

**2025/FYUG/ODD/SEM/
IFFDSM-301T/302T/403**

FYUG Odd Semester Exam., 2025

**INDUSTRIAL FISH AND FISHERIES
(5th Semester)**

Course No. : IFFDSM-301T/302T

**Fish Genetics, Biotechnology, Microbiology,
Aquatic Toxicology and Germplasm
Conservation)**

Full Marks : 70

Pass Marks : 28

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

UNIT—I

Answer any *two* from the following : $2 \times 2 = 4$

(a) What do you mean by centromere?
What is telocentric chromosome?

(b) Write a note on polyploidy.

(c) What do you mean by gene mutation
and chromosomal mutation?

(Turn Over)

(2)

2. Answer any *one* from the following :

- (a) Write an essay on inbreeding and outbreeding. Note down the significance of selective breeding.
- (b) Discuss in detail the mechanism of sex determination you have studied. Add a note on sex reversal in fishes.

8+2=10

UNIT—II

3. Answer any *two* from the following :

2×2=4

- (a) What are transgenic fishes?
- (b) What is the significance of sterile fishes in aquaculture?
- (c) Write a note on DNA sequencing.

4. Answer any *one* from the following :

10

- (a) What do you mean by blotting techniques? Write a detailed note on Southern and Western blotting techniques.
- (b) Discuss in detail the fish barcoding techniques. Add a note on its application.

(3)

UNIT—III

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

- (a) Name some aquatic microfloras.
- (b) What do you mean by autochthonous microorganism? Explain briefly.
- (c) Write the significance of bacteria in culture pond.

6. Answer any *one* from the following : 10

- (a) Discuss in detail the autotrophic and heterotrophic microorganisms in aquatic environment.
- (b) Write a note on epidemiology of *E. coli* and *Pseudomonas*.

UNIT—IV

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

- (a) What do you mean by bioaccumulation?
- (b) Write down the importance of dissolved oxygen.
- (c) What is meant by eutrophication?

8. Answer any *one* from the following : 10

- (a) Write a detailed note on bioremediation. Discuss how heavy metal interacts with the aquatic organism.
- (b) What is the full form of PCBs? Write a detailed note on inorganic pesticides and their effect on aquatic organism.

UNIT—V

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

- (a) What do you mean by the exploitation of capture fishery?
- (b) What do you mean by gene bank?
- (c) What do you mean by GIS and remote sensing?

10. Answer any *one* from the following : 10

- (a) Discuss in detail the role of government and community in conservation initiative.
- (b) Write an essay on the concept of fish genetic resources and its conservation.

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