

2016

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) What is estuary ? State the divisions of an estuary on the basis of salinity.
- (ii) Enlist the residential fish species of Hooghly Matlah estuary.
- (iii) Elaborate the ideas leading to the entrophication in reservoir.

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

(Turn Over)

2. (i) What is remote sensor? Distinguish between active remote sensor and passive remote sensor. State the use of remote sensing system in Fishery Sciences.
- (ii) Note on : Public Health Fishery.

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

3. Answer the following questions :

- (a) Sewage constituents ;
- (b) Marine products export from India ;
- (c) Functioning of 'facultative stabilization pond' ;
- (d) Conservation of fish in reservoir.

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

4. Write short notes on any three :

- (a) Freshwater prawn ;
- (b) Bio-gas ;
- (c) Oil sardine ;
- (d) Fish migration ;
- (e) Sewage constituents.

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

Unit—II

[Aquaculture and Fish Technology]

5. (i) Describe the steps of cryopreservation of fish gametes.

- (ii) Name one bacterial and one fungal fish disease and name the causative pathogens.
- (iii) Write a note on the use of mohua oil cake in fish culture pond.
- (iv) State the advantages and disadvantages of cage culture.

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

6. (i) Write a short note on problems in fish marketing.
- (ii) Write down different steps involved in nursery pond preparation.
- (iii) State the objectives of fisheries extension.
- (iv) Enlist the hormones secreted from adenohipophysis.

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

7. (i) Briefly discuss on the problems and of farming transgenic fish.
- (ii) What do you mean by induced breeding? Write a note on alternative inducing agent used in fish breeding.
- (iii) Write a note on WSSU in *Penaeus monoden*.
- (iv) Discuss the prophylactic and treatment measures of EUS.

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

8. Write short notes on the following :

- (a) Paddy-cum-fish culture ;
- (b) Different stages of fish oocytes ;

- (c) Bundh breeding ;
 (d) Closed season in Bay of Bangal ;
 (e) Fish processing methods.

5×2½

ECOLOGY SPECIAL

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

Unit—I

[Aquatic Ecology]

1. (a) Describe thermal stratification in lake with a diagram.
 (b) How many types of lakes exist depending upon the time and extent of mixing? Give brief description of each.

(3+1½)+(4+4)

2. (a) Write down the characteristics of the following aquatic organisms with examples and ecological role of each group :
- (i) Plankton ;
 (ii) Necton ;
 (iii) Benthos ;
 (iv) Neuston.

- (b) Types of CRZ and their significance.

(2½×4)+2

3. (a) "Mangroves are highly productive ecosystems." — Justify.
 (b) State the criteria for considering a landscape as Wetland. Distinguish between marsh and swamp.
 (c) Enlist the living resources of Marine ecosystem.

2½+(2+2)+6

4. Write short notes on any *three* of the following :

4+4+4½

- (a) Significance of continental shelf.
 (b) Types of Estuaries.
 (c) Ecological impact of Eutrophication
 (d) Limnetic vs. Profundal zone.
 (e) Enlist major Ramsar sites of Eastern India.

Unit—II

[Human Ecology]

5. Differentiate London type of smog from Loss-Angelles smog. Write down different chemical pathways for the development of pathochemical smog. Add a note on its effects on human being.

4+6+2½

6. What is Urbanisation ? Mention the criteria for designating an area as an urban area. Briefly discuss on the merits and demerits of urbanisation on bio-diveristy.

2+4+6 $\frac{1}{2}$

7. Discuss briefly the causes of human explosion. Mention the strategies to be undertaken to control the human population. Add a note on demographic quotient and demographic transition.

4+6+2 $\frac{1}{2}$

8. Write short notes of the following :

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

- (a) Enlist different green house gases mentioning their sources.

Or

Highlight the relationship between Green House gases with respect to Global Warming.

- (b) Explain the role of meterological parameters in the formation of Acid Rain.

Or

Ecological Foot print.

- (c) Add a note on the impact of Acid rain on Aquaculture.

Or

El-Nino.