

2012

M.Sc. Part-I Examination

ENVIRONMENTAL SCIENCE

PAPER—I

Full Marks : 100

Time : 4 Hours

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

Candidates are required to give that 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 of the following : 2×10

- (i) Who coined the term 'ecosystem' and in which year ?
- (ii) Differentiate between Noosystem and Ecosystem.
- (iii) Define Biodiversity. State three levels of Biodiversity.
- (iv) What is Trophic level ?
- (v) What is Gala hypothesis ?
- (vi) State 'Rank size' rule and its mathematical form.

(Turn Over)

- (vii) What are overshoot and dieback of population growth?
- (viii) What is total fertility rate?
- (ix) Differentiate between homosphere and heterosphere.
- (x) What is aurora?
- (xi) Define solar constant.
- (xii) What are Therm and Thermie?
- (xiii) What is Primacy index?
- (xiv) What is Biosphere?
- (xv) Differentiate between a close system and an open system.
- (xvi) State the mathematical equation for exponential and logistic growth curves.
2. Discuss about the structure of ecosystem. 16
3. Write an essay on the prehistoric species of man. 16
4. Discuss the causes of human population growth. Predict on the future of human population. Calculate the doubling time of a population which is growing at a rate of 1.25% per year. 10+4+2

5. Discuss the mechanism of energy transfer and transformation within the earth system. How is the energy balance achieved? 10+6
6. Mention the factors affecting erosion of soil. Discuss the methods of soil conservation. 8+8
7. Give a brief outline of the forest cover in India and extent of deforestation. What are the main causes of deforestation? Mention the guidelines for forest resource management. Add a note on the functions of forest resource. 7+3+4+2
8. Differentiate between renewable and non-renewable energy resources. Discuss in brief energy scenario in India and India's long term energy strategy. What is non-conventional energy resource? 4+10+2
9. Define conservation. State objectives of conservation as identified in the world conservation strategy (1980). Discuss sustainable development with reference to its ecological, social and economic perspectives. What is sustainable resource use? 2+3+9+2

10. Write a note on any two of the following : 8+8

- ✓(i) Difference between man and ape.
 - (ii) Demographic transition.
 - (iii) Distribution of water resource in Earth.
 - (iv) Layered structure of lithosphere.
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