



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.



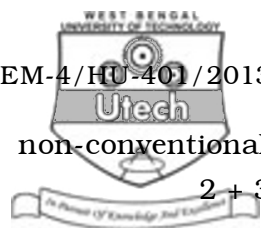
- v) Montreal Protocol is related to
- a) Water pollution
  - b) Use of CFCs
  - c) Land pollution
  - d) Noise pollution.
- vi) ESP is
- a) electrostatic precipitator
  - b) electrostatic producer
  - c) electrostatic production
  - d) electron source precipitator.
- vii) Which of the following is an 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.  $2 + 3$



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



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.

