

**SECOND SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)  
EXAMINATION, APRIL 2021**

(CBCSS)

Aquaculture and Fishery Microbiology  
AFM 2C 08—RESEARCH METHODOLOGY  
(2019 Admissions)

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. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

**Part A**

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

- 1 SPSS.
- 2 Footnotes.
- 3 CRD.
- 4 Review of literature.
- 5 Pure and applied research.
- 6 Secondary data.
- 7 Dependent and independent variables.

(4 × 2 = 8 weightage)

**Part B**

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

- 8 Describe four levels of measurement in research methodology.
- 9 Explain different types of research design.

**Turn over**

- 10 Explain measures of central tendency.
- 11 Briefly mention the significance of t test with examples.
- 12 Explain the steps in drafting reports.
- 13 Write short on documentation in the context of a research report.
- 14 Describe the different types of research.

(4 × 3 = 12 weightage)

### Part C

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

- 15 Briefly describe the different steps involved in a research process.
- 16 Explain the meaning of ANOVA. Describe briefly techniques of ANOVA for one way and two-way classification.
- 17 Describe important steps in data preparation process.
- 18 Explain the basic principles of experimental design and different types of experimental design.

(2 × 5 = 10 weightage)

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Aquaculture and Fishery Microbiology

AFM 2C 07—FISH BIOCHEMISTRY

(2019 Admissions)

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 TMAO.
- 2 Ribozymes.
- 3 Phospholipids.
- 4 Mutarotation.
- 5 Coenzyme.
- 6 Coagulation.
- 7 HDL.

(4 × 2 = 8 weightage)

**Part B**

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

- 8 Describe the structure and functions of Mucopolysaccharides.
- 9 Factors affecting the rate of enzyme activity.

**Turn over**

- 10 Explain the role of protein hydrolysis in modification of protein functional properties.
- 11 Fatty acid composition of fish liver.
- 12 What are fat soluble vitamins ? Give their biological importance.
- 13 Oxidation of fatty acids.
- 14 Structure of fish muscle.

(4 × 3 = 12 weightage)

### Part C

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

- 15 Explain the Post-mortem biochemical changes in fish.
- 16 Give an account on the chemical composition of crustaceans and shell fish.
- 17 Explain the mechanism of protein-lipid interaction in food with examples.
- 18 Define enzyme inhibition. Explain in detail the different types of inhibitions.

(2 × 5 = 10 weightage)

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(CBCSS)

Aquaculture and Fishery Microbiology

AFM 2C 06—SEED PRODUCTION AND HATCHERY MANAGEMENT

(2019 Admissions)

Time : Three Hours

Maximum : 30 Weightage

**General Instructions**

1. *In cases where choices are provided, students can attend all questions in each section.*
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**Part A**

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

- 1 Fry.
- 2 Mysis.
- 3 Brood stock.
- 4 Wet Bundh.
- 5 Pearl Oysters.
- 6 Nursery ponds.
- 7 Live feeds.

(4 × 2 = 8 weightage)

**Part B**

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

- 8 Recirculation hatchery system.
- 9 Hypophysation in prawn.
- 10 Comment on induced breeding in shrimps.

**Turn over**

- 11 Methods of spat collection.
- 12 Seed production techniques of mud crab.
- 13 Comment on artificial feeds in larviculture.
- 14 Hatchery rearing of edible oysters.

(4 × 3 = 12 weightage)

**Part C**

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

- 15 Write an essay on brackish water fish seed production in India.
- 16 Explain Artemia production techniques.
- 17 Briefly explain seed production techniques in Tilapia.
- 18 Explain the seed production techniques of Grouper.

(2 × 5 = 10 weightage)

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(CBCSS)

Aquaculture and Fishery Microbiology  
AFM 2C 05—FISHERY MICROBIOLOGY  
(2019 Admissions)

Time : Three Hours

Maximum : 30 Weightage

**General Instructions**

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3. *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 Putrefaction.
- 2 Psychrophiles.
- 3 FDA.
- 4 Botulism.
- 5 Food Intoxication.
- 6 HACCP.
- 7 *Pseudomonas aeruginosa*.

(4 × 2 = 8 weightage)

**Section B**

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

- 8 Sterilization methods.
- 9 Acetic Acid Bacteria.

**Turn over**

- 10 Intrinsic factors affecting microbial growth.
- 11 Isolation of *Vibrio*.
- 12 MR-VP test.
- 13 Sanitary measures in fish processing.
- 14 Water activity.

(4 × 3 = 12 weightage)

### Section C

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

- 15 Listeriosis - Cause, Disease, Symptoms, Preventive and Control Measures.
- 16 Methods of Food Preservation.
- 17 Briefly explain the factors that influence microbial growth in food.
- 18 Methods used to detect microbial contaminants in food.

(2 × 5 = 10 weightage)