

2017

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 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 from the following : 10×2

- (i) What do you mean by 'global common'?
- (ii) Define 'entropy' with physical significance.

(Turn Over)

- (iii) Differentiate 'autotrophs' and 'heterotrophs'.
- (iv) Is human population growth logistic or exponential? Explain.
- (v) State the use of Wind roses in Meterology. 2
- (vi) What is méant by precipitation. What are its different forms. 2
- (vii) Differentiate between oligotrophic and eutrophic lakes. 2
- (viii) Describe the zonation of a lake environment with special reference to nutrient availability and temperature. 2
- (ix) Differentiate beteen autoecology & synecology. 2
- (x) What do you mean by conservation of natural resources?
- (xi) Describe briefly the concept of heat transfer in the atmosphere.

- (xii) Briefly explain one important functional characteristics of ecosystem.
- (xiii) What is negative feedback in population growth?
- (xiv) What is thermal inversion?
- (xv) What is biome?
2. Describe earth's core and mantle by giving approximate dimensions. Of what substances are the core and mantle composed and what are their physical state? Define and state the functions of seismic waves. 6+6+4
3. State the first and second law of thermodynamics with the mathematical formulation. Bring out the mechanism of energy transfers and transformations, within the planet earth system. How is the energy balance achieved? 6+6+4
4. What do you mean by management of water resource? What are methods of managing water resources? Give a brief outline regarding Indian water resources. 4+8+4
5. Differentiate beteen :
- (a) Food Web and Food Chain.
- (b) Pyramid of Number and Pyramid of Energy. 8+8

6. Describe the structure of stratosphere. State the reasons behind the sudden increase in temperature in the upper layers of stratosphere. Narrate the influence of atmospheric turbidity on stratospheric temperature change. 6+5+5
7. What do you understand by human ecology? How social system could be related to the study of human ecology? Explain the major components of social system. 4+7+5
8. Explain the term meteorology. How meteorological information could be related to the study of energy transfer across various interfaces? What is mixing heights? 4+9+3
9. Critically evaluate the social perspective on the interface between man and society. Comment on the role of unplanned population growth for environmental crisis. 9+7
10. What do you understand by atmospheric stability? Explain briefly the environmental effects of stable and unstable atmosphere. 6+(5+5)