

**CSM—30/22**  
**FISHERY SCIENCE**  
**PAPER—I**

Candidate  
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write on  
this margin.

**Time : 3 Hours**

**Full Marks : 250**

*The figures in the right-hand margin indicate marks.*  
*Candidates should attempt **any 10 (ten)** questions of*  
**GROUP—A** *with word limit of 250 words and should*  
*attempt **any 5 (five)** questions from **GROUP—B***  
*with word limit of 300 words.*

**GROUP—A**

Answer *any ten* questions :

15×10=150

1. Answer *any one* of the following :
  - (a) Write about reproductive system of Indian Major Carps.
  - (b) Elaborate the structure and function of pituitary gland in fisheries.
2. Explain about gel electrophoresis and its application in fisheries.
3. Describe about bacterial diseases of freshwater finfish.
4. Write short notes on the following :
  - (a) Beta oxidation of fatty acid
  - (b) CRZ
  - (c) Coastal upwelling
5. Describe about different designs of experiment.
6. Describe the breeding biology of freshwater prawn.
7. Write short notes on the following :
  - (a) Eyestalk ablation
  - (b) ATP cycles
  - (c) Growth overfishing

8. Explain about different growth models used in fish population dynamics.
9. Describe about different extension teaching methods.
10. Write a note on Odisha Fisheries Act.
11. Write short notes on the following :
- (a) Poisson distribution
  - (b) Coral reef
  - (c) Market equilibrium
12. Answer *any one* of the following :
- (a) Write a short note on Supply Chain Management or Hypothesis.
  - (b) Describe about major exploited marine fisheries of India.

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#### **GROUP—B**

Answer *any five* questions :

20×5=100

13. Answer *any one* of the following :
- (a) Describe about vertical migration of zooplankton.
  - (b) Answer *any three* of the following :
    - (i) Nitrogen cycle
    - (ii) Gram staining
    - (iii) Types of macrophytes
    - (iv) Biofloc technology
14. Answer *any one* of the following :
- (a) Write a note on composite fish culture.
  - (b) Elaborate the life cycle of shrimp.
15. (a) Write about the cold water fisheries in India.  
(b) Describe about secondary sexual characters of finfish.  
(c) Write a note on disaster management cycle.
16. Write a note on measures of central tendency.

17. Answer *any one* of the following :

- (a) Write about different physical properties of sea water.
- (b) Write about the factors affecting the choice and use of extension methods.
- (c) What are the principle and objectives of cooperatives?

18. Answer *any one* of the following :

- (a) Mention the problems and remedial measure for growth of fisheries cooperatives.
- (b) Write down the method of decapsulation of *Artemia* cysts.

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