R1071

Sub. Code
547201

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Second Semester

Fisheries Science

FINFISH AND SHELLFISH BIOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Mullet fishes have modified ———— stomach. (CO1, K4)

   (a) Gizzard (b) bag

   (c) pyloric (d) sac

2. How many pairs of gill slits present in elasmobranchs? (CO1, K4)

   (a) 9-10 (b) 2-4

   (c) 5-7 (d) 11-12

3. Which fish is called as oil sardine (CO1, K4)

   (a) *Lates calcarifer*

   (b) *Mugil cephalus*

   (c) *Sillago sihama*

   (d) *Sardinella longiceps*

4. *Litopenaeus vannamei* ahrimp is a ———————— species of India (CO2, K5)

(a) native (b) fossil

(c) exotic (d) endangered

5. Which genus is called as sand lobster (CO3, K2)

(a) *Penaeus sp* (b) *Panulirus sp*

(c) *Thenus sp* (d) *Homarus sp*

6. Catadromy fishes means feeding and growth occur in ———————— water (CO1, K4)

(a) sea water (b) freshwater

(c) backwaters (d) lagoon

7. Which genus is called as edible oyster (CO4, K5)

(a) *Perna viridis*

(b) *Crassostrea madrasensis*

(c) *Perna indica*

(d) *Meretrix casta*

8. In fishes GSI means (CO1, K4)

(a) Gastro somatic index

(b) Gonadosomatic index

(c) Gall somatic index

(d) Gill somatic index

9. Which one is called as button shells (CO4, K5)

(a) *Umbonium* (b) *Babylonia*

(c) *Perna* (d) *Anadara*

10. Age and growth studies are essential to understand a population from which ———————— rate is estimated. (CO1, K4)

(a) mortality (b) reproduction

(c) fisheries (d) none of the above

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Explain in detail about the digestive system of any marine fishes. (CO1, K4)

Or

(b) Draw neatly the respiratory organ of fishes. (CO1, K4)

12. (a) Write a note on fresh water prawns with scientific names. (CO2, K5)

Or

(b) Narrate the life cycle of shrimps in the Ocean. (CO2, K5)

13. (a) Discuss the commercially important crabs in India. (CO3, K2)

Or

(b) Define the larval stages of spiny lobsters. (CO3, K2)

14. (a) What is meant by bivalves? Justify with appropriate examples. (CO4, K5)

Or

(b) Explain the reproductive biology of green mussels. (CO4, K5)

15. (a) Discuss the food and feeding habits of some cephalopods. (CO5, K4)

Or

(b) Give a short note on commercially important gastropods in India. (CO5, K4)

Part C (5 × 8 = 40)

Answer **all** questions note more than 1000 words each.

16. (a) Give an elaborate note on reproductive system of fishes. (CO1, K4)

Or

(b) Narrate the role of migration in fishes. (CO1, K4)

17. (a) Discuss the commercially important shrimps in fisheries. (CO2, K5)

Or

(b) Give an account on reproductive system in response to endocrine signals of shrimps. (CO2, K5)

18. (a) Give an elaborate note on the commercially important lobsters in India and their feeding habits. (CO3, K2)

Or

(b) Brief the food and feeding habits in relation to age and growth in crabs. (CO3, K2)

19. (a) Explain the status of national and international markets for bivalves trade. (CO4, K5)

Or

(b) Write a note on edible oyster biology. (CO4, K5)

20. (a) Discuss the gastropod fishery with food and feeding habits. (CO5, K4)

Or

(b) Elaborate in detail about the reproductive system of cephalopods. (CO5, K4)

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R1072	Sub. Code
	547202

M.Sc. DEGREE EXAMINATION, APRIL 2024

Second Semester

Fisheries Science

FISHING CRAFTS AND GEARS

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. The major gear used to exploit tunas from the Indian coastal waters is (CO1, K4)

   (a) Drift gill nets (b) Trawlers

   (c) Purse seines (d) Trolling

2. Choodavalai used to exploit the Whitebaits from southwest coast of India is a type of (CO3, K2)

   (a) Gill net (b) Shore seine

   (c) Ring seine (d) Bag net

3. Whitefish is also known as (CO1, K4)

   (a) False trevally

   (b) Jew fish

   (c) Croaker

   (d) Thread fin

4. The two important parameters that influence the catching efficiency of gill (CO3, K2)

(a) Hanging Co-efficient and mesh size

(b) Length of webbing and mesh size

(c) Breaking strength and mesh size

(d) Density of material and mesh size

5. The maximum production of Chinese pomfret is from the state of (CO1, K4)

(a) Karnataka (b) Kerala

(c) Maharashtra (d) Orissa

6. A dust pan shaped surrounding gear (CO2, K2)

(a) Sardine purse seine

(b) Ring seine

(c) Lampara net

(d) Beach seine

7. Scientific name if short neck clam is (CO3, K2)

(a) Paphia malabarica

(b) Tapes brugueiri

(c) Perna viridis

(d) Meretrix casta

8. India has got an EEZ of (CO5, K2)

(a) 2.02 m sq.km (b) 2.05 msq.km

(c) 2.0 m sq.km (d) 2.1 m sq. km

9. ISSCTG stands for (CO5, K2)

(a) Indian Standard Satisfaction of Finishing Gears

(b) International Standard Statistical Classification of Fishing Gears

(c) International Society for Statistical Classification of Fishing Gears

(d) None of these

10. ———————— have got well developed swim bladders (CO1, K4)

(a) Sciaenids (b) Flying fishes

(c) Half beaks (d) Whitebaits

Part B (5 × 5 = 25)

Answer **all** the questions not more than 500 words each.

11. (a) Describe on the inland fishing gears with example and a schematic representation. (CO1, K4)

Or

(b) Write a short note on the traditional gears of India along with a schematic representation. (CO1, K4)

12. (a) Write on the different crafts used in the boat construction with diagrams. (CO2, K2)

Or

(b) Write a short note on the juvenile fishing practice in India. (CO2, K2)

13. (a) Explain on the various materials used in the making of gears. (CO3, K2)

Or

(b) Define webbing and explain on the various types in webbing along with diagram. (CO3, K2)

14. (a) Write a note on the destructive and prohibited fishing gears in India. (CO4, K4)

Or

(b) Describe on the stupefying gear with diagram. (CO4, K4)

15. (a) Give an account on the ICZM. (CO5, K2)

Or

(b) Write on the by catch and their impact of marine ecosystem. (CO5, K2)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Explain on the basic geometric concepts and terminologies of fishing vessels with diagram. (CO1, K4)

Or

(b) Write a detail note on the state of equilibrium with various types along with the rules involved in it. (CO1, K4)

17. (a) Write a detailed account on the modern fishing craft of India. (CO2, K2)

Or

(b) Explain in detail on the outboard engines with their importance and advantages. (CO2, K2)

18. (a) Describe in detailed account on the yarn numbering systems. (CO3, K2)

Or

(b) Define gear. Explain the types of gear, factors affecting the gear with the storage and maintenance. (CO3, K2)

19. (a) Give a detailed note on passive and active gears types with their principles and Operations. (CO4, K4)

Or

(b) Give a detailed note on the outboard and inboard engines. (CO4, K4)

20. (a) Write a note on the MSY and MEY. (CO5, K2)

Or

(b) Give an account on the Indian Fisheries Act. (CO5, K2)

R1073

Sub. Code
547203

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Second Semester

Fisheries Science

FISHERIES MANAGEMENT, REGULATIONS AND CONSERVATION

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the questions objective type questions by choosing the correct options.

1. Induced breeding technique is used in (CO4, K2)

   (a) Culture fishery (b) Marine Fishery

   (c) Capture fishery (d) Inland fishery

2. The major gear used to exploit tunas from the Indian coastal waters is (CO1, K2)

   (a) Drift gill net (b) Purse seines

   (c) Seines (d) Trolling

3. The mudflat and saline swamps located in West Bengal are called as (CO5, K5)

   (a) bheries (b) lagoon

   (c) backwater (d) embanked brackish water

4. Beels / oxbow lakes are mostly distributed in (CO4, K2)

(a) Tamilnadu

(b) Gujarat

(c) Himanchal Pradesh

(d) Assam

5. Oxygen depletion occurs mostly in ponds having high density of (CO4, K2)

(a) Bacteria (b) Insects

(c) Gastropods (d) Macrophytes

6. The largest estuarine ecosystem in India is (CO2, K4)

(a) Hooghly matlah (b) Mahanadi

(c) Godavari (d) Narmada

7. Chitin and chitosan is prepared from (CO1, K2)

(a) Fish (b) Crustacean shell

(c) Fish scale (d) Molluscan shell

8. Which of the following ecosystem is most productive from aquaculture point of view? (CO3, K2)

(a) river (b) reservoir

(c) canal (d) pond

9. Which is deemed university for fishery education in India (CO1, K2)

(a) CIFRI (b) CIFE

(c) CIFA (d) CIFT

10. How many pairs of gills are present in Chondrichthyes (CO4, K2)

(a) 6-7 (b) 5-7

(c) 5-6 (d) 4-8

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Write a short on IOTC. (CO1, K2)

Or

(b) Write a note on ghost fishing. (CO1, K2)

12. (a) Differentiate between Inland and Coastal MCS systems for capture fisheries. (CO2, K4)

Or

(b) Write a short note on TED. (CO2, K4)

13. (a) Discuss the marine fishery policy. (CO3, K2)

Or

(b) Discuss the maritime zones of India Act. (CO3, K2)

14. (a) Enumerate the integrated coastal zone management. (CO4, K2)

Or

(b) Explain state wise fishery legislations of India. (CO4, K2)

15. (a) Explain on EEZ. (CO5, K5)

Or

(b) Discuss the marine protected areas. (CO5, K5)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 1000 words each.

16. (a) Account on the management practices and the legal enforcement regimes that are followed in India with the unreported and unregulated fishing. (CO1, K2)

Or

(b) Explain the responsibility of central and state government in fisheries regulation development. (CO1, K2)

17. (a) Write a detailed note on the MCS system. (CO2, K4)

Or

(b) What is the code of conduct for responsible fishing? (CO2, K4)

18. (a) Write in detail about deep sea fishing regulation. (CO3, K2)

Or

(b) Explain the guidelines for operation in dep sea fishing. (CO3, K2)

19. (a) Explain the commonly used tools for input and output regulation. (CO4, K2)

Or

(b) Write in detail on CRZ. (CO4, K2)

20. (a) Explain the maritime zones of India (regulation of fishing by foreign vessel) act, 1981. (CO5, K5)

Or

(b) What is meant by catch quotas in fisheries? What is the purpose? (CO5, K5)

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R1074

Sub. Code
547204

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Second Semester

Fisheries Science

SHELLFISH AND FINFISH HATCHERY MANAGEMENT

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the following objective type questions by choosing the correct option.

1. Megalopa is a larva of (CO1, K5)
   (a) crab (b) fish
   (c) prawn (d) bivalves

2. FCR means (CO2, K6)
   (a) feed conversion ratio
   (b) food control ratio
   (c) faecal conversion ratio
   (d) first control ratio

3. Induced breeding (CO2, K6)
   (a) liver extract (b) stomach extract
   (c) pituitary extract (d) kidney extract

4. Testosterone is used to produce ———————— population. (CO1, K5)
   (a) male (b) female
   (c) mixed (d) all of the above

5. Mortality of seed during transportation is due to (CO2, K6)

(a) decrease of ammonia

(b) increase of CO_2

(c) decrease of feed

(d) decrease sunlight

6. In shrimp hatchery naupli were fed with ———— (CO2, K6)

(a) diatoms (b) artemia

(c) eggs (d) yolk sac

7. Large scale hatchery maintenance leads to (CO5, K3)

(a) high risk (b) low risk

(c) moderate risk (d) poor risk

8. Criteria for constructing hatchery ———— sea shore is essential. (CO2, K6)

(a) sandy and rocky (b) clay and loamy

(c) swampy (d) muddy

9. Eye stalk ablation in female's shrimps leads to (CO1, K5)

(a) GIH (b) HCG

(c) CNG (d) LPG

10. What arc the hormones used for induced breeding of fishes? (CO4, K6)

(a) ovaprim (b) HCG

(c) all of the above (d) none of the above

Part B (5 × 5 = 25)

Answer **all** questions not more than 500 words each.

11. (a) Write a note on the commercially important cultivable finfishes. (CO1, K5)

Or

(b) Comment on important shellfishes in aquaculture industries. (CO1, K5)

12. (a) What are the criteria for selecting a suitable site for shrimp hatchery? (CO2, K6)

Or

(b) Write about HACCP in hatcheries. (CO2, K6)

13. (a) Discuss pearl formation in oysters. (CO3, K3)

Or

(b) Elaborate the live feed culture in shrimp hatcheries. (CO3, K3)

14. (a) Give a detailed note on sea bass culture in hatchery. (CO4, K6)

Or

(b) Explain induced breeding in finfishes. (CO4, K6)

15. (a) Write a note on the trade of exotic species. (CO5, K3)

Or

(b) Brief the economics of large-scale shrimp hatchery managements. (CO5, K3)

Part C (5 × 8 = 40)

Answer **all** questions not more than 1000 words each.

16. (a) Write a detailed note on internationally important cultivable shellfishes. (CO1, K5)

Or

(b) Give the present status of cultivable species in national market. (CO1, K5)

17. (a) Explain the various hatchery components for crustaceans. (CO2, K6)

Or

(b) Brief a note on brood stock development and larval rearing in shrimp hatcheries. (CO2, K6)

18. (a) Give a detailed note on collection of various bivalve brooders from the wild. (CO3, K3)

Or

(b) Write a note on induced breeding and feed managements in shell fish hatcheries. (CO3, K3)

19. (a) Write about the hatchery production of cobia fish. (CO4, K6)

Or

(b) Discuss the mode of seed transportation from hatchery to grow out ponds. (CO4, K6)

20. (a) Discuss the advantages and disadvantages of small size with medium size hatchery. (CO5, K3)

Or

(b) Work out the cost analysis for large scale finfish hatchery managements. (CO5, K3)

R1075

Sub. Code
547506

M.Sc. DEGREE EXAMINATION, APRIL – 2024

Second Semester

Fisheries Science

Elective: AQUATIC POLLUTION

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** the objective type questions by choosing the correct option.

1. Which of the following pollutants is associated with the phenomenon of ocean acidification? (CO5,K5)

   (a) Nitrogen (b) Sulfur Dioxide

   (c) Carbon dioxide (d) Ozone

2. The term "bioaccumulation" refers to the: (CO2, K3)

   (a) Decomposition of organic matter

   (b) Accumulation of pollutants in living organisms

   (c) Sedimentation of suspended particles

   (d) Dispersal of pollutants in the water column

3. What is the primary purpose of Environmental Impact Assessment (EIA) in wastewater management? (CO3,K5)

   (a) Monitoring water quality

   (b) Assessing potential environmental effects

   (c) Treating industrial effluents

   (d) Establishing water quality criteria

4. What is the primary role of aerobic treatment in wastewater management? (CO3,K5)

(a) Eliminating pathogens

(b) Removing heavy metals

(c) Reducing oxygen demand

(d) Enhancing nutrient levels

5. The term "eutrophication" is often linked to an excess of which nutrient in water bodies? (CO2,K3)

(a) Phosphorus

(b) Nitrogen

(c) Calcium

(d) Magnesium

6. Which organization is responsible for setting international standards for environmental management systems? (CO5,K5)

(a) UNICEF

(b) WHO

(c) ISO

(d) IUCN

7. Reducing nitrogen and phosphorus levels in wastewater is crucial to prevent: (CO2,K3)

(a) Ocean acidification

(b) Eutrophication

(c) Bioaccumulation

(d) Radioactive contamination

8. Biomedical waste includes materials such as: (CO1, K4)

(a) Plastic bottles

(b) Radioactive isotopes

(c) Pesticides

(d) Used syringes

9. What is the primary purpose of a UV irradiation treatment in wastewater management? (CO3,K5)

(a) Removing suspended solids

(b) Disinfecting microorganisms

(c) Breaking down organic compounds

(d) Neutralizing heavy metals

10. The concept of "Indicator organisms" is crucial in: (CO5,K5)

(a) Identifying pollution sources

(b) Designing water filtration devices

(c) Measuring ocean acidification

(d) Managing solid waste

Part B ($5 \times 5 = 25$)

Answer **all** the questions not more than 500 words each.

11. (a) Define aquatic Pollution and briefly explain its types and sources. (CO1, K4)

Or

(b) Discuss the impacts of eutrophication on aquatic ecosystems and its management strategies. (CO2, K3)

12. (a) What are the common transport processes of pollutants in the aquatic environment? Provide examples. (CO2, K3)

Or

(b) Discuss the toxic effects of Minamata and Itai diseases on aquatic ecosystems. (CO2,K3)

13. (a) Explain the principles of aeration, chlorination, and ozonation in wastewater treatment. (CO3,K5)

Or

(b) Classify and describe the characteristics of sewage and industrial effluents. (CO3,K5)

14. (a) Describe the role of aquatic macrophytes in the treatment of wastewater. (CO3,K5)

Or

(b) Explain the criteria for the selection of indicator organisms in monitoring marine Pollution. (CO5,K5)

15. (a) Discuss the monitoring strategies for aquatic pollution. (CO5,K5)

Or

(b) Explore the role of international and national organizations in controlling aquatic pollution. (CO5,K5)

Part C (5 × 8 = 40)

Answer **all** the questions not more than 500 words each.

16. (a) Analyze the current national and international status of aquatic pollution, highlighting major concerns and trends. (CO1, K4)

Or

(b) Discuss the challenges and solutions related to groundwater Pollution and its impact on water resources. (CO1, K4)

17. (a) Explore the role of waste recycling and utilization in aquaculture for sustainable water management. (CO4, K5)

Or

(b) Assess the environmental and health implications of common pollutants such as sewage, pesticides, and metals in aquatic ecosystems. (CO2,K3)

18. (a) Examine the principles and practices of waste disposal, emphasizing the water quality criteria used globally. (CO2,K3)

Or

(b) Compare and contrast the wastewater management strategies adopted at the national and international levels, emphasizing standards and regulations. (CO3,K5)

19. (a) Elaborate the design and construction of filtration devices for waste water treatment and explain its role. (CO4, K5)

Or

(b) Explain the various steps of waste management practices in fish processing units, covering both liquid and solid waste components. (CO4, K5)

20. (a) Critically analyze the role of Non–Governmental Organizations (NGOs) in addressing and mitigating aquatic Pollution issues. (CO5,K5)

Or

(b) Investigate the relationship between global warming, climate change, and their impact on aquatic ecosystems. (CO5,K5)

———————