

R4615

Sub. Code

25MFS2C1

M.Sc. DEGREE EXAMINATION, APRIL – 2026

Second Semester

Fisheries Science

FINFISH AND SHELLFISH HATCHERY MANAGEMENT

(CBCS – 2025 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Which species dominates hatchery seed production in India? (CO1, K2)
 - (a) Lobster
 - (b) Tiger shrimp (*Penaeus monodon*)
 - (c) Pearl oyster
 - (d) Sea cucumber
2. The main reason for the shift from *Penaeus monodon* to *Litopenaeus vannamei* hatcheries is: (CO1, K1)
 - (a) Faster growth and disease resistance
 - (b) Higher salinity tolerance
 - (c) Indigenous species status
 - (d) Availability of wild seed

3. The primary objective of broodstock quarantine is to: (CO2, K1)
- (a) Increase growth rate
 - (b) Prevent disease introduction
 - (c) Improve fecundity
 - (d) Reduce feed cost
4. The commonly used inducing hormone in carp breeding in India is: (CO2, K2)
- (a) HCG
 - (b) Ovaprim
 - (c) Progesterone
 - (d) Testosterone
5. The most important criterion for selecting a marine hatchery site is: (CO3, K1)
- (a) Proximity to market
 - (b) Availability of skilled labor
 - (c) Availability of electricity
 - (d) Consistent supply of good quality seawater
6. SPF shrimp broodstock are free from: (CO3, K2)
- (a) Viral and specific pathogens
 - (b) Bacterial pathogens only
 - (c) Fungal infections only
 - (d) Nutritional deficiencies
7. The most critical factor for selecting a bivalve hatchery site is: (CO4, K1)
- (a) Proximity to urban centers
 - (b) Distance from broodstock grounds
 - (c) Availability of cheap labor
 - (d) Stable seawater salinity and temperature

8. Vitamin E deficiency in broodstock results in: (CO4, K1)
- (a) Poor egg fertilization
 - (b) Albinism
 - (c) Skeletal deformities
 - (d) Gill damage
9. Which cost is classified as a fixed cost in a shrimp hatchery? (CO5, K2)
- (a) Live feed
 - (b) Electricity
 - (c) Hatchery building
 - (d) Chemicals
10. Quarantine measures in aquaculture mainly aim to prevent: (CO5, K1)
- (a) Disease introduction
 - (b) Genetic erosion
 - (c) Overfishing
 - (d) Market competition

Part B

(5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) What is the present status of marine finfish hatcheries in India? (CO1, K3)

Or

- (b) Discuss about the hormones used in induced breeding of fishes. (CO1, K4)

12. (a) Why Asian seabass is considered suitable for hatchery production? (CO2, K4)

Or

- (b) Examine the factors affecting egg fertilization rate. (CO2, K3)

13. (a) Mention the criteria for selecting a shrimp hatchery site. (CO3, K5)

Or

- (b) What precautions are taken during shrimp seed transportation? (CO3, K5)

14. (a) What is spat collection and why is it important? (CO4, K4)

Or

- (b) Explain ammonia toxicity and its control in hatcheries. (CO4, K3)

15. (a) Why crab seed production is more expensive than shrimp seed production? (CO5, K4)

Or

- (b) Describe the role of WTO in fisheries trade? (CO5, K4)

Part C

(5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Discuss the future prospects of hatchery-based aquaculture in India with examples. (CO1, K4)

Or

- (b) Explain the breeding behavior and induced breeding of cultivable finfish. (CO1, K3)

17. (a) Describe the biology and seed production of mullets, with special reference to induced breeding and larval feeding. (CO2, K4)

Or

- (b) Discuss the constraints of adopting AI-driven hatchery management systems. (CO2, K5)

18. (a) Summarize the broodstock collection methods for shrimp, crab, and lobster. (CO3, K4)

Or

- (b) Discuss SPF shrimp seed production and its role in disease prevention. (CO3, K4)

19. (a) Justify the role of microalgal culture systems in the success of bivalve hatcheries. (CO4, K5)

Or

- (b) Describe the criteria and practices for broodstock collection and acclimatization. (CO4, K3)

20. (a) Write an essay on impact of survival rate on hatchery economics. (CO5, K4)

Or

- (b) Critically examine the role of biosecurity in preventing trade-related disease outbreaks. (CO5, K4)
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R4616

Sub. Code

25MFS2C2

M.Sc. DEGREE EXAMINATION, APRIL – 2026

Second Semester

Fisheries Science

COASTAL AQUACULTURE AND MARICULTURE

(CBCS – 2025 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Major coastal aquaculture production in India comes from: (CO1, K2)
 - (a) Shrimp
 - (b) Seaweed
 - (c) Finfish
 - (d) Molluscs

2. Long-line culture system is most commonly used for: (CO1, K1)
 - (a) Shrimp
 - (b) Finfish
 - (c) Mussels and oysters
 - (d) Crabs

3. Mariculture refers to the fanning of organisms in: (CO2, K2)
- (a) Freshwater bodies
 - (b) Brackishwater ponds
 - (c) Marine and coastal waters
 - (d) Inland reservoirs
4. Which of the following is NOT commonly practiced in mariculture? (CO2, K1)
- (a) Seaweed farming
 - (b) Oyster culture
 - (c) Salmon cage fanning
 - (d) Carp polyculture
5. Milkfish (*Chanos chanos*) is mainly cultured in (CO3, K2)
- (a) Freshwater
 - (b) Cold water
 - (c) Brackish water
 - (d) Sewage water
6. Liming in ponds is done mainly to: (CO3, K1)
- (a) Increase salinity
 - (b) Reduce turbidity
 - (c) Neutralize soil acidity
 - (d) Kill fish
7. Biofloc technology primarily depends on: (CO4, K1)
- (a) Phytoplankton growth
 - (b) Algal mats
 - (c) Zooplankton dominance
 - (d) Heterotrophic bacteria

8. White Spot Syndrome Virus (WSSV) primarily affects: (CO4, K2)
- (a) Gills
 - (b) Hepatopancreas
 - (c) Exoskeleton
 - (d) Eye stalk
9. The use of SPF (Specific Pathogen Free) shrimp seed helps to: (CO5, K1)
- (a) Increase disease occurrence
 - (b) Reduce survival rate
 - (c) Improve biosecurity
 - (d) Increase water exchange
10. Name the water quality parameter most directly affects shell formation in molluscs? (CO5, K1)
- (a) Temperature
 - (b) Dissolved oxygen
 - (c) Turbidity
 - (d) Calcium and alkalinity

Part B

(5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Distinguish between extensive and intensive aquaculture. (CO1, K4)

Or

- (b) List the essential infrastructure required for shellfish farming. (CO1, K3)

12. (a) Define mariculture and distinguish it from aquaculture. (CO2, K3)

Or

- (b) What is Integrated Multi-Trophic Aquaculture (IMTA)? (CO2, K4)

13. (a) What is pond liming? Mention its importance. (CO3, K3)

Or

- (b) What is quarantine? Why is it important in finfish culture? (CO3, K3)

14. (a) Define shrimp aquaculture and list two major species cultured in India. (CO4, K5)

Or

- (b) Outline about SPF shrimp and explain its importance. (CO4, K3)

15. (a) State the differences between oysters and scallops. (CO5, K4)

Or

- (b) Why is calcium important in molluscan farming? (CO5, K3)

Part C

(5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Discuss the status, growth trends, and constraints of coastal aquaculture in India. (CO1, K3)

Or

- (b) Elaborate on the use of drones in aquaculture for monitoring water quality and disease surveillance. (CO1, K5)

17. (a) Discuss the different types and designs of mariculture systems with neat sketches. (CO2, K4)

Or

- (b) Explain the design and functioning of open sea cage culture systems. (CO2, K4)

18. (a) Explain different types of culture systems practiced in aquaculture with suitable examples. (CO3, K3)

Or

- (b) Discuss the role of biofilters and nitrification process in RAS. (CO3, K4)

19. (a) Write about the principles & practices of soil and water management in shrimp culture ponds. (CO4, K3)

Or

- (b) Elaborate the advantages of AI-based systems in shrimp farming practices. (CO4, K5)

20. (a) Explain the oyster culture methods with special reference to rack-and-tray and long-line systems. (CO5, K4)

Or

- (b) Write an essay on the role of water quality parameters in molluscan farming. (CO5, K4)
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R4617

Sub. Code

25MFS2C3

M.Sc. DEGREE EXAMINATION, APRIL – 2026

Second Semester

Fisheries Science

ORNAMENTAL AQUACULTURE

(CBCS – 2025 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Which of the following is an example of In-situ conservation? (CO1, K2)
 - (a) Zoo
 - (b) Botanical garden
 - (c) National park
 - (d) Seed bank
2. The Man and Biosphere (MAB) Programme was launched by: (CO1, K2)
 - (a) UNEP
 - (b) UNESCO
 - (c) FAO
 - (d) IUCN

3. Which of the following is the most important factor in site selection for an ornamental fish hatchery? (CO2, K2)
- (a) Availability of electricity
 - (b) Water quality and supply
 - (c) Market demand
 - (d) Labour availability
4. Aquaponics is a combination of: (CO2, K2)
- (a) Aquaculture and irrigation
 - (b) Hydroponics and aquaculture
 - (c) Fisheries and agriculture
 - (d) Marine and freshwater farming
5. Which of the following is an important water quality parameter in ornamental fishculture? (CO1, K2)
- (a) Turbidity
 - (b) Dissolved oxygen
 - (c) Soil pH
 - (d) Rainfall
6. Which ornamental fish is known for mouth brooding? (CO3, K2)
- (a) Goldfish
 - (b) Koi carp
 - (c) Arowana
 - (d) Clown fish

7. Which of the following is commonly used as a phytoplankton in live feed culture? (CO4, K2)
- (a) Spirulina
 - (b) Chlorella
 - (c) Daphnia
 - (d) Artemia
8. Which zooplankton is widely used as a marine live feed? (CO4, K2)
- (a) Moina
 - (b) Daphnia
 - (c) Artemia
 - (d) Tubifex
9. MPEDA stands for: (CO5, K1)
- (a) Marine Products Export Development Authority
 - (b) Marine Pollution Export Development Agency
 - (c) Marine Product Economic Development Authority
 - (d) Marine Protection Export Development Agency
10. Which country is one of the largest importers of ornamental fishes? (CO5, K2)
- (a) India
 - (b) Japan
 - (c) Germany
 - (d) Sri Lanka

Part B

(5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Define biodiversity and explain the need for biodiversity conservation. (CO1, K2)

Or

- (b) Write a short note on Biosphere Reserves under the MAB Programme. (CO1, K3)

12. (a) Explain the criteria for site selection of a freshwater ornamental fish hatchery. (CO2, K4)

Or

- (b) Write a short note on the layout and design of an ornamental fish farm. (CO2, K3)

13. (a) Write a short notes on water quality management in ornamental fish culture. (CO2, K2)

Or

- (b) Describe the feed and health management practices in ornamental fish farming. (CO3, K4)

14. (a) Write a short note on phytoplankton used in live feed production. (CO4, K2)

Or

- (b) Explain zooplankton culture for freshwater aquarium fishes. (CO4, K2)

15. (a) List high-value freshwater and marine ornamental fishes. (CO5, K2)

Or

- (b) Describe the market demand and price trends of ornamental fishes. (CO5, K4)

Part C

(5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Explain In-situ conservation and describe various protected areas such as National Parks, Wildlife Sanctuaries, and Biosphere Reserves. (CO4, K5)

Or

- (b) Discuss Ex-situ conservation and explain the role of zoos, botanical gardens, and gene banks. (CO5, K4)
17. (a) Explain the infrastructure, layout, and equipment required for a freshwater ornamental fish hatchery. (CO2, K2)

Or

- (b) Describe the site selection, design, and construction of a marine ornamental fish farm. (CO2, K3)
18. (a) Give a detailed account of the breeding and farming of Koi carp and Goldfish. (CO3, K4)

Or

- (b) Write a note on culture of marine ornamental fishes such as Clown fish, Damsel fish, and Cardinal fish. (CO3, K2)
19. (a) Explain the freshwater and marine live feed organisms used in aquarium fish culture. (CO4, K2)

Or

- (b) Describe the culture methods and mass production of phytoplankton and zooplankton. (CO4, K3)

20. (a) Describe high-value ornamental fishes and their market demand. (CO5, K2)

Or

- (b) Explain government subsidies and incentives available for ornamental fish farmers and exporters. (CO5, K4)
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R4618

Sub. Code

25MFS2C4

M.Sc. DEGREE EXAMINATION, APRIL – 2026

Second Semester

Fisheries Science

**FISH PROCESSING TECHNOLOGY AND QUALITY
ASSURANCE**

(CBCS – 2025 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. The major biochemical component of fish muscle is (CO1, K2)
 - (a) Carbohydrate
 - (b) Lipid
 - (c) Protein
 - (d) Mineral

2. Rigor mortis in fish is caused due to (CO1, K2)
 - (a) Protein denaturation
 - (b) Lactic acid accumulation
 - (c) ATP depletion
 - (d) Microbial activity

3. Shelf life of chilled fish mainly depends on (CO2, K1)
- (a) Fishing method
 - (b) Storage temperature and hygiene
 - (c) Market demand
 - (d) Packaging colour
4. Brine freezing works on the principle of (CO2, K2)
- (a) Air circulation
 - (b) Direct contact with salt solution
 - (c) Radiation
 - (d) Vacuum drying
5. A major disadvantage of open sun drying is (CO3, K2)
- (a) High capital cost
 - (b) Risk of contamination
 - (c) Uniform drying
 - (d) Controlled temperature
6. Which microorganism is of major concern in canned fish products? (CO3, K1)
- (a) *Clostridium botulinum*
 - (b) *Listeria monocytogenes*
 - (c) *Salmonella* spp.
 - (d) *Escherichia coil*

7. Which of the following is a commonly canned finfish?
(CO4, K2)
- (a) Catla
 - (b) Tuna
 - (c) Rohu
 - (d) Tilapia
8. Vacuum sealing during packing mainly helps to:
(CO4, K1)
- (a) Increase colour
 - (b) Reduce oxygen content
 - (c) Improve texture
 - (d) Reduce salt content
9. Omega-3 fatty acids in fish oil include (CO5, K2)
- (a) Oleic acid
 - (b) Linoleic acid
 - (c) EPA and DHA
 - (d) Arachidonic acid
10. Which agency promotes seafood export from India?
(CO5, K1)
- (a) MPEDA
 - (b) FSSAI
 - (c) BIS
 - (d) EIA

Part B

(5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) State the main biochemical changes occurring after fish death. (CO1, K3)

Or

- (b) Outline the common causes of quality loss during post-harvest handling. (CO1, K4)

12. (a) Elaborate the principles of fish preservation with examples. (CO2, K5)

Or

- (b) Write short on lipid oxidation in processed fish. (CO2, K4)

13. (a) List out the major steps involved in fish canning. (CO3, K3)

Or

- (b) Describe the main advantages of metal cans in fish canning. (CO3, K3)

14. (a) How do you prepare the surgical sutures from fish intestine? (CO4, K4)

Or

- (b) State the importance of fishery by-products. (CO4, K5)

15. (a) What are the various biological hazards in fish products? (CO5, K4)

Or

- (b) Write the role of HACCP in seafood processing. (CO5, K3)

Part C

(5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Assess the enzymatic, microbial and oxidative spoilage in fish. (CO1, K5)

Or

- (b) Discuss the principles and methods of grading of fish. (CO1, K4)

17. (a) Elaborate the effects of irradiation on fish quality and safety. (CO2, K5)

Or

- (b) Discuss the process of pickling and smoking of fish, highlighting their preservative mechanisms. (CO2, K4)

18. (a) Describe in detail the processing steps involved in fish canning. (CO3, K3)

Or

- (b) Discuss the canning of fish with special reference to packing materials used. (CO3, K4)

19. (a) Determine the extraction of chitin from crustacean shells and its industrial uses. (CO4, K3)

Or

- (b) Explain the nutritional and industrial importance of fishery by-products. (CO4, K4)

20. (a) Discuss the concept of Quality Control and Quality Assurance in fish processing industries. (CO5, K6)

Or

- (b) Outline the application of biosensors in quality assurance of fishery products. (CO5, K4)
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R4619

Sub. Code

25MFS2E3

M.Sc. DEGREE EXAMINATION, APRIL – 2026

Second Semester

Fisheries Science

Elective – AQUATIC POLLUTION AND MANAGEMENT

(CBCS – 2025 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. According to CPCB, which sector contributes maximum water pollution in India? (CO1, K2)
(a) Mining (b) Domestic sector
(c) Aquaculture (d) Thermal power plants
2. Which of the following is a point source of aquatic pollution? (CO1, K2)
(a) Agricultural runoff
(b) Urban stormwater
(c) Industrial effluent discharge pipe
(d) Atmospheric deposition
3. The major indicator of organic pollution in sewage is (CO2, K1)
(a) DO (b) pH
(c) Turbidity (d) BOD

4. Nanoplastics are generally defined as particles (CO2, K2)
- (a) 1 – 5 mm (b) > 5 mm
(c) < 1 μ m (d) < 100 nm
5. Minamata disease is caused by the bioaccumulation of: (CO3, K2)
- (a) Lead (b) Cadmium
(c) Arsenic (d) Mercury
6. Industrial effluents differ from domestic sewage mainly in: (CO3, K1)
- (a) Volume
(b) Temperature
(c) High concentration of specific pollutants
(d) Colour
7. The ISO 14000 series mainly deals with: (CO4, K2)
- (a) Occupational safety
(b) Environmental management systems
(c) Wastewater treatment technology
(d) Air pollution control
8. Activated sludge process is an example of: (CO4, K1)
- (a) Aerobic treatment
(b) Anaerobic treatment
(c) Chemical treatment
(d) Filtration
9. Which of the following processes reduces phosphate content in wastewater? (CO5, K1)
- (a) Nitrification
(b) Sedimentation and plant uptake
(c) Chlorination
(d) UV irradiation

10. Ocean acidification is mainly caused by increased absorption of (CO5, K2)
- (a) Carbon dioxide (b) Sulphur dioxide
(c) Nitrogen (d) Methane

Part B

(5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Distinguish between point and non-point sources of pollution. (CO1, K3)
- Or
- (b) Write a short note on wetland rehabilitation. (CO1, K4)
12. (a) What is sewage? Mention its major components. (CO2, K3)
- Or
- (b) Explain the primary nutrients responsible for eutrophication. (CO2, K4)
13. (a) Outline the principle and application of chlorination in water treatment. (CO3, K3)
- Or
- (b) Examine the role of WHO and EPA in setting water quality guidelines. (CO3, K3)
14. (a) Explain the role of microorganisms in aerobic wastewater treatment. (CO4, K4)
- Or
- (b) How do you manage the solid waste in aquaculture systems? (CO4, K3)
15. (a) Explain the ocean acidification and its impact on aquatic organisms. (CO5, K3)
- Or
- (b) State the criteria for selecting indicator organisms. (CO5, K5)

Part C

(5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Explain different types of aquatic pollution and their impacts on aquatic ecosystems. (CO1, K4)
- Or
- (b) Examine aquatic pollution: sources, types and impacts on aquatic ecosystems. (CO1, K3)
17. (a) Justify pesticide pollution with reference to types and effects on aquatic ecosystems. (CO2, K5)
- Or
- (b) Elaborate the toxic effects of mercury and cadmium pollution on aquatic organisms. (CO2, K3)
18. (a) Outline the classification and characteristics of sewage and industrial effluents. (CO3, K4)
- Or
- (b) Evaluate the water quality standards and waste disposal practices. (CO3, K5)
19. (a) Write an essay on emerging technologies in wastewater treatment. (CO4, K3)
- Or
- (b) Describe the role of aquatic macrophytes in wastewater treatment. (CO4, K3)
20. (a) Illustrate the types of indicator organisms used for aquatic pollution assessment. (CO5, K2)
- Or
- (b) Explain the red tide phenomenon, its causes, effects and management measures. (CO5, K4)

R4620

Sub. Code

25MFS2S1

M.Sc. DEGREE EXAMINATION, APRIL – 2026

Second Semester

Fisheries Science

HACCP IN FISHERIES SECTOR

(CBCS – 2025 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Which of the following is the primary objective of good management practice in aquaculture hatcheries?
(CO1, K1)
 - (a) Maximizing stocking density
 - (b) Ensuring product safety and animal health
 - (c) Increasing antibiotic usage
 - (d) Reducing labor cost

2. HACCP primarily focuses on (CO1, K2)
 - (a) End-product testing only
 - (b) Farm mechanization
 - (c) Increasing production volume
 - (d) Preventive control of hazards

3. Export-oriented fish processing units in India must comply mainly with standards prescribed by (CO2, K1)
- (a) MPEDA and FSSAI
 - (b) NABL
 - (c) CPCB
 - (d) AICTE
4. Frozen fish meant for export should generally be stored at (CO2, K2)
- (a) 0 °C
 - (b) -5 °C
 - (c) -10 °C
 - (d) -18 °C or below
5. Which of the following is an example of a physical hazard in fishery products? (CO3, K1)
- (a) Histamine
 - (b) Salmonella
 - (c) Metal fragments
 - (d) Pesticide residues
6. _____ principle is central for implementation of total quality management. (CO3, K2)
- (a) Short-term profit
 - (b) Employee involvement
 - (c) Random decision-making
 - (d) Excessive supervision

7. The most important critical control point in chilled fish storage is (CO4, K1)
- (a) Fish size grading
 - (b) Net weight checking
 - (c) Product labeling
 - (d) Storage temperature control
8. In canned fish processing, failure to achieve required thermal processing should lead to (CO4, K2)
- (a) Reprocessing or product rejection
 - (b) Immediate dispatch
 - (c) Relabeling
 - (d) Extended storage
9. The main objective of verification in a HACCP system is to (CO4, K1)
- (a) Increase production volume
 - (b) Confirm the effectiveness of the HACCP plan
 - (c) Replace monitoring activities
 - (d) Reduce documentation
10. Factory sanitation programs primarily aim to control (CO5, K2)
- (a) Physical, chemical, and biological contamination
 - (b) Market competition
 - (c) Product pricing
 - (d) Export documentation

Part B

(5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Examine the role of good management practices in improving hatchery biosecurity. (CO1, K3)

Or

- (b) Demonstrate the principles of HACCP as applied to aquaculture hatchery systems. (CO1, K3)

12. (a) Illustrate the significance of Codex Alimentarius standards in international fish trade. (CO2, K4)

Or

- (b) Categorize standard operating procedures followed in frozen, canned, and dry fish production systems. (CO2, K4)

13. (a) Assess the risks of physical, chemical, and biological hazards in chilled and frozen fish. (CO3, K5)

Or

- (b) Evaluate the importance of total quality management in fish processing and export trade. (CO3, K5)

14. (a) Classify the major critical control point involved in chilled, live, frozen, canned, and dry fish production. (CO4, K4)

Or

- (b) Analyze the role of monitoring systems in live and frozen fish production. (CO4, K4)

15. (a) Compare monitoring records and verification records used in HACCP-based fish processing units. (CO4, K5)

Or

- (b) Evaluate the fish inspection system followed in India for domestic and export markets. (CO5, K5)

Part C

(5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Classify the major components of good management practice applied in hatchery operations. (CO1, K4)

Or

- (b) Outline the role of critical control points in ensuring aquaculture product safety. (CO1, K4)

17. (a) Recommend best standard operating procedures practices to minimize quality loss during fish export. (CO2, K5)

Or

- (b) Assess the critical control points involved in fish canning operations. (CO2, K5)

18. (a) Analyze the role of quality management practices in controlling hazards in fish processing industries. (CO3, K4)

Or

- (b) Infer the traditional quality control systems and total quality management in fishery industries. (CO3, K4)

19. (a) Evaluate the effectiveness of critical control point based control in reducing hazards in dry fish production. (CO4, K5)

Or

- (b) Compare monitoring approaches used in canning versus dry fish production. (CO4, K5)

20. (a) Formulate a basic documentation framework for canned fish production. (CO5, K6)

Or

- (b) Create an elaborate note on the basic sanitation and hygiene plan for a fish processing plant. (CO5, K6)
