

## ENVIRONMENTAL SCIENCE

032688

Time : 3 hours

Full Marks : 200

### Instructions :

- (1) Answer any **ten** questions.
- (2) The figures in the margin indicate full marks for the questions.
- (3) Answer should be concise and to the point.

1. (a) Why is environmental science considered as an interdisciplinary science? What is the scope of environmental science? 2+2=4  
(b) What are the physical and biological components of environment? How do the physical and biological components of environment interact with each other? Explain with examples. 3+3=6  
(c) What is the function of earth's atmosphere? What is the composition of tropospheric air? Name the atmospheric layer where ozone depletion is observed. 1+2+1=4  
(d) What is hydrological cycle? What are the major processes observed in a hydrological cycle? 1+5=6
2. (a) What is ecology? What are the major ecosystems on earth? 2+3=5  
(b) What is pyramid of energy? How does energy flow in an ecological food chain? 2+3=5  
(c) What is biome? Differentiate between biome and ecosystem. Write a note on the major biomes on earth. 2+2+6=10
3. (a) What are point source and non-point source pollutants? Discuss the main sources of soil pollution and their effects on plants and animals. 2+3=5  
(b) What is smog? What are the main components of smog? Name the different types of smog. 2+3+2=7  
(c) What are greenhouse gases? Name the major greenhouse gases. How is greenhouse effect related to climate change? 2+3+3=8

4. (a) What is acid rain? How is it formed? What are the environmental hazards of acid rain? 2+2+2=6
- (b) Discuss the characteristics of a eutrophicated lake. Write a note on biological oxygen demand and its importance in eutrophicated lakes. Name a biological species that is found in eutrophicated lakes. 3+3+1=7
- (c) Write a descriptive note on bioaccumulation. Differentiate between bioaccumulation and biomagnification. Enlist the major environmental pollutants that bioaccumulate. 3+2+2=7
5. (a) What is biodiversity? What are the various methods of conservation of biodiversity? 2+4=6
- (b) Write the names of a few organizations that are associated with biodiversity conservation worldwide. Write a note on Indian scenario of biodiversity conservation. 2+4=6
- (c) What is biodiversity 'hot spot'? How many biodiversity 'hot spots' are there in the world? Mention the names of Indian biodiversity 'hot spots' explaining their criteria for selection as biodiversity 'hot spot'. 2+1+5=8
6. (a) Write a comprehensive note on Integrated Forest Protection Scheme (IFPS) in India. 5
- (b) What is sustainable forest management? Write a note on the major forest types in India. 2+6=8
- (c) What are 'reserved forests'? Write a note on 'non-timber forest products', focussing on their role in sustainable forest management. 2+5=7
7. (a) What is agroecosystem? Write a note on the indigenous agricultural practices in Arunachal Pradesh. 2+4=6
- (b) What is 'Jhum cultivation'? How does it affect the ecology of hilly areas? Write a note on watershed management in hilly areas. 2+2+4=8
- (c) What is Ramsar convention? Why is it important? Name a few Ramsar sites in India. 2+2+2=6



8. (a) What is vermicomposting? Write in suitable words how vermicomposting is advantageous or disadvantageous over other methods of waste management.  $2+3=5$
- (b) What are the principles of solid-waste management? Discuss the physiochemical characterization and segregation of municipal solid wastes.  $3+5=8$
- (c) What do you mean by waste recycling? Write a note on 'E-waste' recycling. Write in your own words what are the pros and cons of waste recycling.  $2+3+2=7$
9. (a) Write a note on radioactive wastes highlighting the environmental hazards of such wastes. 5
- (b) Write a comprehensive note on exhaustible and inexhaustible forms of energy. 5
- (c) What are the various types of bioenergy? Discuss the advantages and disadvantages of bioenergy production and usage. Write a note on bioenergy production and consumption scenario in India and worldwide.  $4+3+3=10$
10. (a) What are natural and man-made disasters? Discuss the mitigation strategies of natural disasters.  $3+5=8$
- (b) Enlist the environmental laws in India, additionally mentioning if there is any provision for environment protection in the Indian Constitution. 6
- (c) What is 'Biosafety Bill'? What are the various conventions on biodiversity?  $2+4=6$
11. (a) What is the difference between EIS and EIA? Discuss the significance of EIA in relation to any project in your locality. Name some developmental projects that do not require EIA.  $2+6+2=10$
- (b) What is environmental auditing? How is it different from EIA? What are the steps in EIA?  $2+2+6=10$

12. (a) Discuss the various methods of wastewater treatment. Mention a few recent advancements in wastewater treatment technologies. 6+2=8
- (b) What are the major components of air pollution? Describe the methods of measurement of air pollution. 2+4=6
- (c) What is environmental modelling? Discuss the applications of environmental modelling citing suitable examples. 2+4=6
13. (a) What are 'GIS' and 'remote sensing'? Discuss how GIS and remote sensing are utilized in natural resource management activities. 4+6=10
- (b) Write a short and informative essay on damming in North-East India, discussing its socioeconomic and environmental aspects (positive as well as negative). 10

\*\*\*

SEAL