

**B.Sc. ZOOLOGY**  
**FIFTH SEMESTER (SPECIAL REPEAT)**  
**FISH & FISHERY**  
**BSZ-503**

**SET**  
**A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

**(Objective)**

*Choose the correct answer from the following:*

*1 × 20 = 20*

1. Swim bladder is absent in:
  - a. Bony fishes
  - b. Cartilaginous fishes
  - c. Surface dwelling fishes
  - d. None of the above
2. Bioluminescence in fishes is used mainly for the purpose of:
  - a. Attack
  - b. Self defence
  - c. Both a and b
  - d. None of the above
3. Since the objective of pen farming is to utilize the natural productivity of the water body, the role of supplementary feeding is:
  - a. Necessary
  - b. Marginal
  - c. Both
  - d. None of the above
4. Cartilaginous fishes are:
  - a. Placoderms
  - b. Acanthodians
  - c. Chondrichthytes
  - d. Osteichthytes
5. The normal doses of the lime desired in composite fish culture ranges from:
  - a. 200 to 250 Kg/ha.
  - b. 6000 to 7000 Kg per ha
  - c. 600 to 6000 Kg per ha
  - d. 777 to 888 Kg per ha
6. In composite fish culture a feeding rate of:
  - a. 2-3% of body weight of fish is generally recommended
  - b. 5% of body weight of fish is generally recommended
  - c. 9% of body weight of fish is generally recommended
  - d. 10% of body weight of fish is generally recommended
7. Anchor worm is also known as:
  - a. Lenea
  - b. Lernea
  - c. Lina
  - d. None of the above
8. Which gene detects any changes in cells?
  - a. Ring finger protein
  - b. Reporter gene
  - c. Immune response gene
  - d. Hedgehog genes
9. Studying the otoliths gives an idea about:
  - a. Sex of fish
  - b. Age of fish
  - c. Weight of fish
  - d. Length of fish

10. Migration may be defined as mass movement of fishes on:
  - a. Temporary or permanent basis
  - b. Onward migration below
  - c. Forward migration above
  - d. Backward migration below
11. A continuous dorsal, caudal and anal fin is found in the order:
  - a. Pleuronectiformes
  - b. Anguiliformes
  - c. Clupeiformes
  - d. Echeniformes
12. Which among these is not an adaptation for efficient gas exchange in gills?
  - a. Thickened cells
  - b. Permeable membrane
  - c. Large surface area
  - d. Vascular supply
13. Neurotoxins are commonly found in:
  - a. Clupeids
  - b. Sea horses
  - c. Puffers
  - d. Eels
14. Lungfishes have \_\_\_\_\_ scales.
  - a. Ctenoid
  - b. Placoid
  - c. Ganoid
  - d. Cosmoid
15. Which of these organs acts as a resonator in association with the swim bladder in fish?
  - a. Webberian ossicles
  - b. Otoliths
  - c. Larynx
  - d. Gills
16. Which among these is a daily practiced migration among fishes?
  - a. Horizontal
  - b. Curved
  - c. Vertical
  - d. Spherical
17. Suppose a fish Species A is practising a defined innate behavioural migration from a river to sea using a particular route annually for breeding and spawning purpose. This migration leads to a transition of the fish from one to another state. What physiological changes do you expect to see in the fish after reaching its destined environment?
  - a. Excess salt is excreted
  - b. Excess ammonia is secreted
  - c. Excess water is secreted
  - d. Both water and salt are excreted in equal volume
18. Mouth fungus diseases is caused from the bacterium:
  - a. *Chlorococcus columnaris*
  - b. *Aeromonus hydrophila*
  - c. *Chlorococcum bucalaris*
  - d. *Myxobolus sps*
19. Whirling disease in *Cirrhinus mrigala* (Ham) observed by Maheswari (1986) has been attributed to a protozoan parasite:
  - a. *Myxosoma cerebralis*
  - b. *Aeromonus hydrophila*
  - c. *Bacterium falcipurum*
  - d. *Dactylogorus*
20. Due to excessive deforestation the problem of soil erosion and siltation is increasing as a result water level is:
  - a. Increasing
  - b. Decreasing
  - c. Increasing as well as decreasing
  - d. None of the above

**( Descriptive )**

Time : 2 hr. 30 mins.

Marks : 50

[ Answer question no.1 & any four (4) from the rest ]

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| 1. Discuss some of the fish diseases prevalent in India citing suitable examples.   | 10       |
| 2. What is fish migration? What are the different types of migration? Mention each with suitable examples.  | 3+7=10   |
| 3. What is pen culture? Discuss pen culture practiced in NE India highlighting the advantages.  | 2+8=10   |
| 4. What is composite fish culture? Discuss briefly about composite fish practice in India citing suitable examples.   | 2+8=10   |
| 5. Define transgenic animals. Mention the different types of gene transfer in a cell with major focus on the widely accepted technique.   | 3+7=10   |
| 6. What is a swim bladder and their significance? Mention the various types according to position, size and shape with neat diagrams.   | 4+6=10   |
| 7. What is counter current exchange in fishes? Mention the various significant exchange systems found in fishes with diagrammatic representation. Also explain the other biological significance of this mechanism. | 2+5+3=10 |
| 8. What is fish preservation? Mention some methods of fish preservation and add a note on "Canning process of fish preservation".   | 1+5+4=10 |

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