

<b>CSM – 28/20</b>
<b>Fisheries Science</b>
<b>Paper – I</b>

*Time : 3 hours*

*Full Marks : 300*

*The figures in the right-hand margin indicate marks.*

*Candidates should attempt Q. No. 1 from  
Section – A and Q. No. 5 from Section – B  
which are compulsory and any **three** of  
the remaining questions, selecting  
at least **one** from each Section.*

**SECTION – A**

1. Answer any **three** of the following :    20×3 = 60
  - (a) Discuss the role of fisheries and aquaculture in human health.
  - (b) Give an account of family stromatidae.
  - (c) Write a note on Potential Fishing Zone (PFZ) disseminated by INCOIS in India.
  - (d) How age of fish is determined ? Describe the procedures of age determination in fish.

2. (a) Describe the appendages in shrimp. 20
- (b) Write short notes on the following : 20
- (i) Formation of gametes in fish
  - (ii) The Chilika Lake
  - (iii) Fat soluble vitamins
  - (iv) Prokaryotic cell
- (c) Explain the life cycle of shrimp. 20
3. (a) Give brief review of fisheries education in India. 20
- (b) Write short notes on the following : 20
- (i) Binomial nomenclature
  - (ii) Sexual dimorphism
  - (iii) Unit stock
  - (iv) Glycolysis
- (c) Osmoregulation in Pisces. 20
4. (a) Discuss parental care in fishes. 20
- (b) Write short notes on the following : 20
- (i) Disaster affecting fisheries and aquaculture

- (ii) Surplus production model
- (iii) Control of microorganisms through physical and chemical agent
- (iv) DNA structure
- (c) Describe tagging in fish. 20

### SECTION – B

5. Answer any **three** of the following :

- (a) Write note on marine food web. 20
- (b) Write short notes on the following : 20
  - (i) Bioaccumulation
  - (ii) Phytoplankton
  - (iii) NATP
  - (iv) Tsunami
- (c) Discuss the operating strategies in "State Reservoir Fishery Policy of Odisha". 20
- (d) Describe the topographic features of the sea bottom. 20

6. (a) Explain the classification of lakes on the basis of trophic levels. 20

- (b) Give brief account of marketing intermediaries in fish marketing channels in India. 20
- (c) Discuss steps involved in extension programme planning. 20
7. (a) Elaborate measures of central tendency. 20
- (b) Describe the division of marine environment. 20
- (c) What is Exclusive Economic Zone (EEZ) ? Explain rights of country in the EEZ. Discuss Territorial Waters and Contiguous Zone with right of country. 20
8. (a) Discuss scope of Economics. 20
- (b) Write short notes on the following : 20
- (i) Cluster sampling
- (ii) Stratified sampling
- (iii) Radioactivity and Radiation
- (iv) Coral reef
- (c) Describe carbon dioxide cycle in Aquatic System. 20

