2015

M.Sc. Part–II Examination

ZOOLOGY

PAPER—IX (Group—B)

Full Marks : 50

Time : 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Write the Answers to Questions of each Unit in separate Booklet.

FISHERY SPECIAL

Answer any *four* questions taking *two* from each unit.

Unit—I

[*Inland and Marine Fisheries*]

1. (i) Classify inland fisheries resources.

(ii) Elucidate briefly the factor responsible for decline in the natural stock of indigenous fish species.

(iii) Discuss conservation strategies for the inland captive fish species in India.

$2\frac{1}{2}+5+5$

2. (i) What is upwelling? State its impact on marine fishery.

(ii) Discuss briefly effects of temperature and salinity on marine fish production in the sea around India.

(iii) Distinguish between 'Exclusive Economic Zone' and 'High Sea Zone'.

$(2+2)+(3+3)+2\frac{1}{2}$

3. (i) Give scientific name and systematic position of the Indian Oil Sardine.

(ii) Elucidate Sardine fishery with reference to the following :

(a) Distribution ;

(b) Food and feeding habits ;

(c) Breeding biology and fecundity ;

(d) Seasonal abundance.

$2\frac{1}{2}+1\frac{1}{2}+2\frac{1}{2}+3\frac{1}{2}+1\frac{1}{2}$

4. (i) Distinguish between 'Sewage' and 'Sludge'.

(ii) State Physico-chemical parameters of raw sewage.

(iii) Give a brief account of sewage treatment process prior to its application in fish culture pond.

(iv) Add a brief note on the likely health hazards associated with the sewage fed fishery and also suggest suitable corrective measures.

$2+2+5+3\frac{1}{2}$

Unit—II

[*Aquaculture and Fish Technology*]

5. Write note on the following :

(i) Highlight of the Indian Fisheries Act, 1897.

(ii) Characteristics of Indian Fish Market.

(iii) Fisheries as a tool in rural development.

(iv) Fish Protein concentrate and its importance.

$3+3+3+3\frac{1}{2}$

6. (i) What do you mean by infectious and non-infectious disease in fish? Explain with examples.

(ii) Discuss different methods of treatment for fish diseases.

(iii) Write down the causative agent, symptoms and treatment of EUS in carps.

(iv) Write down the methods used for the control of aquatic weeds in aquaculture system.

$3+2+3+4\frac{1}{2}$

7. (i) What is Composite fish culture? Briefly discuss the method of the culture practice in India.

(ii) Write a note on fish-livestock integration with suitable example.

(c) Briefly discuss on cage culture and its advantages.

$(2+4)+4+2\frac{1}{2}$

8. (i) Describe the annual cyclical changes of fish ovary.

(ii) Illustrate the procedure of hypophysation technique for fish breeding.

(iii) Discuss the hormonal control of vitellogenesis in teleost fish.

Or

State the important parameters to be considered towards the site selection for an Aquafarm.

$4+4+4\frac{1}{2}$

ECOLOGY SPECIAL

Answer any *four* questions taking *two* from each unit.

Unit—I

[*Aquatic Ecology*]

1. (a) Classify Lakes on the basis of their origin.

(b) Describe the zonations of a Lake Ecosystem in respect to their salient features.

$6\frac{1}{2}+(3+3)$

2. (a) Explain the salient features of mangrove ecosystem. Discuss the structural and functional aspects of the said ecosystem.

$1\frac{1}{2}+2\frac{1}{2}+2\frac{1}{2}$

(b) Define Coastal Zone. Highlight significance of ICZM. Discuss the importance of Continental margin.

$1+2\frac{1}{2}+2\frac{1}{2}$

3. (a) What is Eutrophication ? State how seasonal changes are related to lake productivity. Differentiate between natural and cultural eutrophicaiton. What is Oligotrophic Lake ?

(b) (i) Explain the statement 'wetlands are nature's kidney and lungs'.

(ii) 'Estuaries represent a very unstable coastal environment.' Justify the statement.

$(1\frac{1}{2}+2+2+1)+(3+3)$

4. Write short notes on any *three* of the following : $12\frac{1}{2}$

(a) Classification of Aquatic biota.

(b) Periods of Lake Mixing.

(c) Lentic *vs.* Lotic habitat.

(d) CRZ-I & CRZ-II.

Unit—II

[*Human Ecology*]

5. Define population. With prime causative factors, describe the trend of changes for human population. Explain demographic quotient and demographic transition.

$1+7\frac{1}{2}+4(2+2)$

6. Enlist major green house gases and add a note on their sources. Briefly discuss the impact of global warming on bio-diversity.

$4+8\frac{1}{2}$

7. Define Acid-rain. Discuss the impact of acid-rain on agriculture, forest and aquaculture. Add a note on thermal stratification.

$2+7(3+2+2)+3\frac{1}{2}$

8. Write short notes on (any *three*) of the following : $12\frac{1}{2}$

   (a) Criteria for declaring an area as 'Urban area'.

   (b) Merits and demerits of Urbanisation on bio-diversity.

   (c) Mitigation measures against global warming.

   (d) Impact of global warming on sex determination in reptiles.

   (e) Major Indoor pollutants.
