

Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech/SEM-1/CH-101/2009-10

2009

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)

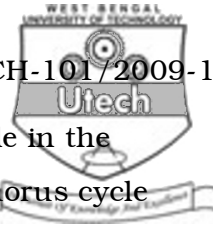
1. Choose the correct alternatives for any *ten* of the following :

$$10 \propto 1 = 10$$

- i) An air pollutant that reduce oxygen-carrying capacity of haemoglobin is
 - a) ammonia
 - b) hydrogen sulfide
 - c) carbon monoxide
 - d) carbon dioxide.
- ii) Ozone is a pollutant when present in the
 - a) troposphere
 - b) stratosphere
 - c) mesosphere
 - d) thermosphere.
- iii) MIC is a
 - a) primary pollutant
 - b) secondary pollutant
 - c) criteria pollutant
 - d) contaminant.



- iv) For a sample of waste water containing both biodegradable and non-biodegradable waste is
- a) $BOD > COD$ b) $BOD < COD$
c) $BOD = COD$ d) $BOD \cdot COD$.
- v) Lakes rich in nutrients is known as
- a) Eutrophic lake b) Atrophic lake
c) Mestrophic lake d) Oligotrophic lake.
- vi) Full form of ESP is
- a) Electrostatic Precipitator
b) Electrostatic Producer
c) Electron Source Precipitator
d) None of these.
- vii) The catalyst used in catalytic converter is finely divided
- a) Ni b) P
c) Pt d) Fe.
- viii) Organo mercury is example of
- a) Fungicide b) Fumigant
c) Antibiotic d) Rodenticide.
- ix) Fungi and bacteria carry out a very significant step in
- a) grazing food chain b) detritus food chain
c) parasitic food chain d) all of these.
- x) Living organisms are good examples of
- a) closed system b) open system
c) isolated system d) none of these.



- xi) Aspergillus bacteria play a significant role in the
- nitrogen cycle
 - phosphorus cycle
 - sulfur cycle
 - oxygen cycle.
- xii) The main constituent of London fog is
- carbon monoxide
 - hydrogen sulfide
 - carbon dioxide
 - sulfur dioxide.

GROUP – B

(Short Answer Type Questions)

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

- What is acid rain ? Write down the causes, reaction and effects of acid rain. $1 + 4$
- Write down the principal advantages and disadvantages of ESP and Cyclone separator. $2 \times 2 \frac{1}{2}$
- Define food chain. Discuss grazing food chain with examples. $1 + 4$
- Describe the nitrogen cycle with a diagram. 5
- Define environment. What do you understand by environmental pollution ? Give an example. $2 + 2 + 1$

GROUP – C

(Long Answer Type Questions)

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

- Write notes on any *five* of the following : 3×5
 - Eutrophication
 - Pollutant and contaminant
 - Maximum sustainable yield
 - Ocean Thermal Energy Conversion (OTEC)
 - Logistic growth model of population
 - Hydrological cycle.



8.
 - a) What is adiabatic lapse rate ?
 - b) Discuss the toxic effects of Arsenic and Cadmium in human body.
 - c) What are the types of solid wastes ?
 - d) Discuss different types of aquifers.
 - e) State Darcy's law. 2 + 5 + 3 + 3 + 2
9.
 - a) Name three sources of thermal pollution.
 - b) What do you understand by self-purification of a river ? State the various modes of self purification of a river or stream.
 - c) "It is the physical characteristics of the particulates which are quite significant in air pollution". Comment.
 - d) State & explain Wein's Law. How would you explain Green House effects with its help ? 3 + 4 + 4 + 4
10.
 - a) Explain what is called critical dissolved oxygen and also state the effects of low DO on aquatic life. State the factors influencing DO.
 - b) What is bio-degradation rate constant ?
 - c) Write down the photochemical reactions for formation of ozone hole in stratosphere by CFC-12. [(3 + 3 + 3) + 3 + 3]
11.
 - a) What is meant by hazardous wastes ? Mention the special care to be taken for their handling and disposal purpose.
 - b) Explain the term 'Weathering of rock salt'.
 - c) Define the terms De-oxygenation and Re-aeration.
 - d) What is the hardness of water and how does it affect the water quality ? 5 + 3 + 4 + 3
