C 22488 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER M.Sc. DEGREE [REGULAR/SUPPLEMENTARY] EXAMINATION, APRIL 2022

(CBCSS)

Aquaculture and Fishery Microbiology

AFM4E12—AQUATIC POLLUTION AND TOXICOLOGY

(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.*

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

1 Sludge digestion tanks.

2 COD.

3 Name two commonly used insecticides.

4 Bioaccumulation.

5 Chronic toxicity.

6 Nutrient pollution.

7 Bio-marker.

(4 × 2 = 8 weightage)

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

8 Explain the impact of bio-magnification on ecosystem.

9 Explain methods of toxicity evaluation at molecular level.

10 Briefly explain the effects of interspecific interactions in environment.

11 Write short note on inorganic toxicants.

12 Briefly explain toxicity of pesticides and insecticides

13 Explain biological factors influencing toxicity.

14 Write a short note on toxicity indicator species and population.

(4 × 3 = 12 weightage)

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

15 Give detailed account on ground water pollution.

16 Write a note toxicants and its effects on ecosystem.

17 Explain the principles of toxicity evaluation.

18 Give an account on wastewater treatment.

(2 × 5 = 10 weightage)

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

8 Explain the impact of bio-magnification on ecosystem.

9 Explain methods of toxicity evaluation at molecular level.

10 Briefly explain the effects of interspecific interactions in environment.

11 Write short note on inorganic toxicants.

12 Briefly explain toxicity of pesticides and insecticides

13 Explain biological factors influencing toxicity.

14 Write a short note on toxicity indicator species and population.

(4 × 3 = 12 weightage)

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

15 Give detailed account on ground water pollution.

16 Write a note toxicants and its effects on ecosystem.

17 Explain the principles of toxicity evaluation.

18 Give an account on wastewater treatment.

(2 × 5 = 10 weightage)

C 22484 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2022

(CBCSS)

Aquaculture and Fishery Microbiology

AFM 4E 08—ORNAMENTAL FISH BREEDING AND REARING

(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 Nest builders.

2 Protein skimmer.

3 Ovophiles.

4 Oceanarium.

5 Mechanical filter.

6 *Cabomba aquatica.*

7 Epizootic ulcerative syndrome.

(4 × 2 = 8 weightage)

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

8 Write a short note on common submerged aquarium plants.

9 Briefly explain agencies involved in extension of ornamental fish culture in India.

10 Explain methods of packing and transport of live fish.

11 Explain the culture of artemia nauplii.

12 Common indigenous ornamental fishes in India.

13 Write a short on commercial filters used in aquariums.

14 Bacterial diseases of ornamental aquarium fishes.

(4 × 3 = 12 weightage)

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

15 Give account on rearing of invertebrates in aquarium.

16 Briefly explain the status of world trade of ornamental fish.

17 Write a note on live feed culture.

18 Give detailed account on aquarium setting.

(2 × 5 = 10 weightage)

C 22484 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, APRIL 2022

(CBCSS)

Aquaculture and Fishery Microbiology

AFM 4E 08—ORNAMENTAL FISH BREEDING AND REARING

(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 Nest builders.

2 Protein skimmer.

3 Ovophiles.

4 Oceanarium.

5 Mechanical filter.

6 *Cabomba aquatica.*

7 Epizootic ulcerative syndrome.

(4 × 2 = 8 weightage)

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

8 Write a short note on common submerged aquarium plants.

9 Briefly explain agencies involved in extension of ornamental fish culture in India.

10 Explain methods of packing and transport of live fish.

11 Explain the culture of artemia nauplii.

12 Common indigenous ornamental fishes in India.

13 Write a short on commercial filters used in aquariums.

14 Bacterial diseases of ornamental aquarium fishes.

(4 × 3 = 12 weightage)

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

15 Give account on rearing of invertebrates in aquarium.

16 Briefly explain the status of world trade of ornamental fish.

17 Write a note on live feed culture.

18 Give detailed account on aquarium setting.

(2 × 5 = 10 weightage)

C 22482 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER M.Sc. DEGREE [REGULAR/SUPPLEMENTARY] EXAMINATION, APRIL 2022

(CBCSS)

Aquaculture and Fishery Microbiology

AFM4C12—DISEASE DIAGNOSIS AND AQUATIC HEALTH MANAGEMENT

(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.*

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

1 Adjuvants.

2 PCR.

3 Epizootics.

4 Dropsy.

5 Name two drugs commonly used in aquaculture.

6 Eosin.

7 Immunoglobulin.

(4 × 2 = 8 weightage)

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

8 Write a short note on probiotics.

9 Briefly explain pathogen -host -environmental relationship.

Turn over

10 Explain management of culture systems.

11 Write a note on WSSV.

12 Briefly explain diseases in hatcheries.

13 Write a short note on seed certification.

14 Briefly explain the basics of finfish health management.

(4 × 3 = 12 weightage)

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

15 Give a detailed account on the defense system in finfishes.

16 Briefly explain environmental parameters and their effect on fish health.

17 Write a note on Nutritional diseases.

18 Give detailed account on microbiological and molecular techniques in health management

(2 × 5 = 10 weightage)

C 22481 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER M.Sc. DEGREE [REGULAR/SUPPLEMENTARY] EXAMINATION, APRIL 2022

(CBCSS)

Aquaculture and Fishery Microbiology

AFM4C11—BIO-TECHNOLOGY AND MOLECULAR BIOLOGY

(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.*

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

1 DNA foot printing.

2 Gap junction.

3 Transposons.

4 mRNA.

5 Bioaugmentation.

6 Histones.

7 PCR.

(4 × 2 = 8 weightage)

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

8 What is Okazaki Fragment ? How is it synthesized ?

9 Comment on Bioactive compounds from marine organisms.

Turn over

10 Genetic Code is degenerate, Justify.

11 What is the importance of mitochondrial DNA and Y chromosomes ?

12 What are probiotics ? Write the major sources and the mechanism of action of probiotics.

13 Write a note on organ culture.

14 Describe the post transcriptional modification in eukaryotes.

(4 × 3 = 12 weightage)

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

15 What is the Cell Cycle ? What are the stages of Cell Cycle ? Describe the events that occur in a cell during mitosis.

16 How are genes regulated in prokaryotes ?

17 Describe in detail the components and structure of DNA.

18 Give an account of the different marine natural products and their prospects for application.

(2 × 5 = 10 weightage)