

2023

M.Sc.

4th Semester Examination

FISHERIES SCIENCE

PAPER : FSC-403

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.

Answer from **all** the Units as directed.

UNIT—I

**(AQUACULTURE ENGINEERING AND
ENVIRONMENT MANAGEMENT)**

1. Answer *any two* from the following questions :

2×2=4

(a) State the concept of Recirculating
Aquaculture System (RAS).

(2)

- (b) Why is pond aeration to be needed in the early morning?
- (c) State the principle of integrated fish farming.
- (d) What is partitioned aquaculture?

2. Answer *any two* from the following questions :
4×2=8

- (a) Write a note on present status of world fish production with special reference to India.
- (b) Briefly explain different aeration systems used in intensive aquaculture.
- (c) Write a brief note on Integrated Multi-Trophic Aquaculture (IMTA).
- (d) Describe the drainage system of aquaculture pond with diagram.

(3)

3. Answer *any one* from the following questions :

1×8=8

(a) What is organic aquaculture? Describe briefly the principle of organic farming. Add a note on organic certification system with examples.

2+2+4=8

(b) What is pen culture? Give a brief account of pen culture system with its merits and demerits. Write a brief note on aquaponics.

2+4+2=8

UNIT—II

(FISH GENETICS AND BIOTECHNOLOGY)

4. Write short notes on *any two* of the following :

2×2=4

(a) Meiotic gynogens

(b) Importance of mono-sex fish culture

(c) Transgenic fish

(d) Selective breeding

5. Answer *any two* from the following questions :

4×2=8

(a) Discuss different methods of sterilization in fish and its utility.

(4)

- (b) Briefly discuss fish hybridization with suitable examples.
- (c) Give an account of polyploidy in fish and its utility in aquaculture.
- (d) Briefly describe the Intellectual Property Rights (IPR) and its benefits.

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

8×1=8

(a) Elaborate the process of DNA folding and its packaging into metaphase chromosome. Add a note on the use of steroids for sex reversal in fish? 4+4=8

(b) Describe the method followed in the production of all male populations by a combination of hormonal and genetic means. 4+4=8

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