

**2023**

**M.Sc.**

**4th Semester Examination**

**FISHERIES SCIENCE**

**PAPER : FSC-401**

*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.*

Answer from **all** the Units as directed.

**UNIT—I**

**( FISH PROCESSING TECHNOLOGY  
AND QUALITY ASSURANCE )**

1. Answer *any two* questions from the following :  
2×2=4

(a) Enlist chemical hazards observed in fish processing plant.

( 2 )

- (b) What is homogeneous and heterogeneous nucleation?
- (c) What is shelf-life of fish in ice?
- (d) Mention the biochemical composition of any freshwater fish flesh.

2. Answer *any two* questions from the following :  
4×2=8

- (a) How much ice is to be required for the preservation of 90 kg Pomfret fish from 20 °C to 0 °C in South Bengal Coast? (Specific heat of fish is 4 J/g and latent heat of ice is 334.7 kJ).
- (b) Describe IQF technique popularly used in fish processing plant.
- (c) State the code of practice in processed fishery product.
- (d) Give a brief account of freezing process of any shrimp.

( 3 )

3. Answer *any one* question from the following :  
1×8=8
- (a) What is immersion freezing? Give a brief account of cryogenic freezing. Add a note on freezing curve. 1+4+3=8
- (b) State the concept of HACCP. Lucidly explain different principles of HACCP. Write a note on responsibility of each team member duly constituted to study the HACCP in any fish processing plant. 2+3+3=8

## UNIT—II

### ( FISHERIES EXTENSION, ECONOMICS AND MARKETING )

4. Answer *any two* questions from the following :  
2×2=4
- (a) What are the aims and objectives of PMMSY?
- (b) Write down the key concept of Trickle Down System in fisheries extension.
- (c) Mention different steps of aquaculture project cycle.
- (d) Mention the characteristics of a good entrepreneur in fisheries sector.

( 4 )

5. Answer *any two* questions from the following :

4×2=8

- (a) Give an account on fisheries education methods.
- (b) State about ATMA project in aquaculture development in West Bengal.
- (c) Discuss the role of NABARD in the fisheries development in India.
- (d) Write a note on the opportunity and future of Indian fish and fisheries product marketing.

6. Answer *any one* question from the following :

8×1=8

- (a) Define GDP. State the law of demand and supply. Give an account on the contract farming in aquaculture sector in India.
- (b) Give an account on the different principles of fisheries extension. State the prospects and future of fisheries education in India.

2+3+3=8

4+4=8

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