

CSM—31/24
PART—II/PAPER—VII
FISHERY SCIENCE
PAPER—II

Time : 3 Hours

Full Marks : 250

*The question paper contains **18 (Eighteen)** questions in **GROUP—A, (12)** and **GROUP—B, (06)** together.*

GROUP—A

*Candidates to attempt **10 (ten)** questions within word limit of **250**.
Each question carries **15** marks.*

1. Discuss how different inland aquaculture sectors contribute to India's economic growth, employment generation and nutritional security. Highlight the major governance challenges affecting its sustainable expansion.
2. Discuss why reliance on fishmeal and fish oil is environmentally and economically unsustainable for aquaculture and evaluate India's scope for developing alternative feed proteins.
3. How can digital and smart infrastructure (IoT, GIS, automation) transform India's aquaculture ecosystem?
4. Explain the relationship between farm intensification and aquatic ecosystem degradation.
5. Discuss the challenges of promoting organic aquaculture in India.
6. Discuss the need for seed certification systems in India.
7. Discuss the threat of Antimicrobial Resistance (AMR) in aquaculture.
8. Describe the role of biosecurity in preventing major aquaculture diseases.

**Candidate
must not
write on
this margin.**

9. Why has aquaculture overtaken capture fisheries as the main source of fish for human consumption? Explain.
10. Discuss why essential amino acids are more limiting than protein percentage in shrimp feeds.
11. Explain the suitability of air-breathing fishes for wastewater aquaculture in peri-urban areas.
12. Why do polyculture systems show higher carrying capacity than monoculture systems?

**Candidate
must not
write on
this margin.**

GROUP—B

*Candidates to attempt 05 (five) questions within word limit of 300.
Each question carries 20 marks.*

13. Explain how the modernisation of landing centres can transform value chains, reduce waste and enhance income equity among small-scale fishers.
14. Discuss the contribution of value-added fish products in waste reduction, employment generation and export growth.
15. Assess limitations of BIS standards compared to Codex Alimentarius for marine products export.
16. How does Total Volatile Basic Nitrogen (TVBN) serve as a better freshness index than pH?
17. Discuss the impact of transportation technologies on fish quality, shelf-life and integration with urban and export markets.
18. Why is cryogenic freezing preferred over air-blast freezing for high-value tuna export?

★ ★ ★

SPACE FOR ROUGH WORK

**Candidate
must not
write on
this margin.**



SPACE FOR ROUGH WORK

**Candidate
must not
write on
this margin.**

