

2016

M.Sc.

3rd Semester Examination

FISHERIES SCIENCE

PAPER—FSC-302

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Unit-I

(Fin Fish and Shell Fish Pathology & Management)

1. Answer in brief any two of the following : 2×2
- (a) Define immunostimulant with two examples.
 - (b) Mention the causative agent and symptoms of 'Water module, disease of fish.

(Turn Over)

- (c) Indicate the causative agent and treatment of 'gillrot' disease of fish.
- (d) Define 'antibiotics' and 'Sanitizer' with example relevance to aquaculture.

2. Answer any *two* of the following : 2×4

- (a) Discuss about different types of chemicals used in shrimp farming pond.
- (b) Write a notes on the EUS of fish.
- (c) State about the prophylactic measures taken during shrimp farm management.
- (d) Classify Stressors with example.

3. Answer any *one* of the following : 1×8

- (a) (i) Enlist 2 viral disease of *Penaeus monodon* with symptoms.
- (ii) State the causative agent, symptoms and treatment of 'Ich' disease.
- (iii) Add a note on non-infections disease.

$$2+3\frac{1}{2}+2\frac{1}{2}$$

- (b) (i) Procedure for identifying a Sick fish.

- (ii) Mention the causative agent, symptoms, and treatment of 'Whirling disease'.
- (iii) How could you differentiate between a fungal and bacterial infection? 2+3+3

Unit-II

(Fish Parasitology and Immunology)

4. Answer any *two* of the following questions : 2×2
- (a) State the functions of NK cells.
 - (b) Write the characteristics of fish antibody.
 - (c) Differentiate between 'Acquired' and 'Innate immunity'.
 - (d) Define ectoparasite. Cite an example.
5. Answer any *two* of the following questions : 2×4
- (a) Briefly explain the life cycle of *Argulus* sp.
 - (b) Narrate the diversity of helminth parasite in fishes.
 - (c) Write a note on the immune system of teleost fishes.
 - (d) Write the inflammatory responses of fish immune system with suitable diagram.

6. Answer any *one* questions of the following questions :

1×8

- (a) What do you mean by 2nd line of defenses ? How fish macrophases are responsible for 2nd line of defenses ? State shortly the mechanism of phagocytosis during microbial attack of fish.

2+2+4

- (b) What is vaccine ? Briefly describe the type of vaccines used in fish culture. How are vaccine given to fish ?

$1\frac{1}{2}+2\frac{1}{2}+4$

[Internal Assessment : 10 Marks]
