

**2012**

**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 : 2×10**

- (i) What are PNA and TNA?
- (ii) What is stromatolite?
- (iii) What is HEPA filter?
- (iv) Why the air of a refrigerator is usually free from all organism.
- (v) Differentiate between a net plankton and a nanoplankton. Give example.

*(Turn Over)*

- (vi) Write Oeson's equation.
  - (vii) What is SLOSS debate?
  - (viii) Differentiate between enedaphic and hemiedaphic soil fauna. Give example.
  - (ix) Differentiate between a very dense forest (VDF) and moderately dense forest (MDF).
  - (x) What is extirpation of species? Give an example.
  - (xi) State two differences between a sanctuary and a national park.
  - (xii) What is 'Germ Warfare'?
  - (xiii) In which year Biodiversity Act of India was enacted? In which city National Biodiversity Authority is located?
  - (xiv) Differentiate between nitrogen fixation and nitrification.
  - (xv) Differentiate between primary and secondary succession.
  - (xvi) What do you mean by up stream processing?
2. Compare the process of allopatric and parapatric speciation. What is sympatric speciation?

10+6

3. What was the condition of prebiotic atmosphere? Briefly describe the experiment performed by Miller/Urey for amino acid synthesis. What are concervates and microspheres?  
4+8+4
4. Explain the flow of energy in an ecosystem with the help of a suitable model. What do you understand by the two channel energy flow model?  
10+6
5. Mention ecological importance of soil animals. Discuss role of soil fauna in the decomposition of leaf litter.  
6+10
6. Describe aeromicrobiological pathways for dispersion of micro organisms. Write in brief about common aeroallergens..  
10+6
7. Define cryopreservation. Mention components, process and applications of cryopreservation. Add a note on gene pool conservation.  
2+9+5
8. What is Version 3.1 of IUCN Red List Categories? Name the Red List Categories alongwith their abbreviations used in Version 3.1. Write the help of the criteria used in this version differentiate different categories. Cite one example of each category.  
2+3+8+3

9. What do you understand by a 'megadiversity country'? Name six megadiversity countries of Asia. On what basis 'biodiversity hotspots' are selected? Write in brief about the concept of Biosphere Reserve. Name 18 Biosphere Reserves of India.

1+3+2+6+4

10. Describe the process of vermicomposting. Name two indigenous species of earthworm which may be used in vermicomposting. Why vermitechnology is considered ecofriendly and use friendly? State criteria for the selection of suitable species of earthworms for vermicomposting.

8+1+4+3