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**M.Sc. (Fourth Semester)
EXAMINATION, May - June, 2022**

ZOOLOGY

(Optional Group - A)

Paper Third

(FISH (Ichthyology) Structure and Function)

Time : Three Hours]

[Maximum Marks : 80

Note: Attempt all sections as directed.

(Section - A)

(Objective/Multiple Choice Questions)

(1 mark each)

Note: Attempt all questions: Choose the correct answer:

1. Lampreys living in the ocean migrate for spawning to:
 - (A) Sea
 - (B) Estuaries
 - (C) Fresh water
 - (D) No where

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2. Rhinnobatus is a common:
 - (A) Electric ray
 - (B) Skate
 - (C) Sting ray
 - (D) Bony fish
3. Higher bony fishes are included in subclass:
 - (A) Holocephali
 - (B) Elasmobranchii
 - (C) Sarcopterygii
 - (D) Actinopterygii
4. Rhomboid scales occur in:
 - (A) All bony fish
 - (B) All cartilagenais fish
 - (C) Sturgeons
 - (D) Reed fishes
5. Thrust acts in direction:
 - (A) Forward
 - (B) Backward
 - (C) Side to side
 - (D) None

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6. The following fish are facultative air breathers:

- (A) Clarias
- (B) Ophiocephalus
- (C) Saccobranchus
- (D) All of the above

7. The gas secreting complex consists of :

- (A) The gas gland and Rete mirabile
- (B) The gas bladder
- (C) Oval
- (D) All of the above

8. The largest of the weberian apparatus is the:

- (A) Intercalarium
- (B) Tripus
- (C) Scaphium
- (D) None

9. Which of the following animals are amonotelic:

- (A) Fresh water fish
- (B) Africal lung fish in aestivation
- (C) Mono tremes
- (D) Mammals

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10. Which of the following is not a digestive gland:

- (A) Liver
- (B) Pancreas
- (C) Intestinal caeca
- (D) All of them

11. Carp (*Cyprinus carpio*) belongs to the following category:

- (A) Lithophil
- (B) Phytophil
- (C) Psammophil
- (D) Pelagophil

12. Hissing of cat sound produced by:

- (A) Electric cat fish
- (B) Drum fish
- (C) Hippocampus
- (D) Coffe fish

13. Which factors affect growth:

- (A) Temperature of water
- (B) Population density of fish
- (C) Age of fish
- (D) All

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14. In which of the following fish the eggs are not incubated in the mouth?
- (A) *Galeichthys felis*
 - (B) *Tilapia*
 - (C) *Apogon*
 - (D) *Tor putitora*
15. The ampullar of Lorenzini occur in:
- (A) Sharks and rays
 - (B) Minnows
 - (C) All fishes
 - (D) All bony fishes
16. Fish families in which luminescence is of bacterial origin include:
- (A) *Gadidae*
 - (B) *Monocentridae*
 - (C) *Macrouridae*
 - (D) All of the above
17. Which of the following fish are anadromous:
- (A) *Angrilla*
 - (B) Pacific Salmons
 - (C) Mackerels
 - (D) Tunas

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18. An increase in adhesive surface is also possible by a close application of paired fins to the substratum as in the following fish except:
- (A) *Noemacheilus*
 - (B) *Homaloptera*
 - (C) *Garra*
 - (D) *Tor* species
19. One physical condition of deep sea is:
- (A) Low temperature and high pressure
 - (B) High temperature and high pressure
 - (C) Low temperature and low pressure
 - (D) High temperature and low pressure
20. In allometric growth:
- (A) Fish increases length
 - (B) Fish increases width
 - (C) Fish increases weight
 - (D) None

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Section - B
(Very Short Answer Type Questions)

(2 marks each)

Note: Attempt all questions in two or three sentences.

1. Explain the external features of lamprey. Only 2 characters.
2. Define Rays.
3. Define Chromatophores.
4. Explain gas glands.
5. Explain Type I kidney.
6. Give 2 examples of venomous fishes.
7. Explain viviparous fishes.
8. Explain Ampullary organ.

Section - C

(Short Answer Type Questions)

(3 marks each)

Note: Attempt at questions in 75 words.

1. Explain the characters of Dipnoi.
2. Explain the alimentary canal of fry.
3. Explain the histology of testis of fish.
4. Explain the condition factor.
5. Explain hair cells.
6. Explain anguilliform type of locomotion.
7. Explain the adaptations in Benthic fishes.
8. Explain the oceanodromous fish migration.

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Section - D
(Long Answer Type Questions)

(5 marks each)

Note: Attempt all questions in 150 words.

1. Describe the feeding habits of Teleosts.

OR

Explain the classification of Teleost up to order.

2. Explain different types of Accessory respiratory organs.

OR

Describe the structure and functions of air bladder.

3. Explain the Luminous organs of fishes.

OR

Explain the different conditions in deep sea fishes.

4. Explain the sexual cycle in fishes.

OR

Describe the early development of fishes.

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