

P.G. ENTRANCE EXAMINATION, APRIL 2022

APPLIED ZOOLOGY

Time : ² One Hour and a Half

Maximum : 400 Marks

*Each question carries 4 marks.**1 mark will be deducted for each wrong answer.*

1. 1/0, 0/0, 0/0, 3/3. This is the dental formula of :
 - a) Rabbit.
 - b) Bat.
 - c) Elephant.
 - d) Seal.
2. A mammal which walks on the tips of its digits, with heels raised from the ground has _____ progression.
 - a) Digitigrade.
 - b) Unguligrade.
 - c) Plantigrade.
 - d) Mesaxonic.
3. Which among the following is a fundamental mammalian character ?
 - a) Diaphragm.
 - b) Glandular skin.
 - c) Triploblasty.
 - d) Bilateral symmetry.
4. Which among the following is an extinct bird ?
 - a) Ectopistes.
 - b) Dinopium.
 - c) Anas.
 - d) Apteryx.
5. An organ adapted for grasping or holding is called _____.
 - a) Vestigial.
 - b) Prehensile.
 - c) Hectocotylus.
 - d) Adhesive.
6. Reptiles with four-chambered heart.
 - a) Chelonians.
 - b) Lizards.
 - c) Crocodiles.
 - d) Snakes.

Turn over

15. Tiedmann's bodies are associated with _____.
- a) Gastrovascular system. b) Digestive system.
c) Excretory system. d) Water vascular system.
16. The olfactoreceptor in *Pila* is called _____.
- a) Radula. b) Osphradium.
c) Operculum. d) Mantle.
17. Arthropods are the most abundant and the most successful animals on the earth because of _____.
- a) Jointed appendages. b) Cuticular exoskeleton.
c) Metamerism. d) Moulting.
18. Which of the following is the fundamental insect character ?
- a) 2 pairs of wings. b) 4 pairs of walking legs.
c) 3 pairs of walking legs. d) Compound eye.
19. Dermo-muscular body wall is characteristic of the phylum _____.
- a) Cnidaria. b) Platyhelminthes.
c) Mollusca. d) Annelida.
20. Retroinfection occurs in _____.
- a) *Ascaris*. b) *Enterobius*.
c) *Ancylostoma*. d) *Wuchereria*.
21. In animal kingdom, cephalization first evolved in the phylum _____.
- a) Platyhelminthes. b) Aschelminthes.
c) Annelida. d) Arthropoda.
22. Occurrence of two sexually mature stages in the same animal is called _____.
- a) Dissogeny. b) Neoteny.
c) Plasmotomy. d) Arrhenotoky.

23. An organism living non-parasitically on the exterior of a living animal is called _____.
- a) Commensal.
 - b) Epizoic.
 - c) Phoresy.
 - d) Parasitoid.
24. Nuclear dimorphism occurs in _____.
- a) Noctiluca.
 - b) Trichonympha.
 - c) Entamoeba.
 - d) Paramecium.
25. Choanocytes are characteristic of the phylum _____.
- a) Porifera.
 - b) Cnidaria.
 - c) Ctenophora.
 - d) Rotifera.
26. In the phylum Cnidaria, medusoid stage is absent in the class _____.
- a) Hydrozoa.
 - b) Scyphozoa.
 - c) Cubozoa.
 - d) Anthozoa.
27. Classification of organisms based on phylogenetic relationship and recency of common descent is called _____.
- a) Cladistics.
 - b) Phenetics.
 - c) Phyletic.
 - d) Evolutionary.
28. Different names for the same taxon is known as _____.
- a) Synonym.
 - b) Homonym.
 - c) Tautonym.
 - d) Antonym.
29. Ecological succession brought about by environmental modifications through changes in abiotic environment is known as :
- a) Allogenic.
 - b) Autogenic.
 - c) Autotrophic.
 - d) Heterotrophic.
30. Sum total of solar energy fixed by producers through photosynthesis per unit area and unit time is known as
- a) GPP.
 - b) NCP.
 - c) NPP.
 - d) SP.

31. The intermediate zones where two or more ecosystems meet and merge are called :

- a) Biome.
- b) Ecotone.
- c) Velds.
- d) Chaparral.

32. Release of nitrogen from nitrogenous compounds back to the atmosphere is :

- a) Nitrification.
- b) Nitrogen fixation.
- c) Nitrate assimilation.
- d) Denitrification.

33. The ratio between natality and mortality of a population during a given time is :

- a) Edge effect.
- b) Nudation.
- c) Vital index.
- d) Ecotype.

34. _____ generally refer to foot prints of animals.

- a) Scats.
- b) Pug marks.
- c) Wallows.
- d) Fur snags.

35. Which among the following is a tiger reserve in Kerala ?

- a) Thattekkad.
- b) Silent valley.
- c) Periyar.
- d) Eravikulam.

36. Which among the following does not belong to IUCN Red list categories ?

- a) Vulnerable.
- b) Endangered.
- c) Endemic.
- d) Near threatened.

37. Insular fauna refers to the fauna of :

- a) Ocean.
- b) Island.
- c) Desert.
- d) Lake.

Turn over

38. The type of orientation in which an animal's response is proportional to the intensity of the stimulus and is independent of the spatial properties of the stimulus is :
- a) Taxes.
 - b) Kineses.
 - c) Reflexes.
 - d) Instincts.
39. The delay in development of an organism in response to adverse environmental conditions is :
- a) Dormancy.
 - b) Diapause.
 - c) Hibernation.
 - d) Aestivation.
40. Hardy-Weinberg equilibrium is altered when :
- a) Population is large.
 - b) Mating is at random.
 - c) Mutations do not occur.
 - d) Migrations occur.
41. The reappearance of ancestral characters in the descendants is called :
- a) Atavism.
 - b) Homology.
 - c) Vestige.
 - d) Analogy.
42. Which of the following is not post-zygotic isolating mechanism ?
- a) Cytological.
 - b) Hybrid sterility.
 - c) Physiological.
 - d) Hybrid inviability.
43. Which of the following is not a connecting link ?
- a) Chimaera.
 - b) Sphenodon.
 - c) Peripatus.
 - d) Balanoglossus.
44. Evolution occurring in spurts of relatively rapid change with long periods of non-change :
- a) Gradualism.
 - b) Punctuated equilibrium.
 - c) Microevolution.
 - d) Macroevolution.

45. Life history strategy of many plant and animal species characterized by death after reproduction is known as
- a) Iteroparity.
 - b) Polygyny.
 - c) Semelparity.
 - d) K-selection.
46. Which of the following is not Assisted Reproductive Technology ?
- a) ICSI.
 - b) GIFT.
 - c) ZIFT.
 - d) IUCD.
47. The process by which differentiated cells regain the capacity to divide mitotically is :
- a) Dedifferentiation.
 - b) Redifferentiation.
 - c) Morphallaxis.
 - d) Heteromorphosis.
48. Which of the following is a Hox gene ?
- a) Hunchback.
 - b) Bicoid.
 - c) Kruppel.
 - d) Antennapedia.
49. Which of the following is false about amphibian metamorphosis ?
- a) Both regressive and progressive changes occur.
 - b) T3 is more active than T4.
 - c) Involves hypothalamus, anterior pituitary and thyroid gland.
 - d) Prolactin plays major role.
50. Organizer in chick development is :
- a) Dorsal blastopore lip.
 - b) Primitive streak.
 - c) Nieuwkoop center.
 - d) Hensen's node.
51. Which of the following is a non-invasive diagnostic technique ?
- a) Ultrasonography.
 - b) Chorionic villi sampling.
 - c) Amniocentesis.
 - d) Fetoscopy.

52. Major hormones involved in menstrual cycle are :
- Oxytocin, Corticotropin releasing hormone, Relaxin, TSH.
 - LH, FSH, Estrogen, Progesterone.
 - Prostaglandins, Cortisol, Chorionic gonadotropin, Vasopressin.
 - Estrogen, ADH, TSH, LH.
53. In a ruminant mammal, _____ chamber of the stomach harbours symbiotic bacteria.
- Reticulum.
 - Rumen.
 - Omasum.
 - Abomasum.
54. The cyclic reactions in which muscle lactate is converted to liver glucose :
- Alanine cycle.
 - Ornithine cycle.
 - Cori cycle.
 - Kreb's cycle.
55. A human disease due to defective copper metabolism :
- Pine disease.
 - Bronzed diabetes.
 - Siderosis.
 - Wilson disease.
56. Excess blood flow that lowers the ventilation-perfusion ratio is called :
- Alveolar dead space.
 - Shunted blood.
 - Physiological shunt.
 - All three.
57. HbS differs from HbA in having _____ amino acid in the 6th position of the beta chain.
- Valine.
 - Glutamic acid.
 - Leucine.
 - Methionine.
58. Which of the following hormone acts at the level of cell membrane ?
- Peptide hormones.
 - Thyroxine.
 - Adrenaline.
 - Insulin.
59. In crustaceans, ecdysone is produced by
- Pericardial organs.
 - Y- organ.
 - X- organ.
 - Sinus glands.

60. The endocrine cells in testes are called :
- a) Delta cells.
 - b) Oxyphil cells.
 - c) Leydig cells.
 - d) Beta cells.
61. The type of allelic interaction in which the dominant allele is only partially dominant over the recessive allele :
- a) Supplementary gene interaction.
 - b) Complete dominance.
 - c) Dominant epistasis.
 - d) Incomplete dominance.
62. ZZ-ZW system of sex determination is found in :
- a) Fishes.
 - b) Drosophila.
 - c) Grass hoppers.
 - d) Human.
63. A heterozygous woman (with A blood type) and a heterozygous man (with B blood type) produces :
- a) Only AB.
 - b) A and AB.
 - c) B, O, AB.
 - d) O, A, B, AB.
64. Genes located very closely on the same chromosome and not undergoing independent assortment :
- a) Completely linked gene.
 - b) Partially linked gene.
 - c) Unlinked gene.
 - d) Incomplete gene.
65. A histochemical stain :
- a) Haematoxylin.
 - b) Mercuric bromphenol blue.
 - c) Eosin.
 - d) Toluidine blue.
66. Basic structural unit of chromatin :
- a) Nucleolus.
 - b) Chromosome.
 - c) Nucleosome.
 - d) RNA.
67. Hodkin's disease is a :
- a) Lymphoma.
 - b) Carcinoma.
 - c) Sarcoma.
 - d) Melanoma.

68. In meiosis, tetrad formation occurs during _____.
- a) Pachytene.
 - b) Zygotene.
 - c) Leptotene.
 - d) Diplotene.
69. Which of the following is responsible for the antigen specificity of immune response ?
- a) Neutrophils.
 - b) Lymphocytes.
 - c) Monocytes.
 - d) Basophils.
70. Autoimmune disease characterized by inflammatory lesion along the myelin sheath of nerves :
- a) Multiple sclerosis.
 - b) Myasthenia gravis.
 - c) Grave's disease.
 - d) SLE.
71. Which of the blotting technique is used to detect RNA ?
- a) Southern blotting.
 - b) Northern blotting.
 - c) Western blotting.
 - d) a) and c).
72. _____ enzymes are known as molecular scalpels.
- a) Modification enzymes.
 - b) Ligase enzymes.
 - c) Phosphatase.
 - d) Restriction enzymes.
73. Transgenic animals are those which have
- a) Foreign DNA in some of their cells.
 - b) Foreign DNA in all of their cells.
 - c) Foreign RNA in all of their cells.
 - d) Both a) and c).
74. Smallest infectious pathogens known, comprising of short circular RNA :
- a) Prions.
 - b) Viroids.
 - c) Rickettsiae.
 - d) Mycoplasmas.
75. Autoclaving is a method of :
- a) Isolation.
 - b) Inoculation.
 - c) Culturing.
 - d) Sterilization.

76. *Pseudomonas putida* is a bacteria used in bioremediation :
- a) As biosensors.
 - b) To clean oil spills.
 - c) In biofilter.
 - d) For bioleaching.
77. If one strand of DNA is ATTAGCTGAT, then complementary strand would be :
- a) TAATTGCTGA.
 - b) TACGCGACTA.
 - c) TAGTCGATAG.
 - d) TAATCGACTA.
78. RNA polymerase binds to a _____ to initiate _____.
- a) m RNA-translation.
 - b) Promoter-transcription.
 - c) Primer-transcription.
 - d) Transcription factor-translation.
79. Who is the author of the book "Molecular Biology of the Gene" ?
- a) Francis Crick.
 - b) Richard Dawkins.
 - c) James Watson.
 - d) Benjamin Levine.
80. Contiguous genes of a single nucleotide sequence, that code for different kinds of functional proteins :
- a) Split genes.
 - b) Overlapping genes.
 - c) Cryptic genes.
 - d) Jumping genes.
81. Small, uncoiled, circular, duplex DNA molecule in bacteria :
- a) Cosmoid.
 - b) Plasmid.
 - c) D-loop.
 - d) Viroid.
82. Trioses, Tetroses, Pentoses and Hexoses are _____.
- a) Monosaccharides.
 - b) Disaccharides.
 - c) Oligosaccharides.
 - d) Polysaccharides.

Turn over

83. Which of the following instrument works according to Beer-Lambert law ?
- a) Electrophoresis.
 - b) Colorimeter.
 - c) Chromatography.
 - d) Ultracentrifuge.
84. Phospholipids present in the cell membrane, especially in the brain :
- a) Lecithins.
 - b) Prostaglandins.
 - c) Cephalins.
 - d) Choline.
85. Which of the following is a database search engine ?
- a) PROSITE.
 - b) PRINTS.
 - c) STAG.
 - d) MIPS.
86. An algorithm and programme for comparing primary biological sequence information, such as amino acid sequence of protein :
- a) BLAST.
 - b) EMBL.
 - c) DDBJ.
 - d) KEGG.
87. A quantity or characteristic with respect to which individuals in a sample differ from one another :
- a) Variable.
 - b) Variate.
 - c) Parameter.
 - d) Constant.
88. Which of the following is a method of diagrammatic representation of data ?
- a) Histogram.
 - b) Frequency curve.
 - c) Frequency polygon.
 - d) Pie diagram.
89. The value of the variable for which the frequency is maximum is _____.
- a) Mean.
 - b) Median.
 - c) Mode.
 - d) Standard error.
90. Calculate the median of the following data : 12, 12, 10, 11, 9, 14, 13, 10, 11, 13, 14, 15, 12, 10, 13
- a) 12.
 - b) 14.
 - c) 11.
 - d) 10.

91. A testable, tentative generalization based on previous knowledge and form the basis for reasoning :
- a) Theory.
 - b) Hypothesis.
 - c) Law.
 - d) Principle.
92. Which of the following is not a principle in designing experiments ?
- a) Randomization.
 - b) Serendipity.
 - c) Replication.
 - d) Orthogonality.
93. The use of someone else's ideas, results, designs, visuals, wordings or sentence structure as if one's own :
- a) Copyright.
 - b) Patent.
 - c) Plagiarism.
 - d) Simulation.
94. A computer-generated simulation in which a person can interact within an artificial three-dimensional environment using electronic devices
- a) Bio-computing.
 - b) Artificial intelligence.
 - c) Virtual reality.
 - d) Dial-up.
95. Centre for Cellular and Molecular Biology is located at :
- a) Bangalore.
 - b) Mumbai.
 - c) Hyderabad.
 - d) Chennai.
96. The largest store house of carbon molecules on earth is
- a) Fossil fuels.
 - b) Atmosphere.
 - c) Marine sediments.
 - d) Living organisms.
97. Biologists consider viruses as non-living. This is because viruses :
- a) Are unable to reproduce on their own.
 - b) Do not contain proteins.
 - c) Do not contain genetic materials.
 - d) Are smaller than living organisms.

98. The state fish of Kerala :

- a) *Sardinella longiceps*.
- b) *Etroplus suratensis*.
- c) *Mugil cephalus*.
- d) *Rastrelliger kanagurta*.

99. Western ghats is a :

- a) World heritage site.
- b) Ramsar site.
- c) Biosphere reserve.
- d) National park.

100. Covaxin is a _____ vaccine.

- a) Live attenuated.
- b) Inactivated.
- c) Toxoid.
- d) DNA.