

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-A

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

Unit—I

[Soil Ecology]

1. Give a brief account of different forms of moisture present in soil. Highlight various factors that influence the content of moisture in soil. Cite examples of hydrophilic forms found in soil.

4+7+1½

(Turn Over)

2. What do you mean by 'Behavioural Methods' of extraction of soil fauna? Describe with illustrations different behavioural methods followed to extract soil macroarthropods. Why behavioural methods are considered to be superior to Mechanical Methods? $2\frac{1}{2}+8+2$

3. What is humus? Differentiate between 'mull' & mor types of humus formation. Discuss the role of soil fauna in leaf litter decomposition. Add a note on endopagic soil fauna. $1+3+6+2\frac{1}{2}$

4. Write short notes on the following (any three) :

(a) Soil texture,

(b) Baermann funnel,

(c) Pedogenesis,

(d) Black soil,

(e) Afforestation. $4+4+4\frac{1}{2}$

Unit—II

[Biodiversity and Wildlife Ecology]

5. (a) State the possible reasons of deforestation.
 (b) Give an account of the impact of deforestation.
 (c) State the merits and demerits of monoculture forestry. $4+5+3\frac{1}{2}$

6. (a) Biodiversity supplies a vast array of services to people. — Explain.

(b) What do you mean by hotspots of biodiversity? $7\frac{1}{2}+5$

7. (a) Explain the following :

(i) Protected area ;

(ii) Sanctuary ;

(iii) National park ;

(iv) Biosphere reserve.

(b) Write a note on IUCN. $(2\frac{1}{2}\times 4)+2\frac{1}{2}$

8. Write short notes on any three of the following :

(i) Endangered species ;

(ii) Ethical value of biodiversity ;

(iii) Nutrient cycling in the forest environment ;

(iv) Biosphere ;

(v) Distribution of rain forests in India. $4+4+4\frac{1}{2}$

(Fishery Special)**Group-A**

Answer any four questions taking two from each unit.

Unit-I

[Fish Taxonomy and Biology]

1. (a) "FCR and PER are inversely proportional to each other." — Explain.
- (b) How do you Calculate Specific Growth Rate and Absolute Growth Rate in fish?
- (c) Discuss about the impacts of different biotic factors on fish growth.
- (d) Add a note on bio-chemical composition of fish in any fish.

3+4+3+2½

2. (a) Determine the appropriate order of the following fishes :

Labeo calbasu, *Clarias batrachus*, *Glossogobius giuris*, *Protopterus sp.*, *Harpodon nehereus*.

- (b) Mention two examples with four characters of the following fishes :
- Clupeiformes, Perieformes, Beloniformes.
- (c) Discuss about extinct fishes.
 - (d) Add a note on fish as living fossil.

2½+6+2½+1½

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

(Continued)

3. (a) Enlist the different hormones released from pituitary gland in fish.
- (b) Describe the different types of migration in fish.
- (c) Make a note on Dam Construction impact on fish migration.
- (d) Add a note on electroreception in fish.

4+3+3+2½

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

- (a) Absolute fecundity and relative fecundity,
- (b) Gastrosomatic Index and Gonado Somatic Index,
- (c) Natural food of IMC ;
- (d) Parental care of fish (two fishes) ;
- (e) Bioluminance in fish ;
- (f) Breeding habit of Hilsa fish.

4+4+4½

Unit-II

[Limnology and Occanography]

5. Answer the following :

- (a) Wetland noted as 'Natures Kidney'. — Justify.
- (b) Mangrove Ecosystem is an unique site of nutrient interaction. — Explain.
- (c) Classify lakes on the basis of water mixing pattern.

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

(Turn Over)

(d) Pharmacological importance of marine molluscs.

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

6. Define the Lotic and Lentic water body with examples. Mention different lotic components of a fresh water ecosystem. Write notes on :

(a) Rock inhabitant lives in lotic water bodies,

(b) Cyclomorphosis.

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

7. (a) How oil spill affect the aquatic life in sea? State the importance of upwilling in sea.

(b) Write short notes on :

(i) Economic importance of marine products,

(ii) Physical character of ocean.

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

8. Write short notes (any four) of the following :

(a) Natural Lakes ;

(b) Habitants of Rotifers ;

(c) Plankton diversity on the basis of size ;

(d) Continental shelf ;

(e) Thermal stratification of oceanic water mass ;

(f) Oceanic resource (Chemical / Biological).

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