

**M.Sc. 1st Semester Examination, 2019**

**FISHERIES SCIENCE**

**PAPER – FSC-103(Unit-I & II)**

*Full Marks : 40*

*Time : 2 hours*

*The figures in the right hand margin indicate marks  
Candidates are required to give their answers in their  
own words as far as practicable*

*Illustrate the answers wherever necessary*

**Write the answers to questions of each Unit  
in separate books wherever necessary**

**UNIT—I**

*(Anatomy and Physiology of Fishes )*

1. Answer any *two* questions : 2 × 2
- (a) Distinguish between gastric and agastric fishes.

(b) Enlist different components found in fish blood.

(c) State the functions of fish lymphocytes.

(d) What are gastrointestinal hormone of fish ?

2. Answer any *two* questions : 4 × 2

(a) Briefly explain the structure of gills in any bony fishes.

(b) Briefly narrate the pituitary structure of Lamprey and Hagfish.

(c) Describe the process of fish blood formation or haematopoiesis.

(d) Discuss in brief the accessory respiratory structure of *Clarias sp.*

3. Answer any *one* question : 8 × 1

(a) (i) What is endocrine gland ?

- (ii) Compare among osmoregulatory mechanism of catadromous and anadromous fishes.
- (iii) Write a brief note on thyroid gland of fishes. 2 + 4 + 2
- (b) (i) What is fertilization ?
- (ii) State the functions of fertilization membrane.
- (iii) Briefly describe the process of organogenesis of fishes with diagram. 2 + 1 + (3 + 2)

### UNIT-II

#### *(Anatomy and Physiology of Shell fishes)*

4. Answer any two questions : 2 × 2
- (a) What podobranch or foot gills and arthrobranch or joint gills ?
- (b) Briefly explain the food and feeding mechanism of any one crustacean.

- (c) Enlist name of arteries involved in prawn circulation.
- (d) State the mechanism of respiration of fresh-water prawn.

5. Answer any *two* questions : 4 × 2

- (a) Briefly explain the structure and functions of hepatopancreas.
- (b) Describe the blood and its course of circulation in *Macrobrachium rosenbergii*.
- (c) Explain the organogenesis process of any one shell fishes with diagram.
- (d) Describe in brief the structure of stomach in any crustacean with diagram.

6. Answer any *one* question : 8 × 1

- (a) (i) Briefly describe the digestive system of freshwater mussel with diagram.

- (ii) Write a brief note on digestion and absorption of food particles of any one shell fishes.  $(3 + 2) + 3$
- (b) (i) Give an account on the circulatory system of freshwater mussel with proper diagram.
- (ii) Briefly narrate the excretory system of freshwater mussel.  $(3 + 2) + 3$
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