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Name.....

Reg. No.....

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.

Turn over

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*.

Turn over

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) Asteroidea.
- (b) Crinoidea.
- (c) Echinoidea.
- (d) Ophiuroidea.

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.

Turn over

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.

Turn over

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.

Turn over

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.

Turn over

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.