

2018

M.Sc. Part-II Examination

ZOOLOGY

PAPER—IX A

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.

Use separate Answer-scripts for each unit.

(Ecology Special)

Group-A

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

Unit—I

[Soil Ecology]

1. Explain major soil orders and mention their distinctive features and distribution. Name major soil horizons. Give an account of physio-chemical properties of lateritic soil.

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

(Turn Over)

2. What is Pedogenesis ? Highlight how different factors play important role for soil formation. Add a note on exedaphic soil fauna. $2+8+2\frac{1}{2}$

3. Illustrate the agricultural impact on the bioecology of soil fauna. What is biofumigant ? $10\frac{1}{2}+2$

4. Write short notes on the following :

(a) Any *two* of the following :

- (i) Afforestation,
- (ii) Leaf litter decomposition,
- (iii) Hemiedaphic soil fauna.

(b) Any *one* of the following :

- (i) Soil texture,
- (ii) Extraction of soil mesofauna. $(2\times 4)+(1\times 4\frac{1}{2})$

Unit—II

[Biodiversity and Wildlife Ecology]

5. (a) State the characteristic features of tropical rain forests. Give an account of distribution of rainforests in India.

(b) State the advantages of agroforestry over traditional forestry.

(c) Write a note on joint forest management programme.

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

6. (a) Name the mega-biodiversity countries of the world. Justify why these countries designated as mega-biodiversity country.

(b) Define (i) Critically endangered species, (ii) Endangered species and (iii) Threatend species.

(c) What is biosphere reserve ? State its significance.

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

7. Give an account of distribution and population status of tiger and black buck occurring in India. What are the main threats to servival of these animals ?

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

8. (a) Discuss the role of forests in nutrient cycling process.

Or

Write a note sustainable use of biodiversity.

(b) Name the wildlife sanctuaries of West Bengal.

Or

State the cultural values of biodiversity.

(c) 'Hot spots are under great threat' — Justify the statement.

Or

State the anthropogenic causes of species extinction.

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

(Fishery Special)

Answer any four questions taking two from each unit.

Unit—I*[Fish Taxonomy and Biology]*

1. (a) Mention the difference between Elasmobranchi and Teleostomi fishes.
 - (b) Write characters (4 No.) and example (2 No.) of each following orders :
Osteoglossiformes, Mugiliformes,
Ophiocephaloformes.
 - (c) Give an idea about fossil fishes.
 - (d) Add a note on Dipnoan fishes. $3+6+1\frac{1}{2}+2$
2. (a) Discuss fish growth in relation to temperature and ration size.
 - (b) State about the mechanism and functions of bioluminance organ in fish.
 - (c) Write down the immune defence mechanism in fish.
 $4+4+4\frac{1}{2}$

3. (a) Define Digestible Energy and Metabolizable energy.
 - (b) State about different factors affecting the energy partitioning in fish.
 - (c) Write down the important criteria of a good fish feed.
 - (d) Add a note on feeding habit of *Macrobrachium rosenbergii*. $4+3\frac{1}{2}+3+2$
4. (a) Discuss different abiotic factor on fish growth.
 - (b) Describe various homones are secreted from gonad and their role in fish physiology.
 - (c) Write a short note on fecundity and probiotics.
 $3\frac{1}{2}+5\frac{1}{2}+(2\frac{1}{2}+1)$

Unit—II*[Limnology and Oceanography]*

5. (a) Differentiate between lotic and lentic ecosystem.
- (b) Classify the lake on the basis of origin.

- (c) Discuss about the thermal stratification of lake.
- (d) Add a note on trophic interaction in any aquatic food chain.

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

6. (a) Discuss different zonation of an ocean.
- (b) Why sea water is saline ?
- (c) State about distribution of Temperature and Salinity in respect of ocean depth.
- (d) Add a note on dissolved gases in ocean.

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

7. (a) State about causes of different tides.
- (b) Write down the upwelling process with its importance.
- (c) Write down the characteristic feature of any lagoon.
- (d) Add a note on *El Nino*.

8. Write short notes on the following :

- (a) Ocean current and its importance.
- (b) Classification and importance of marine benthic community.
- (c) Factors controlling the zooplankton distribution.
- (d) Add a note on faunal diversity of Sundarban Mangrove.

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