

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

(Use separate answer scripts for Objective & Descriptive)

Duration : 3 hrs.

Full Marks : 70

( PART-A : Objective )

Time : 20 min.

Marks : 20

*Choose the correct answer from the following:*

*1X20=20*

1. A continuous dorsal, caudal and anal fin is found in the order
  - a. Pleuronectiformes
  - b. Anguiliformes
  - c. Clupeiformes
  - d. Echeniformes
2. 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
3. Neurotoxins are commonly found in
  - a. Clupeids
  - b. Sea horses
  - c. Puffers
  - d. Eels
4. Lungfishes have \_\_\_\_\_ scales.
  - a. Ctenoid
  - b. Placoid
  - c. Ganoid
  - d. Cosmoid
5. 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
6. Which among these is a daily practiced migration among fishes?
  - a. Horizontal
  - b. Curved
  - c. Vertical
  - d. Spherical
7. 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
8. Mouth fungus diseases is caused from the bacterium
  - a. *Chlorococcus columnaris*
  - b. *Aeromonus hydrophila*
  - c. *Chlorococcum bucalaris*
  - d. *Myxobolus sps*
9. 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*

10. 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.
11. Swim bladder is absent in
  - a. Bony fishes
  - b. Cartilaginous fishes
  - c. Surface dwelling fishes
  - d. None of the above
12. 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
13. 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
14. Cartilaginous fishes are:
  - a. Placoderms
  - b. Acanthodians
  - c. Chondrichthytes
  - d. Osteichthytes
15. 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
16. 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
17. Anchor worm is also known as
  - a. Lenea
  - b. Lernea
  - c. Lina
  - d. None of the above
18. Which gene detects any changes in cells?
  - a. Ring finger protein
  - b. Reporter gene
  - c. Immune response gene
  - d. Hedgehog genes
19. Studying the otoliths gives an idea about
  - a. Sex of fish
  - b. Age of fish
  - c. Weight of fish
  - d. Length of fish
20. 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

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**( PART-B : Descriptive )**

Time : 2 hrs. 40 min.

Marks : 50

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

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| 1. What is fish migration? What are the different types of migration? Mention each with suitable examples.  | 3+7=10   |
| 2. Write a note on role of water quality in Aquaculture.  | 10       |
| 3. Discuss some of the fish diseases prevalent in India citing suitable examples.   | 10       |
| 4. What is fish preservation? Mention some methods of fish preservation and add a note on "Canning process of fish preservation".                         | 1+5+4=10 |
| 5. What is air bladder? Mention the various significance of air bladder in different habitat sustaining fishes along with their difference in structures. | 2+8=10   |
| 6. What is composite fish culture? Discuss briefly about composite fish practice in India citing suitable examples.                                       | 2+8=10   |
| 7. What is pen culture? Discuss pen culture practiced in NE India highlighting the advantages.  | 2+8=10   |
| 8. What is ornamental or Aquarium fish? Write a note on Maintenance and care of aquarium.   | 3+7=10   |

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