

PG/INTEGRATED PG ENTRANCE EXAMINATION, APRIL 2023

APPLIED ZOOLOGY

Time : Two Hours

Maximum : 400 Marks

*Each questions carries 4 marks.**1 mark will be deduced for each wrong answer.*

1. Cnidoblasts are found in :

- a) Euplectella.
- b) Physalia.
- c) Planaria.
- d) Pinctada.

2. Causative organism of lymphatic filariasis is :

- a) Schistosoma haematobium.
- b) Wuchereria bancrofti.
- c) Enterobius vermicularis.
- d) Taenia solium.

3. Which of the following is not an Arthropod ?

- a) Pheretima.
- b) Penaeus.
- c) Bombyx.
- d) Aedes.

4. Chiton belongs to the class :

- a) Cephalopoda.
- b) Pelecypoda.
- c) Gastropoda.
- d) Amphineura.

5. The Tongue-worm belongs to the phylum :

- a) Phoronida.
- b) Nematoda.
- c) Chordata.
- d) Hemichordata.

6. Which of the following are the characteristics of Annelida ?

- a) Presence of parapodia, nephridia and vermiform body.
- b) Presence of cuticular exoskeleton, jointed appendages and malpighian tubules.
- c) Presence of pedicellaria, madreporite, tube feet and ambulacral system.
- d) Presence of mantle, shell, radula and statocysts.

Turn over

7. Dugong belongs to the order _____.
 - a) Cetacea.
 - b) Rodentia.
 - c) Carnivora.
 - d) Sirenia.
8. South American Lung fish is _____.
 - a) Protopterus.
 - b) Neoceratodus.
 - c) Latimeria.
 - d) Lepidosiren.
9. Ambulacral system is found in _____.
 - a) Echinodermata.
 - b) Annelida.
 - c) Coelenterata.
 - d) Porifera.
10. The animal known as "Venus's flower basket" is _____.
 - a) Euplectella.
 - b) Leucosolenia.
 - c) Spongilla.
 - d) Euspongia.
11. Osphradium is found in _____.
 - a) Earthworm.
 - b) Grasshopper.
 - c) Starfish.
 - d) Apple snail.
12. Horseshoe crab is included in the class :
 - a) Crustacea.
 - b) Insecta.
 - c) Arachnida.
 - d) Annelida.
13. Select the animal having Poison spur :
 - a) Platypus.
 - b) Heloderma.
 - c) Echidna.
 - d) Porcupine.
14. The organism known as "Cubozoa" are belonging to :
 - a) Ctenophora.
 - b) Coelenterata.
 - c) Porifera.
 - d) Protozoa.
15. Which is an example for monotremata ?
 - a) Macropus.
 - b) Oppossum.
 - c) Echidna.
 - d) Wallaby.

16. The aquatic mammals belonging to the order :
- a) Primates.
 - b) Cetacea.
 - c) Perisodactyla.
 - d) Chiroptera.
17. The bird Rock pigeon belongs to _____.
- a) Passeriformes.
 - b) Columbiformes.
 - c) Psittaciformes.
 - d) Strigiformes.
18. The skull of mammals is with _____ number of occipital condyles.
- a) 2.
 - b) 1.
 - c) Some had 2, others with 1.
 - d) None of the above.
19. The niche of a population is the _____.
- (a) Place where it lives.
 - (b) Geographical area that it covers.
 - (c) Set of conditions that it interacts.
 - (d) Set of conditions and resources it uses.
20. The animals with presence of glands in the skin without hairs and scales :
- a) Mammals.
 - b) Birds.
 - c) Reptiles.
 - d) Amphibians.
21. The body of Urochordata is enclosed in :
- a) Calcium.
 - b) Tunic.
 - c) Epithelium.
 - d) Endoderm.
22. Which of the following is a fish :
- a) Cuttle fish.
 - b) Silver fish.
 - c) Cray fish.
 - d) Dog fish.
23. The sound box of birds is also known as :
- a) Symsacrum.
 - b) Pygostyle.
 - c) Syrinx.
 - d) Larynx.

24. Which of the following is not a mammal ?
- a) Sea otter.
 - b) Sea lion.
 - c) Dolphin.
 - d) Seagull.
25. The wheel organ is found in :
- a) Ascidian.
 - b) Amphioxus.
 - c) Starfish.
 - d) Balanoglossus.
26. Catadromous fish migrates from :
- a) Sea to freshwater.
 - b) Freshwater to sea.
 - c) River to estuary.
 - d) Deep sea to surface water.
27. A single specimen designated as a type in the original description is named as :
- a) Neotype.
 - b) Paratype.
 - c) Syntype.
 - d) Holotype.
28. In DNA barcode analysis for molecular taxonomy, the material recommended for taxonomical studies in prokaryotes is :
- a) 18S RNA.
 - b) 16S RNA.
 - c) Mitochondrial DNA.
 - d) Plasmid DNA.
29. Determination of ancestral relationships of organisms and the group's evolutionary History through time is :
- a) Identification.
 - b) Phylogeny.
 - c) Taxonomy.
 - d) Systematics.
30. From which domain eukaryotes derived ?
- a) Archea.
 - b) Protista.
 - c) Bacteria.
 - d) Fungi.
31. Name the organization which provides rules for naming animals :
- a) ICZN.
 - b) ICBN.
 - c) IBM.
 - d) ICN.

32. Which of the following is an Aldotriose ?
- a) Dihydroxyacetone.
 - b) Glyceraldehyde.
 - c) Ribulose.
 - d) Erythrose.
33. The fastest enzyme is :
- a) DNA Gyrase.
 - b) Pepsin.
 - c) DNA polymerase.
 - d) Carbonic anhydrase.
34. Haemoglobin has :
- a) Primary structure.
 - b) Secondary structure.
 - c) Tertiary structure.
 - d) Quaternary structure.
35. Kreb's cycle begins with the creation of six carbon compounds as a result of a reaction between two carbon compounds namely :
- a) Succinic Acid and pyruvic acid.
 - b) Acetyl CoA and Oxaloacetic Acid.
 - c) Fumaric acid and Pyruvic acid.
 - d) Maleic acid and acetyl CoA.
36. Glycolysis can also be referred to as :
- a) Embden Meyerhof pathway.
 - b) Respiratory cycle.
 - c) Kreb's cycle.
 - d) HMP-shunt.
37. Which of the following is an example of Homology and similarity tool ?
- a) BLAST.
 - b) RasMol.
 - c) EMBOSS.
 - d) PROSPECT.
38. Which of the following is a nucleotide sequence database ?
- a) EMBL.
 - b) SWISS PROT.
 - c) PROSITE.
 - d) TREMBL.

39. Which of the following is a secondary database ?
- a) DDBJ.
 - b) GenBank.
 - c) PIR.
 - d) EMBL.
40. The expanded form of BLAST :
- a) Basic logarithmic alignment search tool.
 - b) Bioinformatic local alignment search tool.
 - c) Basic local alignment search tool.
 - d) Basic local alignment search technique.
41. Author of 'Atlas of protein sequence and structure' is :
- a) Margaret Dayhoff.
 - b) Frederic Sanger.
 - c) J.D Watson.
 - d) Pauline Hogeweg.
42. Heart of vertebrates are derived from embryonic :
- a) Ectoderm.
 - b) Epiderm.
 - c) Mesoderm.
 - d) Endoderm.
43. If you remove a set of cells from an early embryo, you observe that the adult organism lacks the structure that would have been produced from those cells. Therefore, the organism seems to have undergone :
- a) Autonomous specification.
 - b) Conditional specification.
 - c) Morphogenic specification.
 - d) Syncytial specification.
44. During gastrulation the infolding of a sheet of cells into the embryo is termed as :
- a) Intercalation.
 - b) Invagination.
 - c) Involution.
 - d) Epiboly.
45. Which of the following is an example of gap genes in *Drosophila* ?
- a) Knirps.
 - b) Wingless.
 - c) Armadillo.
 - d) Odd-skipped.
46. Acrosome of sperm is derived from :
- a) Endoplasmic reticulum.
 - b) Mitochondria.
 - c) Vacuole.
 - d) Golgi Apparatus.

47. The egg of mammals is _____ type.
- a) Alecithal.
 - b) Microlecithal.
 - c) Mesolecithal.
 - d) Macrolecithal.
48. The type of cleavage in amphibians is _____.
- a) Holoblastic.
 - b) Meroblastic.
 - c) Superficial.
 - d) Discoidal.
49. The mammalian blastula is called as _____.
- a) Morula.
 - b) Blastocyst.
 - c) Blastodisc.
 - d) None of these.
50. The fertilization membrane is formed from :
- a) Vitelline membrane.
 - b) Zona pellucida.
 - c) Corona radiata.
 - d) Cortical granules.
51. Phenotypic ratio of a Mendelian dihybrid cross :
- a) 3 : 4 : 1 : 8.
 - b) 9 : 3 : 3 : 1.
 - c) 1 : 2 : 1 : 2.
 - d) 4 : 5 : 5 : 2.
52. Sickle cell anaemia is an example for :
- a) X-linked recessive disorder.
 - b) Autosomal dominant disorder.
 - c) Autosomal recessive disorder.
 - d) X-linked dominant disorder.
53. Karyotype of Turner syndrome :
- a) 44, XXY.
 - b) 45, XO.
 - c) 46, XX.
 - d) 47, XXY.
54. In a population the allele frequencies are given as 0.6 and 0.4, what is the heterozygous frequency ?
- a) 0.36.
 - b) 0.48.
 - c) 0.16.
 - d) 0.24.

55. Genic balance theory was proposed by :
- a) Gregor Mendel.
 - b) Thomas Morgan.
 - c) Calvin Bridges.
 - d) Crick.
56. The inheritance of AB blood group illustrates :
- a) Multiple allelism.
 - b) Incomplete dominance.
 - c) Codominance.
 - d) Complimentary inheritance.
57. The phenylketonuria is a _____ inheriting disease.
- a) Sex linked recessive.
 - b) Autosomal recessive.
 - c) Sex linked dominant.
 - d) Autosomal dominant.
58. The trisomy of 21st chromosome make the disease :
- a) Downs syndrome.
 - b) Edwards syndrome.
 - c) Patau's syndrome.
 - d) Klinefelter syndrome.
59. Which among the following represent a transversion mutation ?
- a) Adenosine to Thymine.
 - b) Thymine to Cytosine.
 - c) Cytosine to Guanine.
 - d) Both (a) and (c).
60. Which is a dominantly inheriting autosomal disorder ?
- a) Huntington disease.
 - b) Sickle cell anaemia.
 - c) Haemophilia.
 - d) Cystic fibrosis.
61. How many bones are present in the vertebral column of a human ?
- a) 30.
 - b) 31.
 - c) 33.
 - d) 34.
62. Which is the largest bone in the human body ?
- a) Humerus.
 - b) Radius.
 - c) Tibia.
 - d) Femur.

63. The type of cartilage present in the pinna of the ear :
- a) Elastic.
 - b) Calcified.
 - c) Fibrous
 - d) Hyaline
64. Which part of the brain controls involuntary actions ?
- a) Medulla oblongata.
 - b) Cerebellum.
 - c) Cerebrum.
 - d) Hypothalamus.
65. The valve that controls the opening between the right atrium and the ventricle :
- a) Mitral valve.
 - b) Left atrium.
 - c) Tricuspid valve.
 - d) Left ventricular.
66. Cilia and flagella are :
- a) Intermediate filaments.
 - b) Microfilaments.
 - c) Microtubules.
 - d) Phospholipids.
67. Nuclear organiser region is found in :
- a) Nuclear matrix.
 - b) Nucleolus.
 - c) Nuclear lamina.
 - d) Nucleoporins.
68. Which of the following is the major protein associated with Chromatin ?
- a) Keratin.
 - b) Collagen.
 - c) Elastin.
 - d) Histones.
69. The function of cristae in mitochondria is :
- a) Electron transport and ATP synthesis.
 - b) Carbon assimilation.
 - c) Intake of O_2 .
 - d) Elimination of CO_2 .
70. What are asters made of ?
- a) Collagen.
 - b) Intermediate filaments.
 - c) Microtubules.
 - d) Actin fibres.

71. Which tissues in our body contain abundant desmosomes ?
- a) Liver tissues.
 - b) Muscles.
 - c) Cardiac tissues.
 - d) Nervous tissues.
72. Which of the following antibodies is predominantly present in tears, saliva and mucous ?
- a) IgM.
 - b) IgG.
 - c) IgE.
 - d) IgA.
73. The ability of the immune system to recognise self-antigens versus non self-antigens is an example of :
- a) Specific immunity.
 - b) Tolerance.
 - c) Cell mediated immunity.
 - d) Antigenic immunity.
74. Which of the following immune cells or molecules are most effective at destroying intracellular pathogens ?
- a) T cytotoxic cells.
 - b) T helper cells.
 - c) Complement.
 - d) Antibodies.
75. The only antibody that can cross the placenta is :
- a) IgA.
 - b) IgG.
 - c) IgE.
 - d) IgD.
76. Which of the following barriers are considered to be the first line of defence in our body ?
- a) Physical and physiological barrier.
 - b) Physiological and cellular barriers.
 - c) Cellular and cytokine barriers.
 - d) Physical and cellular barriers.
77. Which of the following technique is used for observing high resolution 3D images of structures in a surface ?
- a) Transmission electron microscopy.
 - b) Scanning electron microscopy.
 - c) Phase contrast microscopy.
 - d) UV microscopy.

78. Western blotting technique is used for the detection of :
- a) Specific DNA.
 - b) Specific RNA.
 - c) Specific protein.
 - d) Specific glycolipid.
79. Which of the following centrifugation is used to separate certain organelles from whole cell ?
- a) Rate- zonal centrifugation.
 - b) Normal centrifugation.
 - c) Differential centrifugation.
 - d) Isopycnic centrifugation.
80. UV rays cause mutation through inducing :
- a) Deletion of pyrimidines.
 - b) Dimerisation of pyrimidines.
 - c) Substitution of purines for pyrimidines.
 - d) Cross linking of purines with pyrimidine.
81. Which of the following wavelength of light is most effective for photosynthesis ?
- a) 100nm-200nm.
 - b) 200nm-300nm.
 - c) 400nm-700nm.
 - d) 700nm-900nm.
82. In Biology Radiocarbon dating technique is used to estimate the age of :
- a) Rocks.
 - b) Fossils.
 - c) Tree.
 - d) Leaf.
83. The respiratory chain of bacteria is associated with the :
- a) Cell membrane.
 - b) Cell wall.
 - c) Cytoplasm.
 - d) Mitochondrial membrane.
84. Protozoa that eat other organisms are known as :
- a) Parasitic.
 - b) Mutualistic.
 - c) Holozoic.
 - d) Saprophytic.

85. What does a viral DNA becomes after being incorporated into the bacterial chromosome ?
- a) Plasmid.
 - b) Prophage.
 - c) Plaque.
 - d) Gene.
86. What is the correct order of staining reagents in gram Staining ?
- a) Crystal violet, alcohol, iodine solution, safranin.
 - b) Crystal violet, iodine solution, alcohol, safranin.
 - c) Crystal violet, safranin, alcohol, iodine solution.
 - d) Iodine solution, crystal violet, alcohol, safranin.
87. Typhoid is caused by :
- a) Pseudomonas typhi.
 - b) Vibrio cholerae.
 - c) Salmonella typhi.
 - d) Staphylococcus typhi.
88. A general increase in the average body mass of animal population within a species with latitude is known as :
- a) Allen's rule.
 - b) Bergmann's rule.
 - c) Allee effect.
 - d) Hamilton's rule.
89. An example of the species Interaction called commensalism is :
- a) Nitrogen fixing bacteria in Association with legume plants roots.
 - b) Microbes in living human gut.
 - c) Female mosquito deriving nourishment from human blood.
 - d) Orchid plant growing on the trunk of a mango tree.
90. Rate of energy storage at consumer level is known as :
- a) Net community productivity.
 - b) Gross primary productivity.
 - c) Net primary productivity.
 - d) Secondary productivity.
91. Hotspots are primarily designated on basis :
- a) Endemism.
 - b) Species diversity.
 - c) Area covered species.
 - d) Flowering plants.

92. Select a non-denitrifying bacterium :
- a) Pseudomonas.
 - b) Thiobacillus.
 - c) Bacillus ramosus.
 - d) Thiobacillus denitrificans.
93. The change of behaviour by life experiences is called :
- a) Instinct.
 - b) Learning.
 - c) Maturation.
 - d) Imprint.
94. The sense of taste and smell use :
- a) Chemoreceptors.
 - b) Photoreceptors
 - c) Mechanoreceptors.
 - d) Both (b) and (c)
95. The behaviour of young ducks following their mother is known as :
- a) Imprinting.
 - b) Innate behaviour.
 - c) Mimicry.
 - d) Habituation.
96. Which is a genetically modified crop :
- a) Bt cotton.
 - b) Bt brinjal.
 - c) Golden rice.
 - d) All of the above.
97. A circular extrachromosomal DNA that replicates independently is known as :
- a) RNA.
 - b) Bacteria.
 - c) Nitrogenous base.
 - d) Plasmid.
98. The standard deviation measures the absolute :
- a) Dispersion.
 - b) Average
 - c) Skewness.
 - d) Kurtosis.
99. In Biostatistics Diagrams are for _____.
- a) The use of exports.
 - b) Better quantitative picture.
 - c) Better mental appeal.
 - d) The use of imports.
100. Insular fauna refers to the fauna of :
- a) Ocean.
 - b) Island.
 - c) Desert.
 - d) Lake.