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Name.....

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CALICUT UNIVERSITY CENTRALIZED ENTRANCE TEST (CU-CET)

APRIL 2025

M.Sc. ZOOLOGY

Time : Two Hours

Maximum : 400 Marks

Each question carries 4 marks.

1 mark will be deducted for each wrong answer.

1. What is the primary difference between classical and modern systematics?
 - (a) Classical systematics is based on evolutionary relationships, while modern systematics is based only on morphology.
 - (b) Classical systematics considers only morphology, while modern systematics incorporates evolutionary and genetic relationships.
 - (c) Classical systematics uses only binomial nomenclature, while modern systematics uses trinomial nomenclature.
 - (d) Modern systematics does not consider fossil records, while classical systematics does.
2. In trinomial nomenclature, what does the third name represent?
 - (a) Genus.
 - (b) Subspecies.
 - (c) Order.
 - (d) Class.
3. What does chemotaxonomy primarily use to classify organisms?
 - (a) Morphological traits.
 - (b) Chemical composition of cells.
 - (c) Evolutionary relationships.
 - (d) Behavioural characteristics.
4. Numerical taxonomy (Phenetics) relies on :
 - (a) Evolutionary relationships.
 - (b) Shared physical characteristics and mathematical algorithms.
 - (c) Antibody reactions.
 - (d) DNA fingerprinting.

Turn over

5. In Whittaker's Five Kingdom classification, fungi are placed in a separate kingdom because they :
- (a) Are photosynthetic.
 - (b) Lack cell walls.
 - (c) Have chitin in their cell walls and are absorptive heterotrophs.
 - (d) Have prokaryotic cells.
6. What are the three kingdoms in Haeckel's classification ?
- (a) Monera, Protista, Fungi.
 - (b) Plantae, Animalia, Monera.
 - (c) Plantae, Animalia, Protista.
 - (d) Monera, Fungi, Animalia.
7. Which phylum has the first appearance of true tissues ?
- (a) Porifera.
 - (b) Cnidaria.
 - (c) Platyhelminthes.
 - (d) Mollusca.
8. Cellular level of organization is found in :
- (a) Porifera.
 - (b) Cnidaria.
 - (c) Platyhelminthes.
 - (d) Arthropoda.
9. Bilateral symmetry first appeared in :
- (a) Cnidaria.
 - (b) Platyhelminthes.
 - (c) Porifera.
 - (d) Echinodermata.
10. Which of the following phyla exhibit radial symmetry ?
- (a) Platyhelminthes.
 - (b) Arthropoda.
 - (c) Echinodermata.
 - (d) Annelida.
11. In deuterostomes, the blastopore develops into :
- (a) Mouth.
 - (b) Anus.
 - (c) Stomach.
 - (d) Coelom.
12. Which of the following is a protostome ?
- (a) Chordata.
 - (b) Echinodermata.
 - (c) Arthropoda.
 - (d) Hemichordata.

13. Which of the following is an example of homologous organs ?
- (a) Wings of bats and birds.
 - (b) Flippers of penguins and dolphins.
 - (c) Forelimbs of a human and a whale.
 - (d) Wings of butterflies and birds.
14. Analogous organs arise due to :
- (a) Convergent evolution.
 - (b) Divergent evolution.
 - (c) Genetic drift.
 - (d) Common ancestry.
15. Protists differ from bacteria because :
- (a) They are multicellular.
 - (b) They have a true nucleus.
 - (c) They lack DNA.
 - (d) They have a rigid cell wall.
16. Which of the following structures help in movement in Protista ?
- (a) Cilia.
 - (b) Flagella.
 - (c) Pseudopodia.
 - (d) All of the above.
17. Which of the following is NOT a characteristic of Protista ?
- (a) Unicellular or simple multicellular organization.
 - (b) Presence of membrane-bound organelles.
 - (c) Cell wall always present.
 - (d) Both autotrophic and heterotrophic modes of nutrition.
18. How do Rhizopods move ?
- (a) Using cilia.
 - (b) Using flagella.
 - (c) Using pseudopodia.
 - (d) Using tentacles.
19. Dinoflagellates are mostly found in :
- (a) Soil.
 - (b) Freshwater.
 - (c) Marine environments.
 - (d) Inside animal bodies.

20. The characteristic feature of Apicomplexa is :
- (a) Presence of flagella.
 - (b) Presence of an apical complex.
 - (c) Multicellular structure.
 - (d) Photosynthetic ability.
21. The function of cilia in Ciliophora is :
- (a) Movement.
 - (b) Capturing food.
 - (c) Sensory function.
 - (d) All of the above.
22. Vorticella is commonly found in :
- (a) Soil.
 - (b) Human intestines.
 - (c) Freshwater environments.
 - (d) Deep oceans.
23. Kingdom Protista includes organisms that are mostly :
- (a) Multicellular and eukaryotic.
 - (b) Unicellular and prokaryotic.
 - (c) Unicellular and eukaryotic.
 - (d) Multicellular and prokaryotic.
24. Dinoflagellates cause which harmful phenomenon in oceans ?
- (a) Coral bleaching.
 - (b) Acidification.
 - (c) Red tides.
 - (d) Oil spills.
25. What is the function of the macronucleus in ciliates ?
- (a) Reproduction only.
 - (b) Controls metabolic functions.
 - (c) Stores DNA.
 - (d) Helps in feeding.
26. Orthonectids, such as *Rhopalura*, are parasites of :
- (a) Vertebrates.
 - (b) Cephalopods.
 - (c) Marine invertebrates.
 - (d) Amphibians.
27. The only class of sponges that includes freshwater species is :
- (a) Calcarea.
 - (b) Demospongiae.
 - (c) Hexactinellida.
 - (d) Hyalospongiae.

28. In which type of canal system does water flow directly into the spongocoel from ostia ?
- (a) Syconoid. (b) Asconoid.
(c) Leuconoid. (d) Rhagonoid.
29. The dominant stage in the life cycle of Class Scyphozoa is :
- (a) Polyp. (b) Medusa.
(c) Planula. (d) Strobila.
30. Which of the following is a unique characteristic of Ctenophores ?
- (a) Nematocysts. (b) Colloblasts.
(c) Radula. (d) Choanocytes.
31. The larval stage of Ctenophores is called :
- (a) Planula. (b) Ephyra.
(c) Cidippid. (d) Trochophore.
32. Members of Class Trematoda are :
- (a) Free-living organisms. (b) Endoparasites with suckers.
(c) Only ectoparasites. (d) Radially symmetrical.
33. Gastrotrichs move by :
- (a) Ciliary gliding. (b) Jet propulsion.
(c) Flagellar movement. (d) Parapodial undulation.
34. The feeding structure present in rotifers is known as :
- (a) Radula. (b) Mastax.
(c) Proboscis. (d) Cnidocytes.
35. Which of the following belongs to Subclass Oligochaeta ?
- (a) *Arenicola*. (b) *Hirudinaria*.
(c) *Megascolex*. (d) *Nereis*.

36. The Heteronereis stage in *Neanthes* (*Nereis*) is associated with :
- (a) Growth and asexual reproduction.
 - (b) Sexual maturity and swarming behaviour.
 - (c) Larval metamorphosis.
 - (d) Dormant cyst formation.
37. Which of the following features makes *Peripatus* evolutionarily significant ?
- (a) Presence of both annelid and arthropod characteristics.
 - (b) Complete absence of segmentation.
 - (c) Ability to photosynthesize.
 - (d) Parasitic mode of life.
38. The main difference between spiders (Araneae) and ticks/mites (Acari) is :
- (a) Spiders have two body segments ; ticks and mites have a fused body.
 - (b) Ticks and mites have eight legs, while spiders have six.
 - (c) Spiders are parasitic, while mites are predatory.
 - (d) Ticks and mites lack exoskeletons.
39. The largest order of insects is :
- (a) Lepidoptera.
 - (b) Coleoptera.
 - (c) Diptera.
 - (d) Hemiptera.
40. The class Bivalvia (Pelecypoda) includes which of the following ?
- (a) *Sepia*.
 - (b) *Perna*.
 - (c) *Neopilina*
 - (d) *Chiton*.
41. Which class of Echinodermata includes feather stars and sea lilies ?
- (a) Asterozoidea.
 - (b) Crinozoidea.
 - (c) Echinozoidea.
 - (d) Ophiurozoidea.
42. What type of feeding mechanism does *Balanoglossus* exhibit ?
- (a) Carnivorous feeding.
 - (b) Filter feeding.
 - (c) Deposit feeding.
 - (d) Parasitic feeding.

43. The *specialized* feeding structure with ciliated tentacles for filter feeding, in phoronids :
- (a) A pair of tentacles. (b) A scolex.
(c) A Radula. (d) A lophophore.
44. Which of the following is a unique feature of *Bonellia*, a member of Phylum Echiura ?
- (a) Proboscis with strong toxins. (b) Extreme sexual dimorphism.
(c) Jointed exoskeleton. (d) Presence of a lophophore.
45. Which of the following is NOT a fundamental characteristic of chordates ?
- (a) Presence of a notochord. (b) Dorsal hollow nerve cord.
(c) Jointed appendages. (d) Pharyngeal gill slits.
46. The three subphyla of Phylum Chordata are :
- (a) Hemichordata, Urochordata, and Cephalochordata.
(b) Urochordata, Cephalochordata, and Vertebrata.
(c) Cephalochordata, Hemichordata, and Vertebrata.
(d) Protochordata, Hemichordata, and Vertebrata.
47. Retrogressive metamorphosis in Urochordates refers to :
- (a) Loss of advanced features in adults.
(b) Progressive development of complex organs.
(c) Gradual transformation into a vertebrate.
(d) Regeneration of lost body parts.
48. The common name of *Branchiostoma* (*Amphioxus*) is :
- (a) Sea squirt. (b) Lancelet.
(c) Lamprey. (d) Hagfish.
49. Which of the following is true about the Ammocoetes larva ?
- (a) It is the larval stage of hagfish (*Myxine*).
(b) It is free-living and resembles *Amphioxus* (*Branchiostoma*).
(c) It has paired fins and a cartilaginous skeleton.
(d) It undergoes direct development without metamorphosis.

50. Which of the following is an example of a cartilaginous fish ?
- (a) Acipenser. (b) Latimeria.
(c) Trygon. (d) Amia.
51. The only living example of Order Crossopterygii (lobe-finned fishes) is :
- (a) Latimeria. (b) Protopterus.
(c) Lepidosiren. (d) Neoceratodus.
52. Which fish is known as the Blind Catfish of Kerala ?
- (a) *Kryptoglanis shajii*.
(b) *Horaglanis krishnai*.
(c) *Monopterus digressus*.
(d) *Aenigmachanna gollum*.
53. Which type of frog species are commonly found in the Western Ghats ?
- (a) Bush frogs. (b) Dancing frogs.
(c) Night frogs. (d) All of the above.
54. The Order Cotylosauria is known as :
- (a) True reptiles. (b) Stem reptiles.
(c) Mammalian reptiles. (d) Aquatic reptiles.
55. The heat-sensing pits in some snakes are called :
- (a) Loreal pits. (b) Parietal pits.
(c) Nasal cavities. (d) Jacobson's organs.
56. Where was the first fossil of *Archaeopteryx* discovered ?
- (a) China. (b) Germany.
(c) India. (d) South America.
57. The only bird species with two toes per foot is :
- (a) Cassowary. (b) Kiwi.
(c) Ostrich. (d) Rhea.

58. Which of the following statements about the Passenger Pigeon is TRUE ?
- (a) It was a solitary bird that lived in small groups.
 - (b) It became extinct in the early 1900s.
 - (c) It was flightless.
 - (d) It was found only in Africa.
59. Which of the following is a primate ?
- (a) Crocidura (Shrew).
 - (b) Macaca (Macaque).
 - (c) Pteropus (Bat).
 - (d) Odobenus (Walrus).
60. The term "Artiodactyla" refers to mammals that have :
- (a) Even-toed hooves.
 - (b) Odd-toed hooves.
 - (c) A trunk.
 - (d) Pouch for carrying young.
61. What is the main advantage of using an oil immersion objective in a light microscope ?
- (a) Increases the resolution by reducing light refraction.
 - (b) Enhances contrast in unstained specimens.
 - (c) Allows imaging of living cells without staining.
 - (d) Increases the magnification without changing resolution.
62. What is the primary purpose of fixation in histology ?
- (a) To increase tissue elasticity .
 - (b) To preserve tissue structure and prevent decay.
 - (c) To enhance staining contrast.
 - (d) To make tissue transparent.
63. Haematoxylin stains which cellular component ?
- (a) Cytoplasm.
 - (b) Lipids.
 - (c) Nucleus.
 - (d) Carbohydrates.
64. Which of the following is a vital stain ?
- (a) Haematoxylin.
 - (b) Eosin.
 - (c) Neutral Red.
 - (d) PAS stain.

65. What are the primary components of the plasma membrane ?
- (a) Proteins and nucleic acids. (b) Lipids, proteins, and carbohydrates.
(c) Carbohydrates and water. (d) Lipids and DNA.
66. Endocytosis is a process in which :
- (a) Large molecules are secreted from the cell.
(b) Water molecules move across the membrane.
(c) The cell engulfs substances into vesicles.
(d) Ions pass through membrane channels.
67. The inheritance of comb pattern in poultry is an example of :
- (a) Complementary genes. (b) Supplementary genes.
(c) Duplicate genes. (d) Epistasis.
68. Polygenic inheritance is best demonstrated by :
- (a) ABO blood groups.
(b) Skin color in humans.
(c) Flower color in snapdragons.
(d) Hemophilia.
69. The ABO blood group system is an example of :
- (a) Polygenic inheritance. (b) Codominance and multiple alleles.
(c) Sex-linked inheritance. (d) Incomplete dominance.
70. In Patau's scheme, how many groups are human chromosomes divided into ?
- (a) 5. (b) 6.
(c) 7. (d) 8.
71. The branch of biotechnology that involves genetic modification for pharmaceutical production is called :
- (a) Industrial biotechnology. (b) Red biotechnology.
(c) Green biotechnology. (d) Blue biotechnology.

72. The first recombinant DNA molecule was created by :

- (a) Watson and Crick .
- (b) Cohen and Boyer.
- (c) Mendel.
- (d) Paul Berg.

73. YAC vectors are used for cloning :

- (a) Small DNA fragments.
- (b) RNA fragments.
- (c) Large DNA fragments.
- (d) Proteins.

74. The process of introducing recombinant DNA into a host cell is called :

- (a) Transformation.
- (b) Transcription.
- (c) Translation.
- (d) Replication.

75. Monoclonal antibodies are produced by :

- (a) Somatic cell fusion of B cells with myeloma cells.
- (b) Mixing different cell cultures.
- (c) Genetically modifying bacterial cells.
- (d) Transferring DNA into host cells.

76. Cystic fibrosis is caused by mutations in which gene ?

- (a) BRCA1.
- (b) CFTR.
- (c) HBB.
- (d) HTT.

77. The first recombinant vaccine approved for human use was for :

- (a) Hepatitis B.
- (b) Polio.
- (c) Tuberculosis.
- (d) Influenza.

78. RAPD (Random Amplified Polymorphic DNA) is a technique used in :

- (a) Gene sequencing.
- (b) Studying genetic variation.
- (c) Protein synthesis.
- (d) Gene therapy.

79. Bioleaching is used to extract :

- (a) Gold and Copper.
- (b) Water.
- (c) Protein.
- (d) Starch.

80. Transgenic fish are mainly developed for :
- (a) Disease resistance.
 - (b) Growth enhancement.
 - (c) Color variation.
 - (d) All of the above.
81. What is a major ethical concern regarding transgenic animals ?
- (a) Environmental impact.
 - (b) Animal welfare concerns.
 - (c) Potential human health risks.
 - (d) All of the above.
82. Viroids are composed of :
- (a) DNA and protein.
 - (b) RNA only.
 - (c) Protein only.
 - (d) Lipids and proteins.
83. Autoclaving is an example of :
- (a) Dry heat sterilization.
 - (b) Moist heat sterilization.
 - (c) Chemical sterilization.
 - (d) Radiation sterilization.
84. Which of the following is an example of a selective medium?
- (a) Blood agar.
 - (b) MacConkey agar.
 - (c) Nutrient agar.
 - (d) Tryptic soy agar.
85. Gram-positive bacteria appear _____ after Gram staining.
- (a) Pink.
 - (b) Blue.
 - (c) Purple.
 - (d) Green.
86. The enzyme glucose isomerase is used for :
- (a) Converting glucose to fructose.
 - (b) Breaking down starch.
 - (c) Breaking down proteins.
 - (d) Synthesizing lipids.

87. Which of the following represents the total energy captured by autotrophs in an ecosystem ?
- (a) Net primary productivity (npp).
 - (b) Gross primary productivity (gpp).
 - (c) Secondary productivity.
 - (d) Ecological Efficiency.
88. In Lindeman's model of energy flow, how much energy is typically transferred from one trophic level to the next ?
- (a) 1 %.
 - (b) 10 %.
 - (c) 25 %.
 - (d) 50 %.
89. Which of the following best describes secondary productivity ?
- (a) Energy produced by autotrophs.
 - (b) Energy assimilated by herbivores and carnivores.
 - (c) The total energy fixed through photosynthesis.
 - (d) The standing biomass of an ecosystem.
90. What is the difference between Gross Primary Productivity (GPP) and Net Primary Productivity (NPP) ?
- (a) NPP accounts for energy lost through respiration.
 - (b) GPP is always less than npp.
 - (c) NPP is the total energy captured by autotrophs
 - (d) GPP is the energy available to herbivores
91. Which term describes the amount of a substance required to kill 50 % of a test population ?
- (a) LC50.
 - (b) LD50.
 - (c) EC50.
 - (d) NOAEL.
92. Which of the following poisons can be classified as a heavy metal toxin ?
- (a) Cyanide.
 - (b) Arsenic.
 - (c) Methanol.
 - (d) Carbon monoxide.

93. What is the primary reason birds migrate ?
- (a) To escape predators.
 - (b) To find suitable breeding and feeding grounds.
 - (c) To avoid competition.
 - (d) To follow magnetic fields.
94. Which insect is known for its highly organized social structure ?
- (a) Butterflies.
 - (b) Termites.
 - (c) Mosquitoes.
 - (d) Dragonflies.
95. Which of the following is an example of a human pheromone ?
- (a) Serotonin.
 - (b) Androstenone.
 - (c) Dopamine.
 - (d) Insulin.
96. What does GIFT stand for in assisted reproductive techniques ?
- (a) Gamete Intra-Fallopian Transfer.
 - (b) General Infertility Fertility Treatment.
 - (c) Genetic Implantation of Female Tissue.
 - (d) Growth Induced Fertility Treatment.
97. Which ART technique involves injecting a single sperm directly into an egg ?
- (a) ZIFT.
 - (b) GIFT.
 - (c) ICSI.
 - (d) IVF.
98. What is the main purpose of peer review in scientific research ?
- (a) To publish research without evaluation.
 - (b) To validate findings through expert evaluation.
 - (c) To allow personal opinions to influence results.
 - (d) To prevent scientists from publishing controversial ideas.
99. Which of the following is a primary nucleotide sequence database ?
- (a) Swiss-Prot.
 - (b) GenBank.
 - (c) Pfam.
 - (d) PROSITE.

100. What is the role of KEGG in bioinformatics ?
- (a) It stores metabolic pathway information .
 - (b) It is a protein structure database.
 - (c) It is a database for genetic disorders.
 - (d) It provides gene sequencing services.