

PG (CBCS)
M.SC. Semester- III Examination, 2023
FISHERIES SCIENCE
PAPER: FSC 303

(AQUACULTURE PRACTICES AND FISH NUTRITION & BIOENERGETICS)
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.

Write the answer for each unit in separate sheet

UNIT: FSC 303.1

AQUACULTURE PRACTICES

GROUP-A

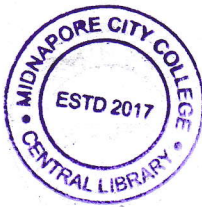
1. Answer any **TWO** of the following questions: 2×2=4
- a) State the importance of live feed in aquaculture.
 - b) What is the impact of invasive fishes in aquaculture?
 - c) How would you control biofouling in any aquaculture system?
 - d) Write the scientific name of green mussel and brown mussel.

GROUP-B

2. Answer any **TWO** of the following questions: 2×4=8
- a) How would you eradicate the predatory and weed fishes from nursery pond?
 - b) Briefly explain the role of carotenoids for colour enhancement of ornamental fishes.
 - c) Write the present status of global aquaculture production.
 - d) State the guidelines of shrimp farming in India.

GROUP-C

3. Answer any **ONE** of the following questions: 1×8=8
- a) Write scientific name of two live bearer ornamental fishes. State the problems and prospects of ornamental fish culture in West Bengal. Add a note on Aquarium plants. 2+4+2
 - b) Write short notes on: 4+4
 - (i) Wastewater aquaculture.
 - (ii) Scope and challenges of seaweed culture in India.



UNIT: FSC 303.2

FISH NUTRITION & BIOENERGETICSGROUP-A

4. Answer any **TWO** of the following questions: 2×2=4
- a) Why protein is crucial in fish nutrition. 1+1
 - b) Name two essential micronutrients and state their role in shrimp farming. 1+1
 - c) Identify one vitamin crucial for the health of shellfish. Explain its specific functions in the metabolism. 1+1
 - d) What do you mean by metabolizable energy?

GROUP-B

5. Answer any **TWO** of the following questions: 2×4=8
- a) What is digestibility? Enlist differential factors affect the digestibility of fish feed. 1+3
 - b) Define anti-nutritional factors in the context of fish nutrition. Give an example of an anti-nutritional factor and its potential impact on fish health. 2+1+1
 - c) Define Feed Conversion Ratio (FCR) and explain its significance in evaluating the efficiency of feed utilization in aquaculture. 1+3
 - d) Explain the concept of hydro-stability of aqua feeds. How to preserve fish feed? 2+2

GROUP-C

6. Answer any **ONE** of the following questions: 1×8=8
- a) How do trypsin and chymotrypsin play a major role in protein digestion in stomachless fishes? A fish farm has 10 hectares of water area. The expected annual average production per hectare is 5000 kg/year. How much feed would be required for one year assuming that the overall FCR is 2.0? What would be the total feed cost if the feed is expected to cost Rs. 20/kg? 2+6
 - b) Name two types of microbial toxins that can affect fish. Explain how these toxins may enter the aquatic environment and impact fish health. Discuss one method used to eliminate microbial toxins in aquaculture systems. 2+3+3
