

Code No.

**V – 2333**

**Entrance Examination for Admission to the P.G. Courses in the  
Teaching Departments, 2025**

**CSS**

**AQUATIC BIOLOGY AND FISHERIES/ZOOLOGY (PURE AND APPLIED)/  
INTEGRATIVE BIOLOGY**

For office use only

**General Instructions**

1. The Question Paper is having 100 Objective Questions, each carrying one mark.
2. The answers are to be (✓) 'tick marked' **only** in the "**Response Sheet**" provided.
3. **Negative marking : 0.25 marks** will be deducted for each wrong answer .

**Time : 2 Hours****Max. Marks : 100**

To be filled in by the Candidate

Register Number	in Figures								
	in words								

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Choose appropriate answer from the options in the questions.

**(100 × 1 = 100 marks)**

1. Name the marine organism generally known as Venus flower basket.
  - A. Tapeworm
  - B. Euplectella
  - C. Oscarella
  - D. Cliona

DO NOT WRITE HERE

- 
2. Free-living flat worms devoid of hooks and sucker are usually included in
- |              |                  |
|--------------|------------------|
| A. Trematoda | B. Turbellaria   |
| C. Cestoda   | D. None of these |
3. The excretory organ of Annelids are known as \_\_\_\_\_
- |                |                        |
|----------------|------------------------|
| A. Flame cells | B. Uriniferous tubules |
| C. Nephridia   | D. Nephrostomes        |
4. Waggle dance in honey bees is discovered by
- |                 |                    |
|-----------------|--------------------|
| A. T. H. Morgan | B. Robert Koch     |
| C. I. Pavlov    | D. Karl Von Frisch |



12. The Central Drug Research Institute (CDRI) is located in:  
A. Hyderabad  
B. Lucknow  
C. Bengaluru  
D. Pune
13. The Indian Institute of Science (IISc) is located in:  
A. Mumbai  
B. Chennai  
C. Bengaluru  
D. Kolkata
14. Which centrifugation technique separates cellular components based on density gradients?  
A. Differential centrifugation  
B. Ultracentrifugation  
C. Density gradient centrifugation  
D. Preparative centrifugation
15. Dark field microscopy is particularly useful for observing:  
A. Stained tissue sections  
B. Live, unstained bacteria  
C. Fluorescently labeled cells  
D. Metal-coated specimens
16. Which measure of central tendency is most affected by extreme values?  
A. Mean  
B. Median  
C. Mode  
D. Range
17. Which statistical test compares the means of two independent groups?  
A. Chi-Square test  
B. ANOVA  
C. Student's t-test  
D. Pearson's correlation
18. The standard error of the mean (SEM) decreases with:  
A. Increased sample size  
B. Increased variability  
C. Decreased mean  
D. Skewed distribution
19. What type of sequence would you find in GenBank?  
A. Only DNA  
B. Only protein  
C. Both DNA and protein  
D. Only RNA

20. The FASTA format begins with:
- A. A dollar sign
  - B. A greater-than symbol
  - C. A pound sign
  - D. An asterisk
21. Release of large amount of Sulfur dioxide into the atmosphere is most commonly contributed by:
- A. Tsunamis
  - B. Earthquakes
  - C. Cyclones
  - D. Volcanic eruptions
22. The Kyoto Protocol is an international agreement aimed at:
- A. Preventing deforestation
  - B. Reducing greenhouse gas emission
  - C. Controlling air pollution
  - D. Conserving freshwater resources
23. Lithosphere is represented by:
- A. Air and gases
  - B. Water bodies
  - C. Soil, rocks, and minerals
  - D. Living organisms only
24. What is ecological succession?
- A. The successful adaptation of a species in a given period of time
  - B. The species and habitat in an area change over time
  - C. Elimination of all species in a community
  - D. The random migration of species
25. The Chipko Movement was primarily concerned with:
- A. Air pollution reduction
  - B. River conservation
  - C. Forest conservation
  - D. Wildlife protection

26. What is an ecotone?
- A. A zone of transition between two biological communities
  - B. A region with uniform environmental conditions and species distribution
  - C. An isolated ecosystem with no external influences
  - D. A habitat exclusively occupied by a single species
27. Under which condition does a population exhibit a J-shaped growth curve?
- A. When growth is limited by resource availability
  - B. When environmental resistance controls population size
  - C. When resources are abundant, leading to unchecked exponential growth
  - D. When the population reaches its carrying capacity
28. Which technique is NOT used in proteomics?
- A. 2D gel electrophoresis
  - B. Mass spectrometry
  - C. X-ray crystallography
  - D. PCR amplification
29. RASMOL is primarily used for:
- A. Sequence alignment
  - B. Molecular visualization
  - C. Database searching
  - D. Phylogenetic analysis
30. SNP prediction helps identify:
- A. Protein structures
  - B. Genetic variations
  - C. Drug side effects
  - D. Sequence alignments
31. Which institution is known for drug research in India?
- A. NCBI
  - B. CDRI
  - C. PDB
  - D. DDBJ
32. In phylogenetic trees, branch lengths typically represent:
- A. Physical size
  - B. Evolutionary distance
  - C. Protein weight
  - D. Gene count

33. OMIM database contains information about:
- A. Protein structures
  - B. Metabolic pathways
  - C. Human genes and genetic disorders
  - D. Microbial genomes
34. GENSNIIP is used to predict:
- A. Protein domains
  - B. Single nucleotide polymorphisms
  - C. Phylogenetic relationships
  - D. Drug targets
35. The main advantage of bioinformatics in drug discovery is:
- A. Reduced need for laboratory work
  - B. Faster identification of potential drug candidates
  - C. Elimination of clinical trials
  - D. Lower computer costs
36. Which is the RNA that carries specific amino acid to the ribosome?
- A. rRNA
  - B. siRNA
  - C. tRNA
  - D. mRNA
37. In which stage of cell division, the number of chromosomes become half in a daughter cell?
- A. Mitosis I
  - B. Meiosis I
  - C. Meiosis II
  - D. Mitosis II
38. Which of the following is not a part of prokaryotic cell?
- A. Cell wall
  - B. Ribosomes
  - C. Nuclear membrane
  - D. Plasma membrane
39. Which one of the following is known as suicidal bag?
- A. Golgi bodies
  - B. Lysosomes
  - C. Lysozymes
  - D. Mitochondria

- V - 2333



47. Epistasis involves interaction between:
- A. Two alleles of the same gene
  - B. Two different genes
  - C. A gene and the environment
  - D. Dominant and recessive alleles
48. Polygenic inheritance is best illustrated by:
- A. ABO blood groups
  - B. Human skin color
  - C. Kappa particles in Paramecium
  - D. Sex-linked traits
49. Turner syndrome is characterized by:
- A. 47 XXY
  - B. 45 X
  - C. 47 XYY
  - D. 47 XXX
50. Kappa particles in Paramecium are an example of:
- A. Cytoplasmic inheritance
  - B. Sex-linked inheritance
  - C. Polygenic inheritance
  - D. Epistasis
51. Which enzyme is essential for joining DNA fragments in recombinant DNA technology?
- A. DNA polymerase
  - B. Ligase
  - C. Helicase
  - D. Restriction enzyme
52. In gene cloning, a "vector" refers to:
- A. A DNA probe
  - B. A carrier DNA molecule for gene transfer
  - C. A type of restriction enzyme
  - D. A host cell
53. The Polymerase Chain Reaction (PCR) requires all of the following EXCEPT:
- A. DNA template
  - B. RNA polymerase
  - C. Primers
  - D. Taq polymerase

54. Southern blotting is used to detect:
- A. DNA
  - B. RNA
  - C. Proteins
  - D. Carbohydrates
55. DNA fingerprinting is based on variations in:
- A. Mitochondrial DNA
  - B. Short tandem repeats (STRs)
  - C. Ribosomal RNA
  - D. Plasmid DNA
56. Hybridoma technology is used to produce:
- A. Recombinant DNA
  - B. Monoclonal antibodies
  - C. Transgenic plants
  - D. DNA vaccines
57. DNA vaccines work by:
- A. Injecting killed pathogens
  - B. Delivering plasmid DNA encoding antigens
  - C. Using monoclonal antibodies
  - D. Editing the host genome
58. Therapeutic cloning aims to:
- A. Produce genetically identical humans
  - B. Generate stem cells for medical treatments
  - C. Create transgenic animals
  - D. Sequence DNA faster
59. A major ethical concern in biotechnology is:
- A. The cost of PCR machines
  - B. Unintended ecological effects of GMOs
  - C. The discovery of restriction enzymes
  - D. The use of agarose gel electrophoresis

60. The key difference between a genomic library and a cDNA library is that:
- A. cDNA libraries contain only expressed genes
  - B. Genomic libraries are smaller
  - C. cDNA libraries use bacterial DNA
  - D. Genomic libraries cannot be cloned
61. Identify the macrophage cells seen in the liver tissue
- A. Alveolar macrophages
  - B. Mesangial cells
  - C. Kupffer cells
  - D. Histiocytes
62. The process in which an immune cells engulf and digests the pathogenic substances?
- A. Exocytosis
  - B. Phagocytosis
  - C. Pinocytosis
  - D. Degranulation
63. Which of the following is a primary lymphoid organ?
- A. Bone marrow
  - B. Tonsils
  - C. Spleen
  - D. Lymph node
64. Cells which are responsible for producing antibodies?
- A. Basophils
  - B. Neutrophils
  - C. T cells
  - D. B cells
65. HIV belongs to which virus family?
- A. Picornaviridae
  - B. Flaviviridae
  - C. Retroviridae
  - D. Filoviridae
66. Which type of bacteria have strong peptidoglycan layer in their cell wall?
- A. Gram-negative bacteria
  - B. Gram-positive bacteria
  - C. Eubacteria
  - D. Archaeobacteria

67. Which bacteria is commonly used in production of yogurt?
  - A. *Proteus vulgaris*
  - B. *Lactobacillus lactis*
  - C. *Lactobacillus bulgaricus*
  - D. *Pseudomonas aeruginosa*
68. The protest which is primarily known as the bio- indicator of water pollution?
  - A. Dinoflagellate
  - B. Euglena
  - C. Paramecium
  - D. Amoeba
69. Which of the following is a major osmoregulatory challenge for freshwater fishes?
  - A. Water loss and salt gain
  - B. Water gain and salt loss
  - C. Salt gain and water gain
  - D. Equal water and salt exchange
70. Homeotherms regulate body temperature primarily through
  - A. Behavioral thermoregulation
  - B. Poikilothermy
  - C. Metabolic heat production
  - D. Ectothermy
71. The respiratory chain is located in:
  - A. Cytoplasm
  - B. Endoplasmic reticulum
  - C. Inner mitochondrial membrane
  - D. Golgi apparatus
72. Which lipid is a precursor to steroid hormones?
  - A. Triglyceride
  - B. Cholesterol
  - C. Phospholipid
  - D. Sphingolipid
73. The TCA cycle occurs in the:
  - A. Cytosol
  - B. Endoplasmic reticulum
  - C. Mitochondrial matrix
  - D. Nucleus

74. Which structure in the nephron is key to selective reabsorption?
- A. Bowman's capsule
  - B. Proximal convoluted tubule
  - C. Loop of Henle
  - D. Collecting duct
75. What is a Graafian follicle?
- A. A structure in the male reproductive system that produces sperm.
  - B. A fluid-filled sac in the ovary that contains a developing oocyte.
  - C. A hormone secreted by the pituitary gland
  - D. A type of blood vessel found in the uterus
76. Which of the following types of radiation is known to increase the risk of congenital anomalies?
- A. Ionizing radiation
  - B. Non-ionizing radiation
  - C. Ultraviolet radiation
  - D. X-ray radiation
77. The ability of a cell to differentiate into any cell type in the body:
- A. Multipotency
  - B. Pluripotency
  - C. Unipotency
  - D. Totipotency
78. Developmental abnormalities caused by exogenous agents are known as
- A. Teratogens
  - B. Carcinogens
  - C. Environment pollutants
  - D. Zymogens
79. The mRNAs that encode transcriptional and translational regulatory proteins that diffuse through the syncytial blastoderm and activate or repress zygotic genes?
- A. Pair-rule genes
  - B. Maternal effect genes
  - C. Homeotic selector genes
  - D. Segment polarity genes
80. Regeneration of a limb or tail in salamander:
- A. Morphallactic regeneration
  - B. Epimorphic regeneration
  - C. Compensatory regeneration
  - D. Complete regeneration

81. Chemical signals between individuals of the same species:
- A. Hormones
  - B. Kineses
  - C. Pheromones
  - D. Dewlaps
82. Learning to not respond to a stimulus is
- A. Imprinting
  - B. Sensitization
  - C. Taxis
  - D. Habituation
83. The uses cognitive or mental processes to associate experiences and solve problems are called
- A. Insight
  - B. Instinct
  - C. Maturation
  - D. Habituation
84. The interaction in which an individual gives up or sacrifices some of its own reproductive potential to benefit another individual is:
- A. Agnostic
  - B. Territory
  - C. Hierarchy
  - D. Altruism
85. The Hardy-Weinberg concept states that
- A. Mating must be based on specific selection criteria
  - B. Migration of individual organisms into and out of a population must be kept below 1%
  - C. All genes must have an equal chance of being passed on
  - D. Mutations must be identified and factored into the formula
86. The evolutionary explosion of a new Species from a common ancestor is known as
- A. Convergent evolution
  - B. Adaptive radiation
  - C. Competitive exclusion
  - D. Divergent evolution

87. The scientific name of “Man of future” is
- A. *Homo sapiens sapiens*
  - B. *Homo sapiens advances*
  - C. *Homo sapiens futuralis*
  - D. *Homo sapiens modernis*
88. The most diverse biological region of earth is,
- A. Australian region
  - B. Ethiopian region
  - C. Neotropical region
  - D. Palearctic region
89. Which dietary modification is most suitable for a diabetic patient?
- A. Increased intake of refined sugar
  - B. Consumption of a high-fibre, low-glycaemic diet
  - C. High intake of processed foods
  - D. Eating excessive saturated fats
90. Which mental health disorder is characterized by persistent, intrusive thoughts and repetitive behaviors?
- A. Schizophrenia
  - B. Obsessive-compulsive disorder (OCD)
  - C. Bipolar disorder
  - D. Generalized anxiety disorder
91. What is the role of the epididymis in the male reproductive system?
- A. Production of sperm
  - B. Storage and maturation of sperm
  - C. Secretion of testosterone
  - D. Fertilization of the egg
92. In which of the following assisted reproductive techniques, fertilized embryos are transferred into the fallopian tube?
- A. IVF
  - B. GIFT
  - C. ZIFT
  - D. ICSI





# RESPONSE SHEET

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E
17	A	B	C	D	E
18	A	B	C	D	E
19	A	B	C	D	E
20	A	B	C	D	E
21	A	B	C	D	E
22	A	B	C	D	E
23	A	B	C	D	E
24	A	B	C	D	E
25	A	B	C	D	E
26	A	B	C	D	E
27	A	B	C	D	E
28	A	B	C	D	E
29	A	B	C	D	E
30	A	B	C	D	E
31	A	B	C	D	E
32	A	B	C	D	E
33	A	B	C	D	E
34	A	B	C	D	E
35	A	B	C	D	E
36	A	B	C	D	E
37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E
40	A	B	C	D	E
41	A	B	C	D	E
42	A	B	C	D	E
43	A	B	C	D	E
44	A	B	C	D	E
45	A	B	C	D	E
46	A	B	C	D	E
47	A	B	C	D	E
48	A	B	C	D	E
49	A	B	C	D	E
50	A	B	C	D	E
51	A	B	C	D	E
52	A	B	C	D	E
53	A	B	C	D	E
54	A	B	C	D	E
55	A	B	C	D	E
56	A	B	C	D	E
57	A	B	C	D	E
58	A	B	C	D	E
59	A	B	C	D	E
60	A	B	C	D	E
61	A	B	C	D	E
62	A	B	C	D	E
63	A	B	C	D	E
64	A	B	C	D	E
65	A	B	C	D	E
66	A	B	C	D	E
67	A	B	C	D	E
68	A	B	C	D	E
69	A	B	C	D	E
70	A	B	C	D	E
71	A	B	C	D	E
72	A	B	C	D	E
73	A	B	C	D	E
74	A	B	C	D	E
75	A	B	C	D	E
76	A	B	C	D	E
77	A	B	C	D	E
78	A	B	C	D	E
79	A	B	C	D	E
80	A	B	C	D	E
81	A	B	C	D	E
82	A	B	C	D	E
83	A	B	C	D	E
84	A	B	C	D	E
85	A	B	C	D	E
86	A	B	C	D	E
87	A	B	C	D	E
88	A	B	C	D	E
89	A	B	C	D	E
90	A	B	C	D	E
91	A	B	C	D	E
92	A	B	C	D	E
93	A	B	C	D	E
94	A	B	C	D	E
95	A	B	C	D	E
96	A	B	C	D	E
97	A	B	C	D	E
98	A	B	C	D	E
99	A	B	C	D	E
100	A	B	C	D	E

## **ROUGH WORK**

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