



Name :

Roll No. :

Invigilator's Signature :

CS/MCA/SEM-4/HU (MCA)-401/2012

2012

ENVIRONMENT & 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.*

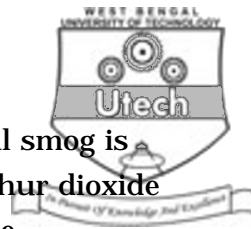
GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of 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 one 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 vapor 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) 'Itai Itai' disease was caused by
- a) zinc b) cadmium
c) lead d) mercury.
- vii) Trickling filter is classified under
- a) primary treatment b) secondary treatment
c) tertiary treatment d) none of these.
- viii) Air pollutant which reduces oxygen carrying capacity of haemoglobin is
- a) ammonia b) hydrogen sulphide
c) carbon monoxide d) none of these.
- ix) Total interacting of animals and plants, in any well defined area like pond is called
- a) eco system b) biosphere
c) eco community d) biome.
- x) Industrial effluents do not contain one of the following :
- a) Heavy metals
b) Organic pollutants (oil, fats, etc.)
c) Inorganic pollutants (acids, cyanides)
d) Silt and mud.
- xi) Coliform test is performed to detect
- a) *Salmonella* b) *Bacillus*
c) *E.coli* d) none of these.
- xii) Vermicomposting is not a kind of
- a) waste substance treatment
b) way of energy generation
c) a kind of organic culture
d) Tricky method to control soil pH.



GROUP - B

(Short Answer Type Questions)

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

2. What is noise pollution ? Discuss the adverse effects of noise on human health. $2 + 3$
3. define food chain. Discuss grazing food chain with examples. $2 + 3$
4. Define bio-geochemical cycle. Describe the nitrogen cycle in brief. $2 + 3$
5. Differentiate between the logistic and exponential population growth. $2 \times 2 \frac{1}{2}$
6. Write a short note on the achievements of Montreal Protocol.

GROUP - C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Distinguish between :
 - i) Pollutant and Contaminant
 - ii) Primary pollutant and Secondary pollutant. $2 + 2$
- b) Name the regions of the atmosphere based on thermal structure. State their respective altitudes, temperature ranges and their principal constituents. Discuss the special features of the troposphere. $2 + 6 + 3$
8. a) What is lithosphere ? 2
- b) What are the different types of solid wastes ? 4
- c) Discuss the methods of municipal waste disposal. 4
- d) Dsicuss special cases in disposing biomedical wastes. 5



9. a) What is environmental lapse rate and adiabatic lapse rate ? 4
- b) Discuss the phenomenon of formation of the ozone hole in the stratosphere. 6
- c) How the photochemical smog is formed ? How does it differentiate from the London smog. 5
10. a) Should carbon dioxide be treated as an air pollutant ? 1
- b) Classify the air pollutants depending upon their mechanisms of formation. Give examples. 3
- c) Discuss atmospheric dispersion taking the examples of smokestack plumes. 8
- d) Write down the advantage and disadvantage of electrostatic precipitator ? 3
11. a) What do you mean by primary and secondary treatment of wastewater ? Compare trickling filter with activated sludge system. 5
- b) How nitrogen is removed from wastewater ? 3
- c) Define BOD and COD stating the principles of these tests. 5
- d) State the effects of low DO on aquatic life. 2
12. Write short notes on any *three* of the following : 3 × 5
- a) Biodegradation
- b) Renewable Energy sources
- c) Photochemical smog
- d) Arsenic pollution
- e) Noise pollution.