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C/17/DDE/M.Sc./Part-II/Zoo./9B

2017

M.Sc. Part-II Examination

ZOOLOGY

PAPER—IX

Full Marks : 100

Time : 4 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.

Use separate Answer-scripts for each group.

(Ecology Special)

Group-B

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

Unit—I

[Aquatic Ecology]

1. (a) Elaborate the various types of lakes on the basis of their Geological origin.

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(Turn Over)

- (b) Comment on the transition of lakes varying in trophic nature. $3\frac{1}{2}$
2. (a) Describe the structure and function of the mangrove ecosystem. $2+2$
- (b) Illustrate the habitat zonation of a typical inland lentic water body and compare it with the zonation of an ocean. $4\frac{1}{2}+4$
3. (a) Comment on the mechanism of Eutrophication. $2+2$
- (b) Define Estuary. 2
- (c) Explain why estuaries are called as nursery ground for marine animals. $3\frac{1}{2}$
- (d) Differentiate between tidal and non-tidal marshes. 3
4. Write short notes on any *three* of the following :
- (a) ICZM ;
- (b) Bioindicator ;

- (c) Characteristic features of Lotic Aquatic systems ;
- (d) Eutrophication ;
- (e) Periphyton versus Phytoplankton. $4+4+4\frac{1}{2}$

Unit—II

[Human Ecology]

5. Briefly discuss on the trend of human population explosion and factors responsible for it. What is Demographic Quotient? Explain it. $7\frac{1}{2}(4+3\frac{1}{2})+5(2+3)$
6. What do you mean by sustainable development? Mention the basic elements of sustainability. Comment on the "egg of sustainability" model. "Sustainable development can be viewed as social movement." — Justify the statement. $2+4+3\frac{1}{2}+3$
7. Draw the relationships among Green House Effect, Global Warming and Climate Change. Briefly discuss on the impact of global warming on marine coastal biodiversity. $5+7\frac{1}{2}$

8. Write short notes (any three) :

- (a) PAN,
- (b) Acid Rains and Built structure,
- (c) Demographic Transition,
- (d) Extinction vortex,
- (e) Thermal inversion. 4+4+4 $\frac{1}{2}$

(Fishery Special)

Group-B

Answer any four questions taking two from each unit.

Unit-I

[Inland and Marine Fisheries]

1. (a) What is Reservoir fish? Give two examples of indian reservoir fish. 2 $\frac{1}{2}$

- (b) Write the various steps usually adopted in the development of the fisheries of the Indian reservoir. 6
- (c) Mention the fish resource in inland water bodies. 2
- (d) Write a note on :
Trends in aquaculture development. 2

2. (a) What are the differences between domestic and industrial sewage? 2 $\frac{1}{2}$

- (b) Describe the necessary treatment procedures of sewage for fish culture. 6

- (c) Write notes on :

(i) Larvicidal fishes ;

(ii) Rural development through inland fishery resource. 2×2

3. (a) What is remote sensing? 2 $\frac{1}{2}$

- (b) What are the different stages of remote sensing? 6

- (c) Distinguish between : Positive Estuary and Negative Estuary. 2
- (d) State the trophic phases of a new reservoir. 2
4. Write short notes (any *three*) of the following :
- (a) Back water fishery,
- (b) Export of fishery products,
- (c) Law of diminishing return,
- (d) Salinity gradient in estuary,
- (e) Problems in Aquaculture development,
- (f) Shell fish culture. 3+3+3+3 $\frac{1}{2}$

Unit—II

[Aquaculture and Fish Technology]

5. (a) Define Integrated fish farming. State the different types of integrations farming.
- (b) Describe elaborately the technique of Duck cum fish culture.

- (c) Write a note on bundh breeding. 2+3+5+2 $\frac{1}{2}$
6. (a) Indicate the scientific names of four major cultivable fishes available in Ganga River. Point out the reasons for declining trend of these fishes in Ganga River.
- (b) What do you understand by back water culture? Point out in brief the methods adopted for such culture practice with emphasis on the species suitable for such culture. (2+3 $\frac{1}{2}$)+3+4
7. (a) What do you mean by infecious and non-infectious disease in fish? Explain with examples.
- (b) Discuss different methods of treatment of fish diseases.
- (c) Enlist the candidate species of phytoplankton and zooplankton available in fresh water of West Bengal.
- (d) Briefly describe specific and non-specific defence system in fish. 3+2+3 $\frac{1}{2}$ +4

8. (a) What are the constraints of shrimp culture development in Asia ?
- (b) Point out suggestive measures for mariculture development in India.
- (c) Describe the fish canning method adopted in India.

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