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ENT-12

Total No. of Pages : 18

M.Sc. Entrance Examination, 2025

ZOOLOGY

Subject Code : 58717

Day and Date : Thursday, 15-05-2025

Total Marks : 100

Time : 3.30 p.m. to 5.00 p.m.

Instructions :

- 1) All questions are compulsory.
- 2) Each question carries 1 mark.
- 3) Answers should be marked in the given OMR answer sheet by darkening the appropriate option.
- 4) Follow the instructions given on OMR sheet.
- 5) Rough work shall be done on the sheet provided at the end of question paper.

1. Which is a flagellated protist?

- | | |
|---------------|---------------|
| a. Euglena | b. Vorticella |
| c. Paramecium | d. Genus |

2. The smallest unit of the classification is

- | | |
|------------|-----------|
| a. Family | b. Order |
| c. Species | d. Amoeba |

3. Presence of water vascular system is a characteristic feature of the phylum....

- | | |
|-------------|------------------|
| a. Mollusca | b. Echinodermata |
| c. Annelida | d. Porifera |

4. Loosely packaged, transcriptionally active chromatin is called

- | | |
|--------------------------------|---------------------------------|
| a. Euchromatin | b. Constitutive heterochromatin |
| c. Facultative heterochromatin | d. Inactive DNA |

5. Protein sorting is the function of

- | | |
|------------------|---------------------------------|
| a. Mitochondria | b. Rough endoplasmic reticulum |
| c. Golgi complex | d. Smooth endoplasmic reticulum |

6. Radioactive carbon ^{14}C decays into
- a. Cobalt
 - b. Calcium
 - c. Nitrogen
 - d. Uranium
7. The mosquito responsible for malaria transmission is
- a. *Aedes aegypti*
 - b. *Culex pipiens*
 - c. *Anopheles*
 - d. *Mansonia*
8. The nitrogenous waste excreted by rats is mainly:
- a. Urea
 - b. Ammonia
 - c. Uric acid
 - d. Creatinine
9. of the following correctly represents the central dogma of life.
- a. DNA-Translation-mRNA-ribosome Transcription-Polypeptide
 - b. DNA-mRNA-Ribosome Polypeptide-Translation-Transcription
 - c. DNA--Transcription--mRNA-- Ribosome--Translation-Polypeptide
 - d. DNA-Transcription-Ribosome-Polypeptide-mRNA-translation
10. The karyotype 47, +21 represents syndrome.
- a. Patau
 - b. Edward
 - c. Down
 - d. Turner
11. Pulmonary vein consists ofblood.
- a. Deoxygenated
 - b. oxygenated
 - c. impure
 - d. mixed
12. are the respiratory organs of frog
- a. Skin and lungs
 - b. Skin
 - c. Lungs
 - d. Gills

13. The formation of a new glucose molecule from a non-carbohydrate precursor is called as.....
- a. Glycogenolysis
 - b. Gluconeogenesis
 - c. Glycolysis
 - d. Glycogenesis
14. Which of the following enzyme is important for the first step of beta-oxidation?
- a. Acyl-CoA synthetase
 - b. Acyl-CoA dehydrogenase
 - c. Hydratase
 - d. Thiolase
15. Urea cycle occurs in
- a. Mitochondria of hepatocytes
 - b. Mitochondria of cardiomyocytes
 - c. Mitochondria of enterocytes
 - d. Mitochondria of oligodendrocytes
16. Oxytocin hormone is essential for
- a. Parturition
 - b. Oogenesis
 - c. Spermatogenesis
 - d. Pregnancy
17. Maturation of sperm takes place in
- a. Epididymis
 - b. testis
 - c. fallopian tube
 - d. vas deferens
18. Which of the following is a definitive host?
- a. The host in which the parasite undergoes asexual reproduction
 - b. The host in which the parasite undergoes sexual reproduction
 - c. The host that carries the dormant stage of the parasite
 - d. The host that gets infected accidentally

19. *Rickettsia prowazekii* causes
- a. Epidemic Typhus fever b. Lyme disease
 - c. Cholera d. Tuberculosis
20. The scientific name of mulberry silkworm is:
- a. *Antheraea mylitta* b. *Bombyx mori*
 - c. *Samia Cynthia* d. *Philosamia ricini*
21. The duct of sublingual gland is known as
- a. Bartholin's duct b. Wilson's duct
 - c. Wharton's duct d. Stensen's duct
22. is a deep cup-like depression present in the pectoral girdle for the articulation of the humerus.
- a. acetabulum b. glenoid
 - c. articular facet d. olecranon process
23. The fish scales are derivatives.
- a. Dermal b. Epidermal
 - c. Dermal and epidermal d. Endodermal
24. Pronephric kidney is a functional kidney in
- a. embryos and larval stages of chordates
 - b. cyclostomes
 - c. teleost
 - d. larval amphibians

25. In birds, uropygeal gland is present in
- Beak
 - Tail
 - Alimentary canal
 - Ear
26. A scroll valve is present in
- Small intestine of Scoliodon
 - Small intestine of the rat
 - Large intestine of frog
 - Large intestine of lizard
27. receives pure blood from the lungs
- Right auricle
 - Right ventricle
 - Left auricle
 - Left ventricle
28. During hibernation, frog respire through
- Cutaneous respiration
 - Buccopharyngeal respiration
 - Pulmonary respiration
 - Branchial respiration
29. The RNA polymerase core enzyme converts into a holoenzyme after the addition of thesubunit.
- α
 - β
 - λ
 - σ
30.is the repair system for UV mediated damage of DNA.
- Exchange of homologous segments
 - DNA glycosylase
 - Nucleotide excision repair
 - Photoreactivation

31. *Thermus aquaticus* is a source of
- a. Taq polymerase
 - b. DNA polymerase
 - c. RNA polymerase
 - d. None of these
32. From the Dictionary of genetic codecodons code for amino acids.
- a. 64
 - b. 61
 - c. 3
 - d. 16
33. What is the purpose of nuclear transplantation in cloning? (Biotechniques)
- a. To introduce foreign DNA into an organism
 - b. To replace the nucleus of an egg cell with a donor nucleus
 - c. To stimulate gene knockout in animals
 - d. To modify RNA sequences
34. What is a key limitation of embryonic stem cells?
- a. Their inability to differentiate into multiple cell types
 - b. Ethical concerns associated with their extraction
 - c. Their slow rate of replication
 - d. Their requirement for specialized growth media
35. is the primary goal of genetic modification in crops.
- a. To increase the nutritional value of crops
 - b. To improve shelf life and resistance to pests.
 - c. To create new flavours and textures
 - d. To make crops more resistant to herbicides

36. CRISPR-Cas9 is a (Biotechniques)
- a. new type of genetically modified organism
 - b. gene-editing technology
 - c. method of cross-breeding
 - d. type of herbicide
37. a type of culture in which cells obtained from the tissue of an organism are inoculated and grown in the laboratory.
- a. Primary cell culture
 - b. Secondary cell culture
 - c. Cell lines
 - d. Transformed cell culture
38. Tabulation of data is used to
- a. Determine the probability of genetic disorders
 - b. Convert genetic sequences into tabular formats
 - c. Organize data into structured rows and columns for analysis
 - d. Measure mutation rates in cell cultures
39. Biological dispersion refers to
- a. The frequency of genetic modifications
 - b. The mutation rate in a population
 - c. The enzymatic activity in a cell culture
 - d. The spread of data points around a central value
40. The correlation coefficient indicates
- a. The frequency of mutations in a genetic sequence
 - b. The variance between two biological experiments
 - c. The direction and strength of the relationship between two variables
 - d. The numerical sum of two datasets

41. In ecological term high productive lake is called
- a. polytrophic
 - b. oligotrophic
 - c. eutrophic
 - d. pseudotrophic
42. Which of the following is an example of a lotic environment?
- a. river
 - b. deep sea
 - c. estuaries
 - d. lakes
43. Area of ocean where sunlight penetrates is
- a. abyssal zone
 - b. euphotic zone
 - c. bathyal region
 - d. hadal region
44. Maximum biodiversity is found in ecosystem.
- a. desert
 - b. mangroves
 - c. coral reef
 - d. alpine meadow
45. What is the primary challenge for organisms adapting to the marine environment?
- a. high salinity
 - b. low oxygen level
 - c. osmoregulation
 - d. variable water temperature
46. is example of Zooplankton.
- a. Euglena
 - b. Paramecium
 - c. Daphnia
 - d. Hydrilla
47. it refers to the open sea beyond the Continental Shelf.
- a. Hadal zone
 - b. Littoral zone
 - c. Oceanic zone
 - d. Benthic zone

48. is considered to be a precious coral or red coral.
- a. Soft corals
 - b. Green star corals
 - c. Duncan
 - d. *Corallium rubrum*
49. Arrange the following events of fertilization from start to end.
- I. Acrosome reaction
 - II. Cortical granule reaction
 - III. Amphimixis
 - IV. Fusion of egg and sperm plasma membranes
- a. I, III, IV, II
 - b. II, III, IV, I
 - c. I, IV, II, III
 - d. IV, II, I, III
50. Spemann and Mangold's experiment, in which the dorsal lip of the frog's early gastrula was transplanted on the ventral side, resulted in
- a. Death of the embryo
 - b. Change in the fate of Transplanted cells to ventral epithelium.
 - c. Development of the second body axis
 - d. Development of a normal but large-sized embryo.
51. The first cleavage in the frog egg is.....
- a. Meridional passing through the grey crescent
 - b. Meridional parallel to the grey crescent
 - c. Equatorial
 - d. Horizontal passing slightly above the equatorial plane.

52. The cavity in the chick embryo between the epiblast and hypoblast is
- a. Subgerminal cavity
 - b. Coelom
 - c. Blastocoel
 - d. Archenteron.
53. The extraembryonic membrane developed from somatopleure, forms a fluid-filled sac around the embryo, is
- a. Amnion
 - b. Chorion
 - c. Yolk sac
 - d. Allantois
54. The first attachment of the embryo to the uterine endometrium is mediated bycells.
- a. Polar trophoblast
 - b. Mural trophoblast
 - c. Inner cell mass
 - d. Any random cells
55. Human chorionic gonadotrophin is secreted by
- a. Ovary
 - b. Pituitary gland
 - c. Placenta
 - d. Uterus
56. Which hormone is primarily responsible for triggering the metamorphosis of tadpole into an adult frog? Set I
- a) Prolactin
 - b) Thyroxine
 - c) Growth hormone
 - d) Oxytocin
57. Which among the following is a termination codon.....
- a. AUG
 - b. UUU
 - c. AGA
 - d. UAA
58. Thermocycler is used to carry
- a. ELISA
 - b. PCR
 - c. Ligation
 - d. immobilization

59. During DNA replication, the leading strand shows the following sequence 5' AAGGAATTCCGTG3'. The Lagging strand, which is complementary to the above strand, shows sequence.....
- a. 3' UUCCUUAAGGCAC 5'
 - b. 5' TTCCTTAAGGCAC 3'
 - c. 3' TTCCTTAAGGCAC 5'
 - d. 5' TICCTTAAGGCAC 3'
60. During process of translation amino acids are linked with each other by linkage
- a. Diester bond
 - b. glycosidic bond
 - c. peptide bond
 - d. disulfide bond
61. are popularly known as "Molecular scissors"
- a. Ligases
 - b. DNA Polymerases
 - c. RNA polymerases
 - d. Restriction endonuclease
62. The PCR technique was discovered by
- a. Kary Mullis
 - b. Kohler
 - c. Milstein
 - d. Altman
63. Archaenephros is found in
- a. fishes
 - b. reptiles
 - c. larval cyclostomes
 - d. amphibians
64. The structural and functional unit of vertebrate kidney is
- a) Nephridia
 - b) Seminiferous tubules
 - c) Ureter
 - d) Uriniferous tubule

65. The median of the given data, 3, 7, 4, 5, 2, 6, 8 is
- a. 3
 - b. 4
 - c. 5
 - d. 6
66. What is the role of transgenic animals in pharmaceutical production?
- a. Producing genetically identical crops
 - b. Generating medicines such as insulin and growth hormones
 - c. Enhancing plant disease resistance
 - d. Increasing biodiversity in natural habitats
67. The cavity enclosed by gastrula of frog is.....
- a) Coelom
 - b) Archenteron
 - c) Blastocoel
 - d) Pleural cavity
68. The type of placenta in which villi are developed in the form of a belt is called..... placenta.
- a) Zonary
 - b) Cotyledonary
 - c) Discoidal
 - d) Metadiscoidal
69. Coral reefs are more abundant in
- a. warm ocean
 - b. cold ocean
 - c. estuaries
 - d. lakes
70.is example of Zooplankton.
- a. Euglena
 - b. Paramecium
 - c. Daphnia
 - d. Hydrilla

71. Newborns get their antibodies from mother's milk. This is an example of.....
- a) naturally acquired active immunity
 - b) artificially acquired active immunity
 - c) artificially acquired passive immunity
 - d) naturally acquired passive immunity
72. Hybridoma technology is used to produce.....
- a) monoclonal antibodies
 - b) cytokines
 - c) immunoglobulins
 - d) complement proteins
73. Cell-mediated immunity is carried out by.....while humoral immunity is carried out by.....
- a) B cells/T cells
 - b) Epitopes/Antigens
 - c) T cells/B cells
 - d) Antibodies/Antigens
74. The hormone erythropoietin stimulates red blood cell production in the red bone marrow. Where in the body is erythropoietin produced?
- a. Spleen
 - b. Kidney
 - c. Liver
 - d. Bone marrow
75. B-cells and T-cells are two types of cells involved in
- a. Innate Immunity
 - b. Active immunity
 - c. Passive immunity
 - d. Acquired immunity
76. Which of the following organs is also called as "Graveyard of RBCs"?
- a. Spleen
 - b. Heart
 - c. Bone Marrow
 - d. Liver

77. The antigen binding site on an antibody is called
- a. Antitope
 - b. Epitope
 - c. Paratope
 - d. Endotope
78. Bursa of Fabricius is found in
- a. Pig
 - b. Birds
 - c. Human
 - d. Rhesus monkey
79. Differentiation of T cells takes place in organ
- a. Bone marrow
 - b. Spleen
 - c. Thymus
 - d. Lymph node
80. Which among the antibody is most commonly present antibody in hypersensitivity reaction.....
- a. IgA
 - b. IgG
 - c. IgE
 - d. IgD
81. What is the name of the bee's dance when nectar can be collected in fewer than 100 meters?
- a) Round Dance
 - b) Waggle Dance
 - c) Horizontal Dance
 - d) None of these
82.is the important Greenhouse gas of dairy farm.
- a) Nitrous oxide
 - b) Ammonia
 - c) Methane
 - d) Carbon dioxide
83. Fresh water Prawn belonging to Order
- a) Decapoda
 - b) Isopoda
 - c) Amphipoda
 - d) Stomatopoda

84.is the exotic breed of goat.
- a) Osamanabadi b) Beetle
 - c) Sanen d) Jammu
85. Which layer of the Mantle is the mother of the pearl?
- a) Nacreous b) Periostracum
 - c) Prismatic d) Mental epithelium
86. How many Queen's usually live in a bee colony?
- a) 2 b) 1
 - c) 3 d) 4
87. Liver oil is obtained from
- a) Shark and Cod
 - b) Dolphin and Blue Whale
 - c) Hilsa
 - d) Seahorse
88. Site of insemination in cows is
- a) Uterine cornua b) Mid-cervix
 - c) Fallopian tube d) Vagina
89. Lactobacillus casei is present in
- a) Cheese b) Curd
 - c) Butter d) Creamy Butter
90. is not found in milk.
- a) Vitamin A b) Vitamin B1
 - c) Vitamin B2 d) Vitamin C

91. The QRS complex in an ECG represents:
- a. Atrial depolarization
 - b. Ventricular repolarization
 - c. Ventricular depolarization
 - d. Atrial repolarization
92. Which muscle type is involuntary and striated?
- a. Skeletal muscle
 - b. Cardiac muscle
 - c. Smooth muscle
 - d. None of the above
93. What is the function of neurotransmitters at the synapse?
- a. They store energy
 - b. They transmit signals across neurons
 - c. They digest proteins
 - d. They transport oxygen
94. The gaseous exchange in alveoli is a type of
- a. simple diffusion
 - b. osmosis
 - c. active transport
 - d. passive transport
95. is the term for the wave-like muscular contractions that move food through the digestive system.
- a. Peristalsis
 - b. Segmentation
 - c. Churning
 - d. None of the above
96. Cardiac cycle duration in man is
- a) 0.4 sec
 - b) 0.8 sec
 - c) 1.2 sec
 - d) 1.6 sec

97. The instrument used to measure blood pressure is known as

- a) Electrocardiography b) Barometer
- c) Manometer d) Sphygmomanometer

98. Afferent neurons carry nerve impulses from

- a) CNS to muscles b) CNS to receptors
- c) receptors to CNS d) effector organs to CNS

99. Glomerular area of adrenal cortex is responsible for

- a) Water and electrolyte balance
- b) Steroid hormone secretion
- (c) Blood pressure
- d) Carbohydrate metabolism

100. Calcium, during muscle contraction binds with

- a) Tropomyosin b) TpC
- c) Tpl d) TpT

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