

**THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)
EXAMINATION, NOVEMBER 2021**

(CBCSS)

Aquaculture and Fishery Microbiology

AFM 3E 06—FISHERY BY-PRODUCTS AND VALUE ADDITION

(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend all questions in each section.*
2. *The minimum number of questions to be attended from the Section/Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Section A

I. Write short answers to the following. Answer any *four* questions. Each question carries 2 weightage :

- 1 What is pearl essence ?
- 2 Name two enhancers used in surimi.
- 3 Carrageenan.
- 4 Squalene.
- 5 Fish peptones.
- 6 Isinglass.
- 7 Types of value addition.

(4 × 2 = 8 weightage)

Section B

II. Write short essays to the following. Answer any *four* questions. Each question carries 3 weightage :

- 8 Write a short note on biochemical composition of fish hydrolysates.
- 9 Explain the production of fish meal.

Turn over

- 10 What are the different types of proteins present in fish ?
- 11 What are the byproducts of shrimp shell and explain the production process ?
- 12 Explain the applications of breading and batters to seafood.
- 13 Briefly explain the fish liver oil preservation and storage.
- 14 Explain the preparation of chitin from shrimp shell waste.

(4 × 3 = 12 weightage)

Section C

III. Write long essays to the following. Answer any *two* questions. Each question carries 5 weightage :

- 15 Give a detailed account on current market trends of value added products.
- 16 Write an essay on fish protein concentrate, functional properties and different types.
- 17 Explain briefly the fishery byproducts and their production.
- 18 Give a detailed account on coated products.

(2 × 5 = 10 weightage)

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Aquaculture and Fishery Microbiology

AFM 3E 04—QUALITY CONTROL, INSPECTION AND CERTIFICATION IN SEAFOOD
(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

General Instructions

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Section A

I. Write short answers to the following. Answer any *four* questions. Each question carries 2 weightage :

- 1 Mention the factors affecting fish quality.
- 2 Biogenic amines
- 3 Vacuum packaging
- 4 Indian standards for labelling.
- 5 Process Control.
- 6 Chemical methods to detect fish quality
- 7 ISO 9000: 2000 quality standards

(4 × 2 = 8 weightage)

Section B

II. Write short essays to the following. Answer any *four* questions. Each question carries 3 weightage :

- 8 USFDA regulations for fish export trade.
- 9 HACCP plan and its preparation.

Turn over

- 10 Causes of fish spoilage.
- 11 Relevance of IDP and SAT formation in quality certification.
- 12 Methods for preservation of food.
- 13 Nutrition labelling and Education act.
- 14 Sensory tests for detecting fish freshness and quality.

(4 × 3 = 12 weightage)

Section C

III. Write long essays to the following. Answer any *two* questions. Each question carries 5 weightage :

- 15 Explain the hygiene Practices in Seafood Processing Plants.
- 16 Discuss the role of micro-organism in fish preservation.
- 17 Explain about the rules and regulations governing fish and seafood safety and quality.
- 18 Discuss HACCP and good Manufacturing Practices in Fish processing technology.

(2 × 5 = 10 weightage)

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Aquaculture and Fishery Microbiology
AFM 3E 02—AQUACULTURE ENGINEERING
(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

General Instructions

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Section A

- I. Write short answers to the following. Answer any *four* questions. Each question carries 2 weightage :
- 1 Ozonization.
 - 2 Clinoptilolite.
 - 3 Zoug jars.
 - 4 Hapa.
 - 5 Intensive aquaculture system.
 - 6 Monk.
 - 7 Environmental impact assessment.

(4 × 2 = 8 weightage)

Section B

- II. Write short essay to the following. Answer any *four* questions. Each question carries 3 weightage :
- 8 Briefly explain recirculation of water.
 - 9 Explain pens and enclosures.

Turn over

- 10 Give an account on biofiltration.
- 11 Write short note on hatchery equipment.
- 12 Explain aeration system in hatchery.
- 13 Mention the characteristics of soil for site selection.
- 14 Briefly explain dike design and construction in a pond.

(4 × 3 = 12 weightage)

Section C

III. Write long essay to the following. Answer any *two* questions. Each question carries 5 weightage :

- 15 Give detailed account new developments in aquaculture engineering.
- 16 Write a note on raceway farms.
- 17 Give detailed account on site selection for aquaculture system.
- 18 Briefly explain the different types of aquaculture system.

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Aquaculture and Fishery Microbiology

AFM 3E 01—AQUACULTURE PRODUCTION SYSTEM

(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

General Instructions

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- I. Write short answers to the following. Answer any *four* questions. Each question carries 2 weightage :

- 1 Cold water fisheries.
- 2 Probiotics.
- 3 Raceway farming.
- 4 Ising glass.
- 5 Indian Major Carps.
- 6 Poly culture.
- 7 RAS.

(4 × 2 = 8 weightage)

- II. Write short essay to the following. Answer any *four* questions. Each question carries 3 weightage :

- 8 Traditional aquaculture systems.
- 9 Various stressors observed in aquaculture systems.

Turn over

- 10 Formulation and preparation of fish feeds.
- 11 Criteria for site selection for aquaculture.
- 12 What is rigor mortis ? What are the causes of rigor mortis ?
- 13 Classification of aquatic weeds.
- 14 Methods in mussel culture.

(4 × 3 = 12 weightage)

III. Write long essay to the following. Answer any *two* questions. Each question carries 5 weightage :

- 15 Write an essay on disease management in aquaculture.
- 16 Describe the various fish preservation techniques.
- 17 Explain culture practices of seabass and mullets.
- 18 Explain the importance of feed management in aquaculture.

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Aquaculture and Fishery Microbiology

AFM 3C 10—SEA FOOD PROCESSING TECHNOLOGY

(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

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Part A

- I. Write short answers to the following. Answer any *four* questions. Each question carries 2 weightage :
- 1 Canning.
 - 2 Liquid N₂ freezer.
 - 3 Chitin.
 - 4 Super chilling.
 - 5 Fish fillets.
 - 6 Smoking.
 - 7 Autolysis.

(4 × 2 = 8 weightage)

Part B

- II. Write short essay to the following. Answer any *four* questions. Each question carries 3 weightage :
- 8 Briefly describe the microbial spoilage of fishes.
 - 9 What are the causes of discolouration in fishes ?

Turn over

- 10 Give an account on canning process.
- 11 Write down the difference between chilling and freezing.
- 12 Explain different types of freezing techniques.
- 13 What are the effects of temperature on the quality of fish ?
- 14 Comment on the parameters used for quality assessment in fishes.

(4 × 3 = 12 weightage)

Part C

III. Write long essay to the following. Answer any *two* questions. Each questions carries 5 weightage :

- 15 Write an essay on different methods of fish preservation.
- 16 Explain different types of freezers used for preservation.
- 17 Explain the process involved in the deterioration of fishes.
- 18 Describe the steps in handling the fresh fish and its transportation.

(2 × 5 = 10 weightage)

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Aquaculture and Fishery Microbiology

AFM 3C 09—FISH PHYSIOLOGY

(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

General Instructions

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Part A

- I. Write short answers to the following. Answer any *four* questions. Each question carries 2 weightage :

- | | |
|------------------------------|----------------------------|
| 1 Mermaid's purse. | 2 Protandry and protogyny. |
| 3 Physostomous swim bladder. | 4 Nuptial tubercles. |
| 5 Brood hiders. | 6 Gastro somatic index. |
| 7 Yolk sac placenta. | |

(4 × 2 = 8 weightage)

Part B

- II. Write short essay to the following. Answer any *four* questions. Each question carries 3 weightage :

- 8 Explain briefly the structure of thyroid gland.
- 9 Briefly describe the factors affecting fecundity in fishes.

Turn over

- 10 Write notes on sexual dimorphism in fishes.
- 11 Give an account on hormonal control of osmoregulation.
- 12 Comment on the air breathing fishes.
- 13 Describe the endocrine functions of pituitary gland.
- 14 Comment on osmoregulatory mechanism in fresh water fishes.

(4 × 3 = 12 weightage)

Part C

III. Write long essay to the following. Answer any *two* questions. Each question carries 5 weightage :

- 15 Write an essay on the accessory respiratory organs in fishes.
- 16 Describe the structure and functions of major endocrine glands in fishes.
- 17 Explain the phases of maturity in fishes.
- 18 Elaborate the digestive system of cartilaginous fishes.

(2 × 5 = 10 weightage)