

2017

M.Sc.

Part-II Examination

ENVIRONMENTAL SCIENCE

PAPER—IXB

Full Marks : 100

Time : 4 Hours

*The figures in the right-hand margin indicate full marks.*

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

*Illustrate the answers wherever necessary.*

Answer Q. No. 1 and any five questions from the rest.

1. Answer any ten questions of the following :  $2 \times 10$

- (i) Classify aquatic biota on the basis of their position in the food chain.
- (ii) What is aerosol? Name one important air borne toxin.
- (iii) Mention two characteristics of a Biosphere Reserve.
- (iv) What is germplasm conservation?
- (v) Mention the condition where the pyramid of biomass becomes inverted.

(Turn Over)



(vi) Mention two ecological importance of soil microorganism.

(vii) Differentiate phagotrophs with saprotrophs.

(viii) What are threatened species according to IUCN Red List Category version 3.1? Give example.

(ix) What are K-selection and r-selection?

(x) Define gene pool.

(xi) What is cryopreservation? Mention one cryoprotective chemical.

(xii) What is liquid biofertilizer? Mention its advantages.

(xiii) What is agroforestry?

(xiv) What is flagship species?

(xv) Name two biodiversity hotspot of India.

2. Define biodiversity. State different levels of biodiversity. Mention different causes of biodiversity loss? Write in brief about the types of extinction. 2+3+3+8

3. Write a note on aeromicrobiological pathway for dispersion of microorganism. Describe one device that is used for the collection of bioaerosol. How bioaerosols can be controlled? 8+5+3

4. "India has a diverse type of forests"—Justify statement with suitable examples. Mention different strategies used for conservation of forest in past and in modern days. 10+6

5. (a) Point out differences between exploitative and interference type of competition. 6+10

(b) Classify soil fauna on the basis of habitat size and degree of dependance on soil. 6+10

6. Briefly mention the major types of bioreactors that are used in Industry. Draw level and describe a stirred tank bioreactor. 6+10

7. What is biogeochemical cycle? Discuss carbon cycle with schematic diagram. Mention different governing attributes for carbon sequestration. 2+4+10

8. How changes in land-use pattern cause degradation of land and mention the measures that can be taken to arrest the process of degradation. Write a note on Industrial plantation.

9. Define Wetlands. Mention the values of wetlands. Discuss the types and biotic interaction of communities of fresh water aquatic ecosystem. 2+5+9



10. Write notes on :

8+8

- (a) Pyramid of energy.
  - (b) Mangrove forest of India.
-