

CSM – 29/16
Fisheries Science
Paper – II

Time : 3 hours

Full Marks : 300

The figures in the right-hand margin indicate marks.

*Candidates should attempt Q. No. 1 from Section – A and Q. No. 5 from Section – B which are compulsory and **three** of the remaining questions, selecting at least **one** from each Section.*

SECTION – A

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1. Answer any **three** of the following :
 - (a) Discuss, in detail, about the significance of aquatic animal disease management. 20
 - (b) Write the difference between fisheries and aquaculture. Discuss the scope and prospects of aquaculture in the state of Odisha. 20
 - (c) Describe the importance of feed in

aquaculture and their management in different culture system. 20

(d) Describe, in detail, about the importance of different environmental variables for breeding of fishes ? Write about the evolution of different hatcheries in fish breeding with diagram. 20

2. (a) Write down the advantages and disadvantages of the following : 20

(i) Aquatic plants

(ii) Biofertilizer

(iii) Algal bloom

(iv) Waste water aquaculture

(b) Write down the brief notes on the following : 20

(i) Diversification of aquaculture

(ii) Integrated farming system (IFS) models

(iii) Types of lime and their application in aquaculture

(iv) Recirculatory system in aquaculture

- (c) Write about different types of aquaculture practices. Discuss, in detail, about cage and pen culture. 20
3. (a) Describe major bacterial diseases of cultivable fishes and their remedial measures. 20
- (b) What do you mean by defense mechanism? Discuss, in detail, about the defence mechanism of shellfishes. 20
- (c) What do you mean by transgenic fish? Write about the selective breeding of fishes. 20
4. (a) Write about the soil and water quality criteria for brackish water aquaculture and their management strategies. 20
- (b) What do you mean by the environmental diseases of fishes? Discuss, in detail, the environmental diseases of fishes and their remedial measures. 20
- (c) Write about the seed production and hatchery management of freshwater prawn. 20

SECTION – B

5. Answer any **three** of the following :
- (a) What do you mean by craft ? Write about the care and preservation of fishing boats. 20
 - (b) Write the proximate composition of fish. Give an account of changes associated with frozen fishery products and their control measures. **Techofworld.In** 20
 - (c) Write about the handling and transportation of fresh fishes. Discuss, in detail, about the principles of low temperature preservation of fishes. 20
 - (d) What do you mean by BIS and IS for fish and fishery products ? Write, in detail, about them. 20
6. (a) What do you mean by surimi ? Discuss, in detail, about the fermented fishery products produced in India. 20
- (b) What do you mean by fishery by-products ? Write about the different fishery by-products. 20

- (c) Discuss about the biochemical, microbiological and organoleptic indices of fresh fish. **Techofworld.In** 20
7. (a) Give an account of the following : 20
- (i) Value added fishery products
 - (ii) Food poisoning microbes
 - (iii) Icing of fishes
 - (iv) Care and preservation of fishing gears
- (b) Write about safety and stability of fishing boats. 20
- (c) Discuss about the different modern commercial fishing methods. 20
8. (a) Write, in detail, about different types of canning. Discuss about the different steps followed in canning. 20
- (b) Write brief notes on the following : 20
- (i) Natural and synthetic materials for fishing gears
 - (ii) Fish muscle chemistry
 - (iii) Methods of thawing
 - (iv) Smoking of fishes

- (c) Discuss about the quality specifications for export of Indian Fishery Products to European Union, USA and Japan. 20

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