

M.Sc. 3rd Semester Examination, 2018

FISHERIES SCIENCE

PAPER – FSC-301(Unit-I & II)

Full Marks : 40

Time : 2 hours

The figures in the right hand margin indicate marks

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

Illustrate the answers wherever necessary

UNIT – I

(Fish Pathology and Disease Management)

1. Answer any *two* questions from the following : 2×2
 - (a) Define disease triangle concept.
 - (b) Mention two gram –ve and two gram +ve bacteria causing fish disease.
 - (c) Define probiotics. Mention two commercial probiotics which are used in Indian Aquaculture.

(Turn Over)

(d) Briefly discuss Biosecurity.

2. Answer any *two* questions from the following : 4 × 2

(a) State about the importance of commercial sanitizer used in aquaculture.

(b) Classify stressors with examples.

(c) Mention the causative agents of Ichthyophthiriasis and its control measures.

(d) What are the factors contributing the outbreak of fungal diseases in fish ?

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

(a) (i) Mention the causative agent, symptoms and treatment of Saprolegniaris. 3

(ii) State about white faecal disease of *Litopenaeus Vannamei*. 3

(iii) Add a note on black gill disease of prawn. 2

(b) (i) What do you mean by immunostimulants ? Mention some commercial immunostimulant available in India.

$(1\frac{1}{2} + 1\frac{1}{2})$

(ii) How β -glucan act as immunostimulant ? 2

(iii) What is prophylaxis ? Discuss the different types of prophylactic measures taken in carp farming to prevent the occurrence of diseases. 1 + 2

UNIT – II

(Fish Parasitology and Immunology)

4. Write short note on any *two* of the following questions : 2 × 2

(i) Antigen presenting cell

(ii) Toll like receptor

(iii) Parasitic crustacean species

(iv) Protozoan diseases in fish.

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

(a) Define interferon. How interferon react against pathogen inside cell ? 1 + 3

(b) Differentiate the components of innate and

adaptive immune system of fish. Explain the third line defense mechanism of fish. 2 + 2

(c) Shortly state the role of NK cells regarding fish immunity. Add a note on immunological defense of fish skin. 2 + 2

(d) What is parasitism ? Add a note on the kind of parasities. 2 + 2

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

(a) (i) Name different primary lymphoid organs in fish.

(ii) Describe the structure and function of secondary lymphoid organs in fish. 2 + 6

(b) Write short notes on any *two* of the following questions : 2 × 4

(i) C-reactive protein

(ii) Inflammation

(iii) Fish vaccine

(iv) Structure of Immunoglobulin.