

2011

M.Sc.

Part-II Examination

ENVIRONMENTAL SCIENCE

PAPER—IKB

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 : 2×10

- (i) Point out the difference between Neuston and Nekton with example.
- (ii) Classify aquatic biota on the basis of their position in the food chain.
- (iii) What is Vermiwash? State its significance.

- (iv) State the situations where the pyramid of biomass becomes inverted.
- (v) State two limitations of pyramid of energy.
- (vi) Give an idea about Biosafety level-3.
- (vii) How rhizosphere is differed from Phyllophere ?
- (viii) What is aerosol? Name one important air borne toxin.
- (ix) What is ecological succession ?
- (x) What do you mean by Auxiliary food chain ?
- (xi) How will you isolate protozoa from soil sample ?
- (xii) State the basic ecological differences between temperature and tropical forest.
- (xiii) State the demerits of industrial scale of plantation.
- (xiv) What precautions to be taken for using biofertilizer ?
- (xv) Mention the characteristics of Biosphere Reserves.
- (xvi) What is germplasm conservation ?
2. (a) Give a brief sketch of Champion and Seth's Classification of Indian forest.
- (b) Briefly mention about Mangrove forest of India.
- 10+6

3. (a) Prepare a precise account of biotic and abiotic components of an ecosystem.
- (b) State the importance of studying the Food Chain and Food Web.
- (c) Give energy flow diagram for a lake.
(Fresh water ecosystem) 8+4+4
4. (a) State the difference between organic and chemical fertilizers.
- (b) Give an idea about different categories of biofertilizers.
- (c) How biofertilizers are applied to crops ? 4+8+4
5. (a) Briefly describe the Anderson six-stage Impaction sampler. 6+4+6
- (b) Name four air borne diseases, and their Causal organism.
- (c) Briefly mention the devices that are used to control bio-aerosol. 6+4+6
6. (a) Draw, Label and Describe the different parts of Stirred Tank Bioreactor (STB).
- (b) Give an idea about the substrates which are used frequently in industrial fermentation. 10+6

7. "India has a diverse type of forests" — Justify your answer with suitable examples. Mention briefly about the conservation of forest from past to till date. 10+6
8. Mention three levels of biodiversity state the main causes of biodiversity loss. Write in brief about the type of extinction. 6+4+6
9. Classify soil fauna on the basis of habitat size and degree of dependance on soil. State their ecological importance. 12+4
10. (a) Point out the difference between exploitative and interference type of competition.
- (b) Explain Lotka-Volterra model for Predation and state the iimitations of the model. 6+(6+4)
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