2022

M.Sc.

4th Semester Examination

FISHERIES SCIENCE

PAPER—FSC–403

Full Marks : 50

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–403.1

AQUACULTURE ENGINEERING & ENVIRONMENT MANAGEMENT

1. Answer any *two* questions. 2×2

(a) Why inlet and outlet systems are required in

shrimp culture pond?

(b) When does a pond need aeration and why?

(c) Briefly explain present aquaculture production status in India.

(d) What are the differences between semi extensive and super intensive aquaculture?

2. Answer any *two* questions. 2×4

(a) Briefly explain aquaponic system and state its ecological significance.

(b) Give a brief account of pen culture with its merits and demerits.

(c) Write a brief note on Integrated Multi Trophic Aquaculture (IMTA).

(d) Discuss the drainage system of an intensive aquaculture pond.

3. Answer any *one* question. 1×8

(a) What is organic aquaculture? Describe briefly

the principles of organic farming. Add a note on organic certification system with examples. 2+2+4

(b) Write a short note on :

(i) Site selection for construction of aquaculture farm.

(ii) Race-way culture 4+4

UNIT–403.2

FISH GENETICS AND BIOTECHNOLOGY

1. Answer any *two* questions. 2×2

(a) Selective breeding in fish.

(b) Importance of monosex fish culture.

(c) Inbreeding depression.

(d) Evolutionary polyploids in fish.

2. Answer any *two* questions. 2×4

(a) State the importance of sex reversal in fish. Briefly describe on hormone induced sex reversal.

(b) Explain how the giant molecule of DNA packaged into a metaphase chromosome in Eukaryotic cell.

(c) What is transgenic fish? Explain its importance in aquaculture development.

(d) Briefly explain the procedure for the production of sterile fish.

3. Answer any *one* question. 1×8

(a) Define genome manipulation. Briefly describe induced Gynogenesis in fish with suitable examples. 2+6

(b) Describe the method followed in the production of all female population by a combination of hormonal and genetics means. 2+6

[Internal Assessment – 10 Marks]