed poor in energy
 - c. feed rich in protein
 - d. all of the above
34. Greater the food intake results in:
- a. lesser MFN

- b. greater MFN, 0.35g/100g DMI
 - c. MFN is not affected
 - d. any of the above
35. Precursor of prostaglandin is:
- a. linoleic acid
 - b. palmitic acid
 - c. linolenic acid
 - d. arachidonic acid
36. Essential amino acid was invented by:
- a. Muller
 - b. W.C. Rose
 - c. Wolf
 - d. Mulder
37. Solution with amino acid at which pH value it is electrically neutral:
- a. isometric pH
 - b. isocitric pH
 - c. isoelectric pH
 - d. isogenic pH
38. The bacteria are unable to use NH_3 effectively, if its rumen concentration per 100 ml exceed (in mg):
- a. 5-8
 - b. 12-15
 - c. 18-22
 - d. 24-28
39. The recommended level (%) of urea in total diet dry matter of dairy cattle is:
- a. 1
 - b. 4
 - c. 6
 - d. 8
40. Number of protozoa per ml of rumen content is approximately:
- a. 10^6
 - b. 10^8
 - c. 10^9
 - d. none above
41. Sun shine works as a source of vitamin:
- a. thiamine
 - b. biotin
 - c. cholecalciferol
 - d. pyridoxine
42. Vitamin concern with the prevention of perosis is:
- a. thiamin
 - b. riboflavin
 - c. choline
 - d. niacine
43. Sway back in lambs is related to the deficiency of:

- a. selenium
 - b. copper
 - c. manganese
 - d. cobalt
44. Is called as "Animal Protein Factor:
- a. vitamin A
 - b. vitamin B₁₂
 - c. vitamin B₂
 - d. vitamin B₆
45. Ultra trace element is:
- a. Co
 - b. Cu
 - c. Fe
 - d. Zn
46. Blood calcium level varies between:
- a. 9-11mg/100ml
 - b. 4-9mg/100ml
 - c. 2-5mg/100ml
 - d. none
47. Grass tetany/grass staggers is due to deficiency of:
- a. Ca
 - b. P
 - c. Mg
 - d. Mn
48. Which element works as glucose tolerance factor?
- a. Se
 - b. Cu
 - c. Cr
 - d. Ni
49. Basic role of Cell integration which of the Vitamin works "Anti-Infective Vitamin":
- a. vitamin D
 - b. vitamin E
 - c. vitamin C
 - d. vitamin A
50. Which of the following element work as substitute of antibiotics in simple stomach animals?
- a. Cu
 - b. Fe
 - c. Zn
 - d. Mn
51. Probiotics may be recognized as:
- a. direct fed microbials (DFM)
 - b. indirect Fed Microbials (IFM)
 - c. none
 - d. both

52. Fat absorption takes place with the help of:
- bile salts
 - phospholipids
 - cholesterol
 - all the above
53. Higher amount of PUFA in diet will increase the demand of:
- vitamin A
 - vitamin E
 - vitamin C
 - vitamin D
53. True digestibility of protein remains..... to that of apparent:
- higher
 - lower
 - same
 - none of the above
54. Yield of microbial protein varies between.....g/kg of organic matter digested:
- 20-250
 - 90-230
 - 150-400
 - 200-450
56. Biological value of microbial protein is about:
- 58%
 - 68%
 - 78%
 - 88%
57. Heat treatment of protein reduces the protein quality affecting mainly the amino acid:
- leucine
 - isoleucine
 - methionine
 - lysine
58. Synthesis of non essential amino acid takes place in the body with the help of:
- lysine and methionine
 - tryptophen and lysine
 - alanine and aspartate
 - none of the above
59. Antagonism obtained in which of the following amino acids:
- Lysine and Arginine
 - Valine - leucine and isoleucine
 - Both
 - None
60. Nutritional secondary hypothyroidism observed by feeding of only:
- fruits and nuts
 - grain diet
 - meat diet
 - all the above

-
61. Pellagra is produced by the deficiency of:
- niacin
 - thiamin
 - pyridoxin
 - cynocobalamin
62. Chlorine in the body present in the form of:
- extracellular
 - intracellular
 - both
 - none of the above
63. Falling disease is due to deficiency of:
- Ca
 - Cu
 - Zn
 - Se
64. Feeds of Brassica family are mainly associated with deficiency of:
- Cu
 - Zn
 - Se
 - I
65. Sulfur deficiency reduces the digestibility of:
- protein
 - cellulose
 - carbohydrates
 - NPN
66. Toxicity and deficiency is very common in which of the following minerals:
- F
 - Se
 - Mo
 - All the above
67. Which of the following works as hormone?
- 1, 25 dihydroxy cholecalciferol
 - vitamin D
 - vitamin A
 - ergosterol
68. Chastek paralysis observed due to deficiency of vitamin:
- B₁
 - B₂
 - B₃
 - B₅
69. Growth stimulants are:
- antibiotics
 - arsenicals
 - hormonal compounds
 - all the above

70. Copper sulfate is used as growth promoter@ of:
- 10 ppm
 - 50 ppm
 - 100 ppm
 - 200 ppm
71. Is referred as "Lipotropic factor":
- biotin
 - choline
 - thiamin
 - niacin
72. On fat and moisture free body what is the ratio of protein and ash:
- 80% and 20%
 - 60% and 40%
 - 40% and 60%
 - 20% and 80%
73. Digestible energy requirement for lactation in pigs is estimated to be:
- 70 Kcal/ kg $W^{0.75}$ / day
 - 86 Kcal/ kg $W^{0.75}$ / day
 - 110 Kcal/ kg $W^{0.75}$ / day
 - 120 Kcal/ kg $W^{0.75}$ / day
74. Posterior paralysis in pigs is due to the deficiency of:
- calcium
 - zinc
 - cobalt
 - iron
75. Adult swine rations may have:
- 4-5% CF
 - 50-60% CF
 - 15-20% CF
 - 10-12%CF
76. Amount of antibiotic feed supplement added in swine ration is:
- 2g/kg
 - 20g/100kg
 - 20g/1000kg
 - 20g/kg
77. Bile is useful in digestion of:
- carbohydrate
 - protein
 - fat
 - vitamins
78. The relationship between body water and fat content is:
- inverse relationship
 - direct relationship
 - both
 - none

79. Use of raw fish leads to deficiency of-
- vitamin B₁
 - vitamin B₂
 - vitamin B₆
 - vitamin B₅
80. Glucose is capable to produce energy is aerobic condition-
- 8 ATP
 - 38 ATP
 - 20 ATP
 - 30 ATP
81. Calorie: Protein ratio in broiler starter and broiler finisher must beand respectively:
- 139:1, 160:1
 - 122:1, 145:1
 - 129:1, 155:1
 - 139:1, 175:1
82. Calorie: Protein ratio in layer starter and layer grower ration must beand respectively:
- 130:1, 156:1
 - 125:1, 145:1
 - 136:1, 148:1
 - 137:1, 158:1
83. Calorie: Protein ratio in layer must be:
- 170:1
 - 180:1
 - 145:1
 - 190:1
84. Under normal diets acetic, propionic and butyric acid among VFAs in rumen represents.....%.....%, and.....%, respectively:
- 70, 18, 12
 - 50, 25, 25
 - 60, 20, 20
 - 40, 40, 20
85. Gas in rumen represents CO₂ and methane,and percent:
- 20, 80
 - 80, 20-30
 - 80, 20
 - 50-60, 30-40
86. Methane contains energy approximately to a tune of:
- 13.34 Kcal/g
 - 23.34 Kcal/g
 - 3.34 Kcal/g
 - none above
87. How many amino acids are found dietary essential in poultry:
- 8

- b. 10
 - c. 11
 - d. 12
88. Feeding of monansin in diet increases the production of VFA in rumen:
- a. acetate
 - b. propionate
 - c. lactate
 - d. butyrate
89. Lower methane production is associated with the production of VFA:
- a. acetate
 - b. propionate
 - c. lactate
 - d. butyrate
90. Balance or retention studies may be performed by conducting:
- a. digestion trial
 - b. metabolism trial
 - c. both
 - d. none of the above
91. On all roughage diet the dominant volatile fatty acid in cattle is:
- a. propionic acid
 - b. butyric acid
 - c. acetic acid
 - d. formic acid
92. The portion of total energy ingested which is actually capable of transformation in body:
- a. GE
 - b. DE
 - c. NE
 - d. ME
93. The physiological fuel value (kcal/g) of carbohydrate is:
- a. 4
 - b. 9
 - c. 5.65
 - d. 4.15
94. The portion of nitrogen absorbed which is retained by the animal is known as:
- a. biological value
 - b. protein efficiency ratio
 - c. gross protein value
 - d. digestible crude protein
95. In closed-circuit type respiratory chamber soda lime is used to absorb:
- a. Moisture
 - b. CO₂
 - c. CH₄
 - d. all
96. Urea can be utilized in cow ration on DM basis upto:

- a. 1.0 %
 - b. 2 %
 - c. 3 %
 - d. 4.0 %
97. The ATP produced from reduced NAD in oxidative phosphorylation are:
- a. 2
 - b. 3
 - c. 1
 - d. 4
98. Comparative type feeding standard is:
- a. SE system
 - b. NRC
 - c. ARC
 - d. ICAR
99. Which of following is not essential amino acid for poultry:
- a. arginine
 - b. glycine
 - c. valine
 - d. glutamate
100. Example of prebiotic:
- a. lactose
 - b. glucose
 - c. yeast
 - d. trenbelon

KEY ANSWERS:

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

**ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF ANIMAL GENETICS
BREEDING****Dr. Shrikant Dodamani**Department of Animal Genetic Breeding
Veterinary College, Bidar - 585 226 (Karnataka)**I . Choose the correct answer**

1. is the nodal agency for the registration of newly identified Germplasma of livestock and poultry:
 - a. ICAR-IVRI
 - b. ICAR-NDRI
 - c. ICAR-CIRC
 - d. ICAR-NBAGR
2. Present ICAR Deputy Director General of animal science is:
 - a. Dr. J.K. Jena
 - b. Dr. K. M. L. Pathak
 - c. Dr. Habibur Rahman
 - d. Dr. B.N. Tripathi
3. Present ICAR Assistant Director General (Animal Production and Breeding):
 - a. Dr. Ashok Kumar
 - b. Dr. B.S. Prakash
 - c. Dr. V.K. Saxena
 - d. Dr. B.N. Tripathi
4. Apparel Wool breed of Indian sheep:
 - a. Nilagiri
 - b. Magra
 - c. Chokla
 - d. Bikaneri
5. Dolly was created by:
 - a. embryo transfer
 - b. nuclear transfer from embryonic stem cells
 - c. nuclear transfer from fetal cells
 - d. nuclear transfer from mammary cells
6. An inbred line has a minimum inbreeding coefficient of:
 - a. 0.250
 - b. 0.375
 - c. 0.500
 - d. 0.750
7. Amrithmahal cattle breed belongs to:
 - a. Karnataka
 - b. Tamilnadu
 - c. Rajasthan
 - d. Andrapradesh
8. Minister of Animal Husbandry, Dairy and Fisheries:
 - a. Sanjeev Kumar Balyan

- b. Pratap Chandra Sarangi
 - c. Giriraj Singh
 - d. Narendra Singh Tomar
9. As compared to previous census(2012) the percentage population has marginally increased:
- a. sheep
 - b. buffalo
 - c. pigs
 - d. horse
10. As compared to previous census(2012) the percentage population has marginally declined:
- a. camel
 - b. donkey
 - c. pigs
 - d. all of the above
11. Animal Welfare Board of India is located at:
- a. Faridabad
 - b. Hyderabad
 - c. Chennai
 - d. Bengaluru
12. Home tract of Rathi cattle breed:
- a. Gujarat
 - b. Maharashtra
 - c. Rajasthan
 - d. Uttar Pradesh
13. National Institute of Animal Biotechnology is located at:
- a. Ranchi
 - b. Hyderabad
 - c. Chennai
 - d. Bengaluru
14. Highest cross-bred population is present in:
- a. Andhra Pradesh
 - b. Karnataka
 - c. Tamil Nadu
 - d. Maharashtra
15. Highest donkey population seen in:
- a. Rajasthan
 - b. Karnataka
 - c. Tamil Nadu
 - d. Maharashtra
16. Recently registered cattle breed from Assam:
- a. Gangatiri
 - b. Konkan Kapila
 - c. Belahi
 - d. Lakhimi

17. Recently registered pig breed from Uttar Pradesh:
 - a. Ghurrah
 - b. Zovawk
 - c. Doom
 - d. Ghoongroo
18. Animal Genetics & Breeding department at NDRI was established during:
 - a. 4th Five Year Plan
 - b. 5th Five Year Plan
 - c. 8th Five Year Plan
 - d. 6th Five Year Plan
19. Hissardale was a crossbred of
 - a. Nali ewes with Rambouillet rams
 - b. Chokla ewes with Australian Merino rams
 - c. Bikaneri ewe with Australian Merino rams
 - d. Nilagiri ewes with Australian Merino Rams
20. Vrindavani is a composite breed consisting of
 - a. Haryana, Holstein-Friesian, Brown Swiss and Jersey
 - b. Haryana, Holstein-Friesian and Jersey
 - c. Gir, Holstein-Friesian and Jersey
 - d. Gir, Holstein-Friesian, Brown Swiss and Jersey
21. India stands in worlds milk production:
 - a. I
 - b. II
 - c. III
 - d. IV
22. GDP contribution of agricultural sector to total GDP of the country:
 - a. 20.9 %
 - b. 15.9 %
 - c. 17.9 %
 - d. 18.9 %
23. GDP contribution of livestock sector to total GDP of the country:
 - a. 11.1 %
 - b. 4.6 %
 - c. 1.7 %
 - d. 8.2 %
24. Total number of registered breed as per NBAGR as on Jan 2020:
 - a. 157
 - b. 177
 - c. 187
 - d. 197
25. is the first synthetic bird line to get registered by NBAGR:
 - a. Giriraja male line
 - b. Vanaraja female line
 - c. Gramapryia male line
 - d. Gramalakshmi female line

26. Crossing over percentage will always be equal to or less than:
- 25 %
 - 50%
 - 62.5 %
 - 75 %
27. The frequency of heterozygote will be at the maximum when the allele frequency is at:
- 0.25
 - 0.50
 - 0.75
 - 0.10
28. The phenotypic ratios in case of creeper condition in poultry is:
- 3:1
 - 2:1
 - 1:1
 - 2:2
29. X-linked recessive traits are noticed higher levels in:
- males
 - females
 - equally in both sex
 - none of the above
30. In India, the per capita availability of milk during 2017-2018:
- 320 gms/day
 - 374 gms/day
 - 380 gms/day
 - 384 gms/day
31. Which one of the following indigenous cattle breed is known as “Wadhiar”:
- Ongole
 - Kankrej
 - Krishna Valley
 - Kangayam
32. possesses two white collars, one round the jaw and the other round the brisket
- Murrah
 - Surti
 - Mehsana
 - Bhadawari
33. Who postulated the theory of chromosomal basis of linkage:
- Muller
 - Griffith
 - Gregor Mendel
 - Morgan
34. The mechanism that equalizes the level of expression of genes on the X-chromosome between the two sexes even though males and females have different number of X-chromosomes is:

- a. inactivation of x chromosome
 - b. hyper activation of x chromosome
 - c. dosage compensation
 - d. epigenetic inheritance
35. Conditions when each member of a population has equal opportunity to mate with any individual of the opposite sex:
- a. panmixia
 - b. preferential mating
 - c. non-random mating
 - d. assortative mating
36. Any establishment involving on experimentation on animals should be registered at:
- a. AWBI
 - b. SPCA
 - c. CPCSEA
 - d. PETA
37. The procedure of treating some genetic disorders by delivering a normal copy of the defective gene to the individual is called as:
- a. nuclear transfer
 - b. gene transfer
 - c. gene knock out
 - d. gene therapy
38. REML stands for:
- a. random error maximum likelihood method
 - b. restricted maximum likelihood method
 - c. relative environment maximum likelihood method
 - d. restricted minimum likelihood method
39. The only cattle breed registered from Telangana state is:
- a. Thutho
 - b. Purnea
 - c. Poda Thurpu
 - d. Nari
40. In poultry industry, it is found that egg weight and egg production traits are:
- a. not at all correlated
 - b. environmentally correlated
 - c. negatively correlated
 - d. positively correlated
41. Which indigenous cattle produce more milk yield per lactation:
- a. Gir
 - b. Shaiwal
 - c. Red Sindhi
 - d. Tharparkar
42. The phenotypic ratio of dominant and recessive epistasis is:
- a. 12:3:1
 - b. 15:1
 - c. 13:3

- d. 9:3:3:1
43. The complete duration of one cell cycle is:
- 16-18 hrs
 - 20-24 hrs
 - 12-14 hrs
 - 24-48 hrs
44. Example for base analog type of chemical mutagen is:
- 2-aminopurine
 - 5-Bromouracil
 - Both a & b
 - None of the above
45. The test cross ratio in case of dihybrid cross is:
- 9:3:3:1
 - 12:3:1
 - 1:1:1:1
 - 15:1
46. Karyotype of Klinefelter syndrome:
- 47, XXY
 - 47, XXX
 - 47, XYY
 - 47, YYY
47. In purine and pyrimidine bases, the sugar molecule are attached to the position in their respective rings:
- N₉ and N₁
 - N₁ and N₁
 - N₉ and N₉
 - N₁ and N₉
48. Sum total of genes in a population is:
- genotype
 - karyotype
 - gene pool
 - gene frequency
49. Progeny selection is more valuable than mass selection because:
- generation interval is increased
 - accuracy of estimating breeding value can be increased
 - it can be used for low repeatable traits
 - less time consuming
50. One of the following is a not a systematic process:
- selection
 - migration
 - mutation
 - random drift
51. Which of the following statement is correct? The selection intensity:
- does not depend upon the heritability value
 - same for males and females

- c. is more when more animals are selected
 - d. depends upon the phenotypic mean
52. The selection differential for body weight is 2 kg and response to selection is 0.8 kg then the realized heritability for the trait will be
- a. 0.40
 - b. 0.48
 - c. 0.60
 - d. 1.00
53. One of the following is not a non sense codon:
- a. UAA
 - b. UCG
 - c. UGA
 - d. UAG
54. Hardy Weinberg Equilibrium is tested using:
- a. anova
 - b. manova
 - c. t test
 - d. chi Square test
55. Which of the following is not an assumption of H-W Principle?
- a. population is large
 - b. random mating
 - c. no selection, mutation or migration
 - d. no gene interaction
56. The inbreeding coefficient of individual born to non inbred full sibs:
- a. 0.125
 - b. 0.25
 - c. 0.50
 - d. 0.625
57. The coefficient of relationship between non inbred full sibs:
- a. 0.125
 - b. 0.25
 - c. 0.50
 - d. 0.625
58. The bond present between two nucleotides in double helix:
- a. double/triple hydrogen bond
 - b. phosphodiester bond
 - c. single hydrogen bond
 - d. phosphate bond
59. Genetic drift term was coined by:
- a. William Bateson
 - b. Sewall Wright
 - c. Bridges
 - d. G.J.Mendel
60. Reciprocal Selection was given by:
- a. Hull

- b. Comstock and Coworkers
 - c. Hazel and Smith
 - d. Sneedecor and Cochran
61. For the first time in-vitro synthesis of DNA was done by:
- a. Mendel
 - b. Watson and Crick
 - c. Hargobind Khorana
 - d. Muller
62. Which of the following properties is false with respect to the genetic code:
- a. universal
 - b. triplet code
 - c. overlapping
 - d. degenerate
63. Male line used in Broiler poultry:
- a. Leghorn
 - b. Cornnish
 - c. Plymoth Rock
 - d. New Hampshire
64. Indian cattle breed used in Australian Milking Zebu:
- a. Sahiwal
 - b. Red Sindhi
 - c. Gir
 - d. Tharparker
65. Number of generations required for animals to have more than 98% inheritance from exotic breed in grading up:
- a. four
 - b. five
 - c. three
 - d. six
66. Best Mutton breed of goat:
- a. Gaddi
 - b. Barbari
 - c. Black Bengal
 - d. Mandya
67. Exotic goat from France:
- a. Saanen
 - b. Alpine
 - c. Anglo Nubian
 - d. Toggenberg
68. Inbreeding coefficient of X is equal to:
- a. $1 + \text{Var } X$.
 - b. $1 - \text{Var } X$.
 - c. $\text{Var } X - 1$
 - d. $\text{Var } X \cdot X1$
69. As per Gregor J Mendel, the characters are transmitted through:

- a. genes
 - b. seeds
 - c. factors
 - d. agents
70. Frieswal breed was evolved at:
- a. N.D.R.I. Karnal
 - b. N.D.R.I. Bangalore
 - c. I.V.R.I. Izatnagar
 - d. M.D.F Meerut
71. Tallest breed of Sheep:
- a. Mandya
 - b. Deccani
 - c. Nellore
 - d. Bellary
72. Karan fries breed was evolved at:
- a. N.D.R.I. Karnal
 - b. N.D.R.I. Bangalore
 - c. I.V.R.I. Izatnagar
 - d. M.D.F Meerut
73. The test cross is a cross between heterozygous and:
- a. homozygous dominant
 - b. homozygous recessive
 - c. heterozygous
 - d. any of the parent
74. Frieswal is the cross between:
- a. Brown Swiss and Sahiwal
 - b. H.F. and Sahiwal
 - c. H.F. and Red Sindhi
 - d. Brown Swiss and Tharparkar
75. If there is complete linkage between the genes the percentage of recombinants in test cross:
- a. 0
 - b. 25
 - c. 50
 - d. 100
76. Trisomic condition is represented:
- a. $2n-1$
 - b. $2n-2$
 - c. $2n+1$
 - d. $2n$
77. Worker honey bees are:
- a. haploid sterile
 - b. haploid fertile
 - c. diploid sterile
 - d. diploid fertile

78. Robertsonian translocation is seen in:
- cattle
 - sheep
 - goat
 - pig
79. Drone honey bees are:
- haploid sterile
 - haploid fertile
 - diploid sterile
 - diploid fertile
80. Hair on ear pinna is an example of:
- recessive epistasis
 - co-dominance
 - holandric genes
 - linkage
81. Chromosome number in *Drosophila melanogaster*:
- 10
 - 8
 - 6
 - 12
82. CIB method I stands for:
- dominant lethal on x chromosome
 - dominant lethal on autosomes
 - recessive lethal on x chromosome
 - recessive lethal on autosomes
83. In half sib correlation method of estimation of heritability, sire variance represents the following fraction of additive genetic variance:
- $\frac{3}{4}$
 - $\frac{1}{2}$
 - $\frac{1}{4}$
 - $\frac{1}{8}$
84. In full sib correlation method of estimation of heritability, sire variance represents the following fraction of additive genetic variance:
- $\frac{3}{4}$
 - $\frac{1}{2}$
 - $\frac{1}{4}$
 - $\frac{1}{8}$
85. The sex index of a normal male *drosophila* fly:
- 0.67
 - 0.50
 - 1.00
 - 1.50
86. Haploid number of chromosome in dog, chicken and goat is:
- 78, 78, 60
 - 39, 39, 30

- c. 78, 74, 64
 - d. 39, 37, 32
87. The Mendel's laws were rediscovered by:
- a. De Vries from Holland, Correns from Germany and Tschermak from Austria
 - b. De Vries from Germany, Correns from Holland and Tschermak from Austria
 - c. De Vries from Austria, Correns from Germany and Tschermak from Holland
 - d. De Vries from Holland, Correns from Austria and Tschermak from Germany
88. The degree of relationship between individual and parent is
- a. 0.25
 - b. 0.50
 - c. 0.75
 - d. 0.125
89. When recessive gene frequency of p is 0.4, gene frequency of q will be:
- a. 0.2
 - b. 0.6
 - c. 0.4
 - d. 0.8
90. Leghorn breed of poultry belongs to class:
- a. Asian
 - b. Mediterranean
 - c. American
 - d. English
91. The auto sexing in poultry is done using:
- a. sex limited traits
 - b. sex linked traits
 - c. sex influenced traits
 - d. polygenic traits
92. The Global Data Bank for animal genetic resources is functioning at:
- a. NBAGR, Karnal
 - b. FAO, Rome
 - c. EAAP, Hannover, Germany
 - d. OIE, Paris, France
93. Inbreeding depression mostly affect the characters concerned with:
- a. growth
 - b. production
 - c. reproduction
 - d. none
94. Breeding Value is a property of:
- a. an individual only
 - b. population to which the individual belongs only
 - c. none of the above
 - d. both a and b
95. The term Repeatability is coined by:
- a. Wright, 1937
 - b. Lush, 1937

- c. Dalton, 1937
d. none of the above
96. Heritability of trait is zero indicates:
a. trait is not heritable
b. not affected by genes
c. no genetic differences among individuals for that trait
d. heritability can't be zero
97. Genetic causes of association between two traits of individuals are:
a. pleiotrophy
b. linkage
c. environment
d. both a and b
98. In *Bos Indicus* the Y chromosomes are:
a. submetacentric
b. acrocentric
c. metacentric
d. telocentric
99. The scientist first to demonstrate Mendelian inheritance of qualitative characters in animals:
a. TH Morgan
b. WE Castle
c. William Bateson
d. none of the above
100. The genes that change the phenotypic effects of other genes in a quantitative fashion:
a. modifiers
b. killers
c. jumping genes
d. segregators

ANSWER KEY:

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

ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF BIO-STATISTICS**Dr. M. D. Suranagi**Department of Animal Genetic Breeding
Veterinary College, Bidar - 585 226 (Karnataka)**I . Choose the correct answer**

1. Correlation is the ratio of:
 - a. two standard deviations
 - b. two x^2
 - c. covariance and two standard deviations (both)
 - d. two regression coefficients
2. Which of the following are not the diagrams:
 - a. histogram, frequency polygon
 - b. square and angular
 - c. cartogram and pictogram
 - d. none of the above
3. Correlation coefficient is obtained from the square root of:
 - a. two covariance's
 - b. two regression coefficients
 - c. two standard deviations
 - d. two coefficients of variations
4. Two o gives (less than and more than) bisects at:
 - a. arithmetic mean
 - b. mode
 - c. median
 - d. geometric mean
5. The best measure of dispersion in which all observations participate:
 - a. mean deviation
 - b. standard deviation
 - c. quartile deviation
 - d. all
6. In normal distribution, the area between ± 2 S. D is:
 - a. 99.73%
 - b. 95.45%
 - c. 68.27%
 - d. 100%
7. Normal distribution was given by:
 - a. Bernauli
 - b. Fisher
 - c. Student
 - d. A. DeMoivre
8. The mean and variance are equal in:
 - a. binomial distribution
 - b. normal distribution
 - c. poisson distribution
 - d. none of the above

9. By tossing a coin 100 times, the mean and variance in a Binomial Distribution are:
- 40, 25
 - 50, 25
 - 50, 5
 - 50, 50
10. Two samples' means are tested by:
- 'F' test
 - 'T' test
 - 'X²' test
 - none of the above
11. In throwing of two dice simultaneously, the probability of not getting two on the face is:
- 1/36
 - 6/36
 - 35/36
 - 2/36
12. The sum of the deviations taken from the arithmetic mean is:
- 1
 - 100
 - 0
 - ∞
13. The standard normal variate for mean is:
- $X - \mu / (\sigma)$
 - $X - \mu / (\sigma) / \text{Sq}(n)$
 - $X - \mu / (\sigma^2) / n$
 - $\mu - x / (\sigma) / n^2$
14. The range R can be calculated if which of the following values are known:
- all observation
 - least and greatest terms of observation
 - both a and b
 - least and median terms of observation
15. Which measure of central tendency divides the population into two equal parts:
- mean
 - mode
 - median
 - all above
16. To draw histogram we take which values on x-axis and on y-axis:
- Frequency
 - Frequency, attributes
 - Frequency, class interval
 - Attributes, frequency
17. Tabulation is the process of arranging the data in an orderly manner into and capable of being read into proper directions:
- row, columns
 - tables

- c. class, tables
 - d. none
18. In a frequency distribution for discrete variables which method is adopted?
- a. exclusive
 - b. inclusive
 - c. both a and b
 - d. none
19. Which measure of dispersion is calculated by only extreme values:
- a. mean deviation
 - b. variance
 - c. range
 - d. stand deviation
20. Frequency distribution, which are two measures of central tendency do not use extreme value:
- a. mean, mode
 - b. median, mode
 - c. mean, range
 - d. medium, mean
21. If all the values are same the S.D is:
- a. 1
 - b. 0
 - c. 100
 - d. 50
22. In a.....distribution and are equal:
- a. Poison, mean, mode
 - b. Poison, mean median
 - c. Normal, mean, median
 - d. None of the above
23. Normal distribution is the limiting form of which distribution [when $n \rightarrow \infty$]:
- a. Binomial
 - b. Poison
 - c. Both above
 - d. None
24. In simple bar diagram is kept constant butvaries:
- a. length, width
 - b. length, height
 - c. width, length
 - d. none
25. In analysis of variance by one way classification 4 treatments are tried with 3, 3, 3 and 4 replication then the degrees of freedom for error is:
- a. 3
 - b. 2
 - c. 4
 - d. 9
26. The range of 'F' test statistic value is:
- a. 0 to 1

- b. 0 to ∞
 - c. $-\infty$ to $+\infty$
 - d. None
27. In testing of hypothesis we commit which types of error:
- a. 1
 - b. 2
 - c. 3
 - d. 4
28. The under root of which coefficients product is correlation coefficient:
- a. variation
 - b. relation
 - c. regression
 - d. none
29. The sum of deviations taken from median is known as when no sign of deviation is considered:
- a. mean deviation
 - b. absolute deviation
 - c. relative deviation
 - d. none
30. The range of variance is:
- a. 0 to 1
 - b. 0 to 100
 - c. 0 to ∞
 - d. $-\infty$ to $+\infty$
31. The measure of central tendency in which all the observations are included is:
- a. arithmetic mean
 - b. geometric mean
 - c. harmonic mean
 - d. all
32. In a binomial distribution where $p=1/2$, $q=1/2$ and $n=6$, probability of 2 successes is:
- a. $6C_2 (1/2)^4 (1/2)^2$
 - b. $6C_4 (1/2)^2$
 - c. $6C_4 (1/2)^5$
 - d. $2C_1 (1/2)^6$
33. If the correlation coefficient between two variables is -1, then the variables are:
- a. uncorrelated
 - b. positively correlated highly
 - c. negatively correlated highly
 - d. just correlated
34. The limit of correlation coefficient is:
- a. 0 to 1
 - b. 0 to -1
 - c. -1 to +1
 - d. 1 to ∞
35. The range of the regression coefficient is:

- a. 0 to ∞
 - b. $-\infty$ to 0
 - c. -1 to +1
 - d. $-\infty$ to ∞
36. Which measure of dispersion is free from units?
- a. range
 - b. standard deviation
 - c. coefficient of variation
 - d. variance
37. The range of normal distribution is:
- a. 0 to ∞
 - b. $-\infty$ to ∞
 - c. 0 to 1
 - d. none
38. The Type - I error can be defined as:
- a. reject H_0/H_1 is true
 - b. reject H_1/H_1 is true
 - c. reject H_0/H_0 is true
 - d. reject H_1/H_0 is true
39. The degrees of freedom we refer for a 't' test to test correlation coefficient based on 15 pairs of observations shall be:
- a. 15
 - b. 14
 - c. 13
 - d. 30
40. The sum of squared deviation is least when the deviations are taken from:
- a. arithmetic mean
 - b. geometric mean
 - c. median
 - d. mode
41. Karl Pearson method is used in:
- a. Product-moment correlation
 - b. t- test
 - c. z-test
 - d. f-test
42. Analysis of variance was first developed by:
- a. S.D Poisson
 - b. James Bernoulli
 - c. R.A Fisher
 - d. Karl Pearson
43. Construction the frequency polygon from histogram of each interval:
- a. lower limits are joined
 - b. upper limits are joined
 - c. middle points are joined
 - d. cumulative frequencies are joined

44. In a binomial distribution the mean and variance are:
- np, npq
 - μ , σ
 - m, m
 - N, m
45. If (r-1) (c-1) is degree of freedom in a contingency table, the table has rows and columns:
- r, c
 - 2r, 2c
 - 3r, 3c
 - 4r, 4c
46. In which distribution, mean and variance are same:
- poisson
 - binomial
 - normal
 - all above
47. The significance of two sample means is tested by which test:
- Z-test
 - t-test
 - F-test
 - All test
48. The significance of two variances is tested by which test:
- t-test
 - F-test
 - Chi square test
 - z-test
49. Tabular arrangement of data by class together with corresponding class frequency is called as:
- frequency distribution
 - range
 - variation
 - none
50. Range can be calculated when and are known:
- maximum, minimum
 - maximum, mean
 - mean, mode
 - median, mode
51. If X variable increases with increase of Y, the correlation is:
- independent
 - dependant
 - both above
 - none
52. Normal distribution is limiting form of binomial distribution, when:
- n is small, p is large
 - n is large, p is large

- c. n is very large, p is not very small
 - d. None of the above
53. Relative measure of dispersion is:
- a. mean deviation
 - b. standard deviation
 - c. both a and b
 - d. coefficient of variation
54. Occurrence of one event excludes the occurrence of other, event is known as:
- a. dependent
 - b. independent
 - c. simple
 - d. all of the above
55. Rejecting a null hypothesis (H_0) when it true is:
- a. type I error
 - b. type II error
 - c. both a and b
 - d. none
56. The probability that two children born in a family will be females is:
- a. $1/4$
 - b. $1/8$
 - c. $1/2$
 - d. $1/12$
57. Coefficient of correlation was introduced by:
- a. Karl Pearson
 - b. Karl Correns
 - c. Paterson
 - d. both a and b
58. Group of individuals under study is called:
- a. statistic
 - b. parameter
 - c. population
 - d. none
59. The range of heritability is:
- a. 0 to 2
 - b. 0 to infinitive
 - c. 0 to 1
 - d. -1 to +1
60. In case of discrete frequency distribution the value for which the frequency is maximum, is known as:
- a. mode
 - b. median
 - c. mean
 - d. none
61. The arithmetic mean of the absolute deviation of each observation from the mean, median or mode is called:

- a. mean deviation
 - b. standard deviation
 - c. variance
 - d. none
62. The frequency distribution can be represented graphically by:
- a. pie diagram
 - b. histogram
 - c. both a and b
 - d. none
63. Mean and variance are for Poisson distribution:
- a. different
 - b. same
 - c. both a and b
 - d. none
64. Binomial distribution tends to Poisson distribution when:
- a. n large, p small
 - b. n small, p large
 - c. n small, p small
 - d. none
65. A die thrown three times, the total number of all possible outcomes will be:
- a. 18
 - b. 81
 - c. 216
 - d. 729
66. Two cards are drawn at a time randomly from a pack of cards, the probability that both cards are black is:
- a. $\frac{2}{13}$
 - b. $\frac{26}{52}$
 - c. $\frac{25}{102}$
 - d. none
67. A herd of cows contains 6 white, 4 red and 9 black cows. If 3 cows are drawn at random, the probability of selecting cow from different colour is:
- a. $\frac{1}{51}$
 - b. $\frac{72}{323}$
 - c. $\frac{17}{51}$
 - d. none
68. The following approach of defining probability relates set theory:
- a. apriori
 - b. axiomatic
 - c. empirical
 - d. classical
69. If a variable under study is transformed to another variable by changing origin and scale, the correlation coefficient is not affected by change of:
- a. origin only
 - b. scale only

- c. origin and scale both
 d. none
70. The range of χ^2 - test statistics is:
 a. 0 to 1
 b. 0 to 100
 c. 0 to ∞
 d. none

ANSWER KEY:

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

ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF LIVESTOCK PRODUCTS TECHNOLOGY**Dr. M. Kiran**Department of Livestock Products Technology
Veterinary College, Bidar - 585 226 (Karnataka)**MILK AND MILK PRODUCTS TECHNOLOGY****I. Choose the correct answer**

1. The average size of the fat globule in homogenized milk is around:
 - a. 2 Micron
 - b. 4 Micron
 - c. 5 Micron
 - d. 8 Micron
2. The excellent indication of organoleptic quality of milk is:
 - a. COB Test
 - b. smell
 - c. colour
 - d. taste
3. The sweet that can be made by using khoa is:
 - a. gulabjamoon
 - b. rasmalai
 - c. rasogolla
 - d. sandesh
4. The sweet that can be made by using both khoa and chhana is:
 - a. burfi
 - b. kulfi
 - c. pantoa
 - d. kalakand
5. The cheese that can be made by using skim milk is:
 - a. cheddar
 - b. swiss
 - c. cottage
 - d. mozzarella
6. The milk product that is used in making vegetarian dishes is:
 - a. chhana
 - b. paneer
 - c. khoa
 - d. yoghurt
7. As compared to other milks human milk is rich in:
 - a. fat
 - b. protein
 - c. lactose
 - d. ash
8. The well-known fermented milk product in India is:
 - a. butter milk
 - b. lassi

- c. dahi
 - d. yoghurt
9. Milk is deficient in:
- a. iron
 - b. copper
 - c. Vit. C
 - d. All
10. Flow diversion valve is present in:
- a. LTLT parteurizer
 - b. HTST pasteurizer
 - c. UHT pasteurizer
 - d. Homogenizer
11. Amul factory is located out:
- a. Ahmedabad
 - b. Anand
 - c. Allahabad
 - d. Ahmadnagar
12. Milk sugar is:
- a. maltose
 - b. fructose
 - c. lactose
 - d. sucrose
13. Fat content of cream is about:
- a. 25-60 %
 - b. 10-15%
 - c. 90%
 - d. 100%
14. The yellow colour of table butter is due to the addition of:
- a. annatto
 - b. potato
 - c. xanthophyll
 - d. turmeric
15. Separation of milk fat during ageing/ storage can be prevented by:
- a. Homogenization
 - b. Crystallization
 - c. Standardization
 - d. Equalization
16. Koumiss is a popular fermented milk product in:
- a. America
 - b. Russia
 - c. India
 - d. Pakistan
17. As per PFA rules 1976, table butter should contain a minimum fat percent of :
- a. 50
 - b. 90

- c. 80
 - d. 70
18. One of the organisms used as starter culture for yoghurt making is:
- a. *Staphylococcus aureus*
 - b. *Lactobacillus bulgaricus*
 - c. *Micrococcus flavous*
 - d. *Bacillus cereus*
19. The predominant micro-organism for causing ropiness is:
- a. *Pseudomonas fragi*
 - b. *Bacillus subtilis*
 - c. *Alcaligenes viscosus*
 - d. *Streptococcus lactis*
20. Rasogolla is prepared from:
- a. cream
 - b. chhana
 - c. Khoa
 - d. Skim milk
21. The primary substrate for chymosin / rennin in cheese making is:
- a. whey protein
 - b. kappa casein
 - c. beta-casein
 - d. none
22. The boiling point of milk is:
- a. 100°C
 - b. 105°C
 - c. 100.17°C
 - d. 110°C
23. Milk fat is made up of _____% of glycerol:
- a. 12.5%
 - b. 20%
 - c. 85%
 - d. 50%
24. The casein/ fat ratio in cheese making should be adjusted to:
- a. 0.07
 - b. 1.0
 - c. 0.50
 - d. 0.70
25. Renin is a _____ containing protein:
- a. calcium
 - b. sulphur
 - c. potassium
 - d. magnesium
26. The non-enzymatic browning, which occurs by the reaction between the aldehyde group of lactose and amino group of proteins, leads to _____ type of browning in milk and milk products:

- a. maillard
 - b. caramalisation
 - c. both
 - d. none
27. As per PFA standards, butter should have maximum contents of _____ % moisture:
- a. 18
 - b. 20
 - c. 80
 - d. 16
28. The iso- electric point of milk protein is:
- a. 4.8
 - b. 4.0
 - c. 6.6
 - d. 5.1
29. India ranks _____ in the world milk production:
- a. second
 - b. first
 - c. third
 - d. fourth
30. By removing fat from milk, the specific gravity of milk:
- a. decreases
 - b. remains same
 - c. increases
 - d. none
31. Over-run in ice-cream is contributed by:
- a. moisture
 - b. air
 - c. stabilizer
 - d. none of them
32. Butter milk is the by-product obtained during the preparation of:
- a. butter
 - b. chhanna
 - c. cheese
 - d. ice cream
33. Khoa is a _____ milk product:
- a. fermented
 - b. condensed
 - c. dried
 - d. none of the above
34. Titrable acidity of normal cow milk is:
- a. 0.09
 - b. 0.14
 - c. 0.18
 - d. 0.21

35. Polyphosphates are used as:
- detergent
 - disinfectant
 - sanitizer
 - all of the above
36. The predominant dissolved gas in milk is:
- oxygen
 - nitrogen
 - carbon dioxide
 - hydrogen
37. The energy value of milk protein is:
- 9.3 c/g.
 - 4.1 c/g.
 - 5.2 c/g.
 - 5.6 c/g
38. The lactose content of skim milk is:
- 3.5%
 - 4.5%
 - 5.0%
 - 6.0%
39. The flavour of butter obtain from ripened cream is mainly due to:
- eennet
 - trimethylamine
 - diacetyl
 - none of them
40. The lactose content of goat milk is:
- 4.7%
 - 4.9%
 - 5.2%
 - 6.8%
41. The coliform count per gram of pasteurized cream should be less than:
- 5
 - 10
 - 15
 - 20
42. The concentration of lactoperoxidase enzymes in milk is about:
- 40 ug/ml
 - 35 ug/ml
 - 30 ug/ml
 - 30 ug/ml
43. The minimum fat percent in recombined milk should be:
- 3%
 - 4%
 - 5%
 - 6%

44. The souring and gassiness in milk is due to:
- coli group
 - salmonella spp
 - moulds
 - rennin
45. Uperization has been developed in:
- Denmark
 - Germany
 - Switzerland
 - New Zealand
46. The by-product obtained in the manufacture of cheese is:
- butter milk
 - skim milk
 - whey
 - yoghurt
47. Ice-cream may become sandy due to crystallization of:
- gelatin
 - casein
 - ice
 - lactose
48. Rancid flavour of milk is due to:
- proteolysis
 - lipolysis
 - glycolysis
 - oxidation of milk protein
49. HTST method of pasteurization is also known as:
- flash pasteurization
 - uht pasteurization
 - uperization
 - vacreation
50. As per PFA rules the fat content of cream must not be less than:
- 25%
 - 30%
 - 40%
 - none of the above
51. Sandiness in ice cream is mainly due to:
- high protein content
 - high fat content
 - high lactose content
 - high mineral content
52. Paneer is a _____ dairy product:
- fermented
 - dehydrated
 - coagulated
 - concentrated

53. *Alcaligenes viscosus* is more closely related to:
- sliminess
 - ropiness
 - gassiness
 - bitterness
54. Adhesive property of milk is due to:
- fat
 - globulin
 - albumin
 - casein
55. Gulabjamuns are prepared from:
- cream
 - khoa
 - chhana
 - ghee
56. The predominant micro-organism of normal souring of milk is:
- Lactobacillus bulgaricus*
 - Bacillus subtilis*
 - Escherichia coli*
 - Streptococcus lactis*
57. According to PFA rules (1976) cow milk in Maharashtra state should possess a minimum of:
- 3.5 % Fat and 8.5 % SNF
 - 4.5% fat and 8.5% SNF
 - 3.0% fat and 8.5% SNF
 - 1.5% fat and 9.0% SNF
58. Freezing point depression of milk is:
- 0.543
 - 0.453
 - 0.453
 - 0.543
59. Pasteurization inactivates _____ enzyme:
- lipase
 - protease
 - lactose
 - phosphatase
60. Double toned milk contains _____ % fat:
- 1.5
 - 3.0
 - 4.0
 - 4.5
61. Time temperature combination in batch method of pasteurization is:
- 63°C/ 30 min.
 - 63°C/ 30 sec.
 - 72°C/ 15 min

- d. 72°C/ 15sec.
62. Subdivision of fat globule in milk is achieved by:
- homogenization
 - standardization
 - clarification
 - vacreation
63. Evaporated milk is preserved by:
- Boiling
 - sterilization
 - pasteurization
 - vacreation
64. Cooked flavour in boiled milk is due to formation of _____ compound:
- sulfydryl
 - TBA
 - tyrosine
 - melanoidin
65. Higher specific gravity in buffalo milk is due to higher:
- fat content
 - protein content
 - SNF content
 - lactose content

KEY ANSWERS:

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

ABATTOIR PRACTICES AND ANIMAL BY-PRODUCTS TECHNOLOGY**I . Choose the correct answer**

1. Meat is consists of:
 - a. flesh
 - b. flesh and bone
 - c. flesh and fat
 - d. flesh, fat and connective tissue
2. Marbling refers to:
 - a. subcutaneous fat
 - b. intramuscular fat
 - c. intermuscular fat
 - d. all
3. Offal in poultry:
 - a. edible
 - b. inedible
 - c. both
 - d. none
4. The holding period for animals in lairage after transport should be minimum of:
 - a. 2 hours
 - b. 4 hours
 - c. 8 hours
 - d. 12 hours
5. Vertical bleeding for maximum recovery of blood is recommended in:
 - a. pigs
 - b. sheep and goat
 - c. cattle
 - d. No relevance with the species
6. Concentration and duration of CO₂ stunning in pigs:
 - a. 70% in air for 45 seconds
 - b. 45% in air for 70 seconds
 - c. 70% in air for 60 seconds
 - d. 45% in air for 7 seconds
7. Watery meat/pork refers to:
 - a. DFD condition
 - b. PSE condition
 - c. PSS condition
 - d. all
8. Exudation of water from the meat is known as:
 - a. weep
 - b. drip
 - c. shrink
 - d. none
9. Predominant chemical changes that takes place during ageing of meat:
 - a. glycolysis
 - b. proteolysis

- c. lipolysis
 - d. none
10. Adequate temperature maintained in a room where carcasses are chilled before deboning:
- a. 8-10 °C
 - b. 10-15 °C
 - c. 0 -4°C
 - d. more than 20°C
11. Which of the following operation is not included in poultry slaughtering:
- a. scalding
 - b. stunning
 - c. carcass splitting
 - d. defeathering
12. Sanitizing agent commonly used in food industry is:
- a. quaternary ammonium compound
 - b. halogen group
 - c. acid and alkalies
 - d. amphoteric compound
13. is most common method of slaughter followed in North India:
- a. jhatka
 - b. sticking
 - c. halal
 - d. jewish
14. Which of the following condition is excluded under emergency slaughter:
- a. severe injury
 - b. post-partum uterine hemorrhages
 - c. post-partum paraplegia
 - d. uterine prolapsed
15. Main decision taken at post-mortem examination includes:
- a. fit for reprocessing
 - b. total condemnation
 - c. fit for consumption
 - d. partial condemnation
- [a. only b b. a and b c. only c d. b, c and d]
16. Which of the organism is responsible for sulphur-stinker in canned products:
- a. *Cladosporium* spp.
 - b. *Clostridium* spp.
 - c. *Staphylococcus* spp.
 - d. *Streptococcus* spp.
17. Meat tenderness is not related to:
- a. age of animal
 - b. species or breed of animal
 - c. fat content of the meat
 - d. glycogen content of the meat
18. Lobulated lymph nodes are characteristic feature of:

- a. cattle
 - b. sheep
 - c. goat
 - d. pig
19. Marbling is rich in:
- a. horse meat
 - b. chevon
 - c. mutton
 - d. rabbit meat
20. Rate and extent of lactic acid formation in meat determines:
- a. spoilage
 - b. proteolysis
 - c. tenderness
 - d. all
21. Muscle shortening incidence in meat can be reduced by:
- a. chilling
 - b. freezing
 - c. stunning
 - d. pithing
22. Venison is meat of:
- a. camel
 - b. deer
 - c. horse
 - d. buffalo
23. Post mortem inspection of animals fails to detect:
- a. tuberculosis
 - b. fasciolasis
 - c. hydatidosis
 - d. rabies
24. Ante mortem inspection of animals fails to detect:
- a. sarcocystosis
 - b. uterine prolapse
 - c. fever
 - d. tetanus
25. The suspected carcasses during post-mortem examination are kept for examination in:
- a. condemned carcass room
 - b. ante-room
 - c. detention room
 - d. unsound meat room
26. The carcass yield of pig is:
- a. 50%
 - b. 70%
 - c. 35%
 - d. 63%
27. Absence of rigor-mortis in the carcass may result when animals were:

- a. well rested before slaughter
 - b. having high fever
 - c. driven on foot
 - d. administered sugar solution after transport
28. The component of modern slaughterhouse where animals are provided rest for 12-24 hours before slaughter is called:
- a. waiting room
 - b. abattoir
 - c. lairage
 - d. isolation block
29. A lymph node that lies in front of shoulder and imbedded in fat is known as:
- a. pre-scapular lymph node
 - b. pre-pectoral lymph node
 - c. pre-crural lymph node
 - d. pre-femoral lymph node
30. Per head space required for sheep during transportation by road/truck:
- a. 0.5-0.75 m²
 - b. 1-1.5 m²
 - c. 0.23-0.24 m²
 - d. 0.3-0.4 m²
31. Pre-slaughter treatment of animals includes:
- a. feeding
 - b. resting
 - c. fasting
 - d. watering
32. Animals should be slaughtered after stunning:
- a. within 30 minutes
 - b. within 30 seconds
 - c. after 30 minutes
 - d. within 40 seconds
33. Scalding is the necessary step in the dressing of
- a. deer
 - b. pig
 - c. sheep
 - d. buffalo
34. Trickling filter is method of slaughterhouse waste disposal:
- a. physical
 - b. chemical
 - c. biological
 - d. none of these
35. is rendered fat obtained from pig:
- a. suet
 - b. tallow
 - c. lard
 - d. neats foot oil

36. For preparation of paya soup, feet is usually used:
- cattle
 - poultry
 - pig
 - sheep or goat
37. rendering results in sticky and oily product:
- dry
 - wet
 - both of these
 - none of these
38. *Lactobacillus* spp. culture is used for of solid waste collected from slaughterhouse:
- rendering
 - tanning
 - fermentation
 - composting
39. drying method is used for removal of moisture from cured hide:
- tent
 - umbrella
 - suspension
 - soaking
- [a. only a b. b and c c. a, c and d d. a, b and c]
40. Trotter is obtained from:
- deer
 - pig
 - buffalo
 - rabbit

MEAT SCIENCE

41. Protein content of fresh whole chicken egg is:
- 12%
 - 15%
 - 28%
 - 25%
42. The relative humidity suitable for commercial meat chilling plant is:
- 95%
 - 90%
 - 85%
 - 75%
43. Desugarization of liquid eggs is performed by using the enzyme:
- glycose oxidize
 - carboxypeptidase
 - ribose oxidize
 - protease
44. Moisture content of fresh meat is around:
- 50%

- b. 60%
 - c. 75%
 - d. 90%
45. In healthy but lean animal meat, the water to protein ratio is:
- a. less than 4 to 3
 - b. less than 4 to 12
 - c. less than 4 to 1
 - d. less than 1 to 4
46. Monosodium glutamate (MSG) is used in meat as:
- a. colour fixing agent
 - b. flavour enhancer
 - c. binder
 - d. emulsifier
47. Decrease in post mortem muscle pH is due to:
- a. glycolysis
 - b. proteolysis
 - c. lipolysis
 - d. all the above
48. Commercially sterile canned meat should be processed to an internal temperature of:
- a. 100-105°C
 - b. 110-115°C
 - c. 120-121°C
 - d. 130-140°C
49. Black spot in refrigerated beef is caused by:
- a. *sporotrichum sp*
 - b. *cladosporium sp*
 - c. *thamnidium sp*
 - d. *mucor sp*
50. The principal gases used in modified atmospheric packaging are:
- a. CO₂ and N
 - b. N₂ and O₂
 - c. O₂ and CO₂
 - d. O₂, N₂ and CO₂
51. Marbling refers to:
- a. subcutaneous fat
 - b. intramuscular fat
 - c. intermuscular fat
 - d. all
52. Exudation of water from the frozen meat is known as:
- a. weep
 - b. drip
 - c. shrink
 - d. none
53. Mutton refers to a meat of:
- a. goat

- b. cattle
 - c. sheep
 - d. buffalo
54. Halothane anaesthesia is used as a test for pigs prone to:
- a. PSE
 - b. DFD
 - c. Bruising
 - d. PSS
55. Hide is a skin obtained from:
- a. adult animal
 - b. immature animal
 - c. unborn
 - d. new born
56. The most typical colour of fresh pork is:
- a. dull red
 - b. bright red
 - c. grayish pink
 - d. whitish
57. The most abundant amino acid in collagen is:
- a. lysine
 - b. glycine
 - c. alanine
 - d. valine
58. The average dressing percentage of pig carcass is:
- a. 50%
 - b. 75%
 - c. 60%
 - d. 55%
59. During smoking of meat, part of the bactericidal action is due to presence of:
- a. heat
 - b. nitrosohaemochromogen
 - c. formaldehyde
 - d. SaH
60. Structural and functional unit of myofibril is:
- a. sarcoplasm
 - b. sarcolemma
 - c. sarcomere
 - d. sarcotubule
61. Frankfurter is a typical example of:
- a. uncooked sausage
 - b. cooked smoked sausage
 - c. cooked unsmoked sausage
 - d. uncooked smoked sausage
62. The colour of the pigment nitrosohemochromogen is:
- a. brown

- b. pink
 - c. red
 - d. bright red
63. Haugh index is used to determine the internal quality of:
- a. milk
 - b. meat
 - c. paneer
 - d. egg
64. Quality standards for foods all over the world are monitored as per:
- a. ISO
 - b. APEDA
 - c. OIE
 - d. FAO
65. Critical temperature during meat handling and storage is:
- a. 5°C
 - b. 10°C
 - c. 12°C
 - d. 15°C
66. Which one of following has the highest amount of cholesterol (per 100gm sample):
- a. dried whole egg powder
 - b. fresh yolk
 - c. albumin
 - d. whole egg
67. Meat emulsion is prepared in:
- a. tumbler
 - b. homogenizer
 - c. flaker
 - d. bowl chopper
68. Dressed chicken can be stored at refrigeration temperature of 2-4°C:
- a. 7 days
 - b. 2 days
 - c. 10 days
 - d. 15 days
69. Green rot in egg is caused by (organism):
- a. *Pseudomonas*
 - b. *Staphylococcus*
 - c. *Serratia*
 - d. *Streptococcus*
70. Protein degradation in meat is assessed by estimation of:
- a. protein number
 - b. TBA number
 - c. TCA number
 - d. tyrosine value
71. The major contractile protein of the muscle is:
- a. actin

- b. myosin
 - c. titin
 - d. nebulin
72. Pork pickles is the popular meat product of:
- a. Delhi
 - b. Bihar
 - c. Arunachal Pradesh
 - d. Kashmir
73. Detectable slime forms on meat surface when bacterial load reaches to:
- a. $\log 21\text{cm}^2$
 - b. $\log 51\text{cm}^2$
 - c. $\log 81\text{cm}^2$
 - d. $\log 10\text{cm}^2$
74. Rancidity in meat is assessed by estimating its:
- a. TBA value
 - b. VFA value
 - c. Tyrosine value
 - d. TVN value
75. The freezing point of lean meat is:
- a. 0°C
 - b. -0.5°C
 - c. -1.5°C
 - d. -2.5°C
76. Bone darkening is a post freezing condition mostly observed in:
- a. young chicken
 - b. old chicken
 - c. Adult turkey
 - d. Adult geese

KEY ANSWERS:

Livestock Products Technology									
1-D	2-B	3-C	4-D	5-D	6-A	7-B	8-B	9-A	10-C
11-C	12-A	13-A	14-A	15-D	16-B	17-C	18-B	19-C	20-C
21-A	22-B	23-D	24-A	25-C	26-B	27-B	28-C	29-A	30-D
31-D	32-B	33-B	34-C	35-C	36-D	37-B	38-C	39-B	40-B
41-A	42-C	43-A	44-C	45-C	46-B	47-A	48-C	49-A	50-D
51-B	52-B	53-C	54-A	55-A	56-C	57-B	58-B	59-C	60-C
61-B	62-B	63-D	64-A	65-A	66-B	67-D	68-A	69-A	70-D
71-B	72-C	73-C	74-A	75-C	76-A				

ICAR-JRF MODEL QUESTIONS IN THE SUBJECT OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION**Dr. Anantrao Desai and Dr. Vaibhav D Hagone**Department of Veterinary and Animal Husbandry Extension Education
Veterinary College, Bidar - 585 226 (Karnataka)**I. Choose the correct answer**

1. Education is effective when it result in changes in:
 - a. knowledge
 - b. attitude
 - c. skills
 - d. all
2. The project of community development was stared in year:
 - e. 1946
 - f. 1952
 - g. 1921
 - h. 1947
3. Following is not a mass contact method:
 - a. office call
 - b. telephone call
 - c. personal call
 - d. none
4. Following is not a mass contact method:
 - a. bulletin
 - b. posters
 - c. leaflets
 - d. office call
5. Assumed representative type of leader is:
 - a. leader of group
 - b. not a leader of group
 - c. may or may not be leader of group
 - d. none
6. Professional leaders can be selected by:
 - a. Interview
 - b. performance
 - c. battery test
 - d. All
7. The attribute of innovation in which is negatively related to the rate of adoption is:
 - a. predictability
 - b. complexity
 - c. observability
 - d. trialibility
8. The stage of adoption in which the farmer develops a favorable or unfavorable attitude towards the technology is:
 - a. knowledge
 - b. persuasion

- c. decision
 - d. confirmation
9. Clients mainly looking in a Veterinarian:
- a. kindness and availability
 - b. capacity to listen
 - c. his competency
 - d. all given
10. Mark odd one out of following:
- a. simple random sampling
 - b. multistage sampling
 - c. cluster sampling
 - d. quota sampling
11. He is considered as “father of white revolution” in India:
- a. Balwant Rai Mehta
 - b. Dr. Verghese Kurien
 - c. M.S. Swaminathan
 - d. Mahatma Gandhi
12. The project was called as “Mazdoor Manzil”:
- a. nilokheri
 - b. firka vikas yojana
 - c. sriniketan
 - d. community development
13. Cautious and skeptical adopters are grouped as:
- a. innovators
 - b. early majority
 - c. laggards
 - d. late majority
14. The father of extension is:
- a. Paul Leagans
 - b. Calvert
 - c. August Comte
 - d. Van den Ben
15. Panchayati Raj was inaugurated on:
- a. 1956
 - b. 1959
 - c. 1962
 - d. 1947
16. “Servants of Indian society” was started by:
- a. Gopal Krishna Gokhale
 - b. Mahatma Gandhi
 - c. Ravindranath Tagore
 - d. none of the given
17. ICT initiative of Gujarat co-operative Mil Marketing federation ltd was:
- a. Warna wired village project
 - b. DISK

- c. information village project
 - d. AKASHGANGA
18. Panchayati raj was first introduced in:
- a. Rajasthan and Tamil Nadu
 - b. Gujarat and Madhya Pradesh
 - c. Gujarat and Andhra Pradesh
 - d. Rajasthan and Andhra Pradesh
19. The first step in extension teaching is:
- a. interest
 - b. desire
 - c. attention
 - d. conviction
20. Extension education falls under ____ type of education:
- a. informal
 - b. formal
 - c. non formal
 - d. causal
21. An extension programme is statement of situation, objectives, problems & solutions is given by:
- a. Leagans
 - b. Kesley and Hearne
 - c. Dhahmma and Bhatnagar
 - d. None
22. Evaluation of activities should be under taken by:
- a. extension staff
 - b. village institutions
 - c. panchayat samiti
 - d. all
23. Community development is:
- a. mono-purpose approach
 - b. multi-purpose approach
 - c. both a and b
 - d. none
24. Extension education is:
- a. mono-purpose approach
 - b. multi-purpose approach
 - c. both a and b
 - d. none
25. Which one of the following is the vice chairman of governing body of ATMA:
- a. collector
 - b. chief executive officer
 - c. block development officer
 - d. project directorate
26. The biological environment in urban area:
- a. More

- b. Less
 - c. Nil
 - d. none
27. Who is the last official administrative person in the administrative chain in PR:
- a. Chairmen
 - b. prime minister
 - c. gram sevak
 - d. sarpanch
28. The members of gram panchayat have tenure of:
- a. 4
 - b. 5
 - c. 6
 - d. 7
29. The training method followed by KVK are “teaching by doing” and “learning by _____”:
- a. believing
 - b. seeing
 - c. doing
 - d. none of the given
30. “Bhoodan project” was started under guidance of:
- a. Mahatma Gandhi
 - b. VinobaBhave
 - c. Ravindranath Tagore
 - d. Shri S.K Dey
31. The first EEI in India was established at:
- a. Nilokheri
 - b. Hyderabad
 - c. Jorhat
 - d. Chennai
32. Sarvodaya Movement has been started by:
- a. A.T. Mosher
 - b. G.R. Gokhale
 - c. Vinoba Bhave
 - d. Sir Daniel Hamilton
33. Two factor theory of motivation was given by:
- a. Hertzberg
 - b. Maslow
 - c. Karl Marx
 - d. Max Weber
34. COIK fallacy expands to:
- a. communication oriented intelligence and knowledge
 - b. cannot oppose intellect and knowledge
 - c. communication organization intelligence and knowledge
 - d. clear only if known
35. A true di-cotominous variable among the following:

- a. male-female
 - b. literate-illiterate
 - c. intelligent-unintelligent
 - d. introvert-extrovert
36. A uniformly most powerful test among the class of unbiased test is termed as:
- a. Minimax test
 - b. Minimax unbiased test
 - c. Uniformly most powerful unbiased test
 - d. All the above
37. A variable which is presumed cause of another variable is called:
- a. independent variable
 - b. active variable
 - c. antecedent variable
 - d. intervening variable
38. A visual aid has caption whose letter height is inch. It can be visible clearly from:
- a. 10 feet
 - b. 20 feet
 - c. 40 feet
 - d. 60 feet
39. A working model is known as:
- a. objects
 - b. model
 - c. mock-up
 - d. poster
40. Ability of competence to do something is known as:
- a. power
 - b. authority
 - c. responsibility
 - d. delegation
41. Ability to make prompt and good decisions is known as:
- a. decisiveness
 - b. initiative
 - c. social insight
 - d. democracy
42. ABC of Journalism:
- a. Accurate, Brevity, clear
 - b. Accuracy, Brief, complete
 - c. Accuracy, brevity, clarity
 - d. Actual, balance. Complete
43. ATMA is a/an:
- a. recognized society
 - b. registered society
 - c. unregistered society
 - d. all of above
44. ATMA Management Committee consists of:

- a. 6 members
 - b. 12 members
 - c. 18 members
 - d. 24 members
45. Bar chart was developed by:
- a. Davis Thomson
 - b. Hennery L Gantt
 - c. HorburtLuskenner
 - d. PricidyTrigird
46. Barter is an exchange of which of following?
- a. service for service
 - b. goods for service
 - c. goods for goods
 - d. all of the above
47. Based on the recommendation of which committee Panchayat Raj institution was formed?
- a. Ashok Mehta Committee
 - b. Hanumantha Rao Committee
 - c. Dantwala Committee
 - d. Balwanth Ray Mehta Committee
48. Based on the recommendations of the Grow More Food Enquiry Committee, how many community projects were taken up n 1952?
- a. 25
 - b. 35
 - c. 45
 - d. 55
49. Basic operational unit for rural development in India is:
- a. district
 - b. tehsil
 - c. village
 - d. block
50. Based on which of the following an innovation is liked or dis-liked:
- a. innovation effect
 - b. innovation decision
 - c. perceived attributes
 - d. traditional makeup
51. Basic principle of extension education is:
- a. help to those who help themselves
 - b. help poorest of poor
 - c. internal and spiritual education
 - d. adult education
52. Basic unit of society is:
- a. neighborhood
 - b. group
 - c. family

- d. community
- 53. Basically GATT is aimed at:
 - a. facilitating accords on the most favored nation status to the trading partners
 - b. reciprocity and transparency in global trade
 - c. tariff reduction through trade negotiations
 - d. all of above
- 54. Best method for selection of leader is:
 - a. sociometry
 - b. election
 - c. discussion method
 - d. group method
- 55. "How do I develop an offering which my target clients want" relates with:
 - a. "DO TO" strategy
 - b. "DO FOR" strategy
 - c. "DO WITH" strategy
 - d. "DO AGAINST" strategy
- 56. The basis of any extension approach is:
 - a. individual is the end
 - b. individual is a means to an end
 - c. rural development
 - d. transfer of technology
- 57. People participate by being told what is going to happen or has already happened:
 - a. self- mobilization
 - b. interactive participation
 - c. functional participation
 - d. passive participation
- 58. An individual forms a favorable or unfavorable attitude towards an innovation during:
 - a. confirmation stage
 - b. decision stage
 - c. knowledge stage
 - d. persuasion stage
- 59. An activity through which an individual becomes aware of the objects around one self and of events taking place:
 - a. participation
 - b. perception
 - c. perpetuation
 - d. predetermination
- 60. Farmers interact with:
 - a. many sources
 - b. few sources
 - c. intra personal sources
 - d. information sources
- 61. The communication channels most active in diffusion process:
 - a. mass media channel
 - b. interpersonal channel

- c. both a and b
 - d. none of these
62. Mass media channel include:
- a. radio
 - b. newspaper
 - c. television
 - d. all of the above
63. The communication channel most suited to inform the audience about the existence of an innovation:
- a. mass media channel
 - b. interpersonal channel
 - c. both a and b
 - d. none of these
64. Mass communication is intended to be consumed immediately hence it is called:
- a. rapid
 - b. transient
 - c. general
 - d. none
65. Feedback is in case of communication made through:
- a. village level worker
 - b. group meeting
 - c. radio
 - d. method demonstration
66. Mass media had direct, immediate and powerful effects on a mass audience:
- a. two step flow model
 - b. one step flow model
 - c. hypodermic needle model
 - d. none of the above
67. The communication channel most suited in persuading an individual to accept a new idea:
- a. mass media channel
 - b. interpersonal channel
 - c. both a and b
 - d. none of the above
68. The degree to which two or more interacting individuals are similar in certain attributes:
- a. homophily
 - b. heterophily
 - c. entropy
 - d. fidelity
69. National adult education programme was launched in:
- a. 1968
 - b. 1978
 - c. 1988
 - d. 1984

70. National Literacy Mission was launched in the year:
- 1980
 - 1988
 - 1992
 - 1995
71. National Literacy Mission aims at imparting functional literacy to non-literates in the age-group of:
- 5-15
 - 10-35
 - 15-35
 - 35-60
72. Operation black board aims to improve:
- primary education
 - adult education
 - informal education
 - professional education
73. The constitutional amendment made to ensure free and compulsory education to all children:
- 86th Amendment
 - 74th Amendment
 - 73rd Amendment
 - 92nd Amendment
74. Free and compulsory education to all children in the age group of 6-14 years is envisaged in:
- Sarva Shiksha Abhiyan
 - Kasturba Gandhi Balika Vidyalaya
 - National Literacy Mission
 - National adult education programme
75. All children complete of elementary schooling under Sarva Shiksha Abhiyan by:
- 2007
 - 2009
 - 2010
 - 2015
76. Sarva Siksha Abiyan was started in:
- 1994
 - 2001
 - 2006
 - 2004
77. National Service Scheme was started in:
- 1966
 - 1967
 - 1969
 - 1970
78. Youth is classified to belong under the age group of:
- 5 -15

- b. 10-35
 - c. 15-35
 - d. 35-60
79. Nehru Yuva Kendras was started in:
- a. 1962
 - b. 1972
 - c. 1982
 - d. 1992
80. Kasturba Gandhi Balika Vidyalaya are meant for promoting education of:
- a. girl children
 - b. senior citizen
 - c. rural youth
 - d. agricultural laborers
81. The organization under Department of Science and Technology established with the main goal of providing institutional support in protecting grassroots green innovations:
- a. MANAGE
 - b. NISTAT
 - c. National Innovation Foundation
 - d. National Science foundation
82. 'Files to field' programme has been introduced in:
- a. Simour
 - b. Ahmedabad
 - c. Sambalpur
 - d. Ahemednagar
83. Cone of experience classify the instructional methods according to:
- a. experiential correctness
 - b. difficulty in understanding
 - c. ease in use and application
 - d. level of abstraction in thinking
84. The cone of experience was developed by:
- a. Egder Dale
 - b. Berlo C K
 - c. Kuldeep Nair
 - d. S C Parmer
85. The type of experience a farmer have when he saws wheat in lines under the supervision of extension worker:
- a. symbolic experience
 - b. iconic experience
 - c. supervisory experience
 - d. enactive experience
86. When an person is involved in iconic experiences, learning occurs through:
- a. active participation
 - b. abstract thinking
 - c. doing

- d. observations
87. The most effective learning experience is provided through:
- a. result demonstration
 - b. television
 - c. contrived experience
 - d. field trips
88. Which among the following is an example of direct purposeful experience:
- a. ploughing
 - b. model of a plough
 - c. blow up of a plough
 - d. diagram of a plough
89. The extension worker tells about the varieties characters to a farmer, the farmer learns by:
- a. abstraction
 - b. learning
 - c. intelligence
 - d. questioning
90. Which of the following is a specimen:
- a. sun
 - b. sky
 - c. beetle
 - d. mountain
91. Classification of extension methods into individual, group and mass is based on:
- a. form
 - b. use
 - c. number of people contacted
 - d. periodicity
92. Under limited resource of manpower, time and money, we should select:
- a. individual contact methods
 - b. group contact methods
 - c. mass contact methods
 - d. all of the above
93. An extension method that can be considered both spoken and visual:
- a. posters
 - b. radio
 - c. campaign
 - d. agricultural clinics
94. Flag method is classified under:
- a. spoken method
 - b. written method
 - c. group method
 - d. mass method
95. Agricultural clinics is classified under:
- a. group contact method
 - b. individual contact method

- c. mass contact method
d. all of the above
96. The term philosophy have originated from:
a. Latin
b. French
c. Greek
d. Sanskrit
97. The basic philosophy of extension is to teach people:
a. how to do
b. what to do
c. when to do
d. where to do
98. The underlying principles of extension service is given by:
a. M Horton
b. P Leaganes
c. Ensminger
d. O P Dahama
99. The fundamental unit of civilization according to Horton is:
a. home
b. land
c. individual
d. capital
100. The two important principles of extension education are:
a. participation and leadership
b. participation and classroom teaching
c. leadership and classroom teaching
d. leadership and subject knowledge

ANSWER KEY

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

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