



Name :

Roll No. :

Invigilator's Signature :

CS/MCA/SEM-4/HU-401/2013

2013

ENVIRONMENT AND ECOLOGY

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct answers for the following : $10 \times 1 = 10$
 - i) WAS stands for
 - a) Waste Activated System
 - b) Waste Affected Slurry
 - c) Waste Activated Sludge
 - d) Waste Activation Stock.
 - ii) Which of the following is a primary pollutant ?
 - a) Smoke
 - b) Carbon monoxide
 - c) PAN
 - d) Carbon dioxide.
 - iii) The most potentially renewable energy source is
 - a) Sunlight
 - b) Wind
 - c) Tidal energy
 - d) Biomass.
 - iv) The main component of photochemical smog is
 - a) Water vapour
 - b) Sulphur dioxide
 - c) Oxides of Nitrogen
 - d) Ozone.

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- v) Montreal Protocol is related to
 - a) Water pollution
 - b) Use of CFCs
 - c) Land pollution
 - d) Noise pollution.
- vi) ESP is
 - a) electrostatic precipitator
 - b) electrostatic producer
 - c) electrostatic production
 - d) electron source precipitator.
- vii) Which of the following is an example of *in situ* conservation ?
 - a) Botanical Garden
 - b) Tissue bank
 - c) Seed bank
 - d) Sanctuaries.
- viii) "Itai itai" disease was caused by
 - a) Zinc
 - b) Cadmium
 - c) Lead
 - d) Mercury.
- ix) Trickling filter is classified under
 - a) primary treatment
 - b) secondary treatment
 - c) tertiary treatment
 - d) none of these.
- x) Air pollutant which reduces oxygen carrying capacity of Haemoglobin is
 - a) ammonia
 - b) hydrogen sulphide
 - c) carbon monoxide
 - d) none of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

- 2. Mention the components of environment. Briefly discuss any one of the components which you think important. $2 + 3$

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3. What is resource ? Discuss about non-conventional resources. 2 + 3
4. What are meant by hazardous wastes ? Mention the special care to be taken for their handling and disposal. 2 + 3
5. What is BOD ? Why is this value less than the value of theoretical oxygen demand ? 2 + 3
6. Define the term 'environment'. What do you mean by Environmental Impact Assessment (EIA) ? 2 + 3

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. a) Explain what is called critical dissolved oxygen. State the effects of low DO on aquatic life. State the factors of influencing DO. 3 + 3 + 3
b) What is called biodegradation rate constant ? 3
c) Nitric oxide accelerates depletion of ozone layer but nitrogen dioxide retards it. Explain. 3
8. a) Mention primary and secondary treatment methods for waste water. 4
b) State the names of ions responsible for hardness of water and write whether hard water can be used in boilers and laundries. 2 + 2
c) Give the flow sheet diagram for municipal sludge treatment process. 5
d) What is alkalinity of water ? 2

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9. a) What is meant by global warming ? Discuss the possible consequences of global warming with respect to sea level, climate, agriculture and marine food. 2 + 6
- b) What are the principal sources of Nox and Sox in the atmosphere ? Mention their detrimental effect. What measures can be taken to control these pollutants ?
2 + 2 + 3
10. a) What is greenhouse effect ? Name the major greenhouse gases. 2 + 2
- b) What are the effects of greenhouse gases on the global climate ? 3
- c) How does the Earth manage its radiation balance to maintain an average temperature of 15 degree centigrade ? 3
- d) What is Ozone hole ? How does it happen chemically in the stratosphere ? 2 + 3
11. Write short notes on any *three* of the following : 3 × 5
- a) Chemical Oxygen Demand (COD)
 - b) Nitrogen Cycle
 - c) CFC
 - d) Arsenic Pollution
 - e) Renewable Energy Sources.

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