



**MAULANA ABUL KALAM AZAD UNIVERSITY OF
TECHNOLOGY, WEST BENGAL**

Paper Code : BCAN-102

ENVIRONMENTAL STUDIES

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 alternative for any ten of the following:** **1×10=10**
- (i) Converting solid waste into new products by using resources contained in the discarded material is
- | | |
|----------------------|--------------------------------|
| (a) Waste Management | (b) Reuse |
| (c) Recycling | (d) Hazardous waste management |
- (ii) Which among the following is decomposer in ecosystem?
- | | |
|-----------------|----------------------|
| (a) Green Plant | (b) Animal |
| (c) Bacteria | (d) Both (a) and (b) |
- (iii) Which of the following is not a gaseous cycle?
- | | |
|--------------------|--------------------------|
| (a) Oxygen cycle | (b) Carbon dioxide cycle |
| (c) Nitrogen cycle | (d) Phosphorus cycle |
- (iv) Which of the following does not contain biomass?
- | | |
|-----------------------|--------------|
| (a) Municipal Garbage | (b) Sewage |
| (c) Metal | (d) Effluent |

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- (v) Noise-induced deafness is a kind of change —
(a) Reversible (b) Irreversible
(c) None of these (d) All of these
- (vi) Edaphic factors of the eco-system are related to
(a) Soil (b) Water
(c) Air (d) All of these
- (vii) An eco-system has
(a) both structure and function. (b) only structure.
(c) only function. (d) None of these
- (viii) Hazardous waste should have characteristics such as
(a) Reactivity (b) Corrosivity
(c) Toxicity (d) All of these
- (ix) Oxygen demanding waste is the
(a) Inorganic pollutant (b) Radioactive material
(c) Organic material (d) None of these
- (x) Minamata disease is related to
(a) Hg (b) As
(c) Pb (d) Cd
- (xi) The altitude range (km) of Ionosphere is
(a) 0 to 11 (b) 50-85
(c) 11-50 (d) 85-500
- (xii) The temp range of troposphere is
(a) -2 to -92°C (b) 15 to -56°C
(c) -56 to -2°C (d) -92 to 1200°

Group – B

(Short Answer Type Questions)

Answer any three of the following.

5×3=15

2. What is Chemical Oxygen Demand (COD)? COD measurement is more scientific than the BOD test. Explain. Why in the BOD experiment the final DO measurement should not be done after a very long time? 1+2+2=5
3. Write down the Phosphorous Cycle in nature with the help of a suitable block diagram.
4. (a) What do you mean by Eutrophication?
(b) What do you mean by Superadiabatic and Subadiabatic Lapse Rate? 2+3=5
5. Discuss in detail the mechanism of Ozone Layer depletion. How Ozone Layer can be protected? 4+1=5
6. Briefly explain the activated sludge treatment process.

Group – C

(Long Answer Type Questions)

Answer any three of the following.

15×3=45

7. (a) What is smog?
(b) What is the difference between Sulfurous Smog and photochemical smog?
(c) How is PAN formed?
(d) What are the effects of Smog on living organism?
(e) What do you mean by Temperature Inversion?
(f) What are the important classes of Inversion? 1+2+5+2+2+3=15
8. (a) What do you understand by Ecological Balance?
(b) Though the total energy in the universe is constant but the energy is increasing everyday. Explain with the concept of energy flow in the ecosystem.
(c) 'Population never grows exponentially for ever.' – Explain with suitable curve.
(d) What do you mean by Trophic Level?
(e) What is Biomagnification? 3+4+4+2+2=15

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9. (a) What is Hydrosphere and Hydrological Cycle? Describe in brief the process of Hydrological Cycle.
(b) What are Heavy Metals? What are their Biochemical Effects?
(c) Write short notes on Aquifers. (2+2+3)+(2+3)+3=15
10. (a) Define noise pollution.
(b) Discuss its various sources.
(c) Suggest two methods of controlling the noise pollution.
(d) What is the Noise Threshold Limit Value?
(e) Calculate the intensity of 50 dB sounds. (given reference intensity - 10^{-12} Wm^{-2})
(f) What is the composition of Lithosphere?
(g) What are the different types of solid wastes? 1+2+2+2+3+3+2=15
11. Write brief notes on any three of the following: 5×3=15
(i) Cyclone Separator
(ii) Ventury Scrubber
(iii) Hydraulic Gradient
(iv) Trickling filter
(v) Hazardous waste management
(vi) Incineration & land filling
(vii) Oxidation pond

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PUID : 01096 (To be mentioned in the main answer script)

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GROUP - A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$
 - i) In an ecotone, the species which become abundant are called
 - a) Edge species
 - b) Keystone species
 - c) Endemic species
 - d) Foster species.
 - ii) The largest number of Tiger Reserves are located in
 - a) Karnataka
 - b) Andhra Pradesh
 - c) Madhya Pradesh
 - d) West Bengal.
 - iii) The 'thickness' of Stratospheric Ozone layer is measured in/on
 - a) Sieverts
 - b) Dobson units
 - c) Melson units
 - d) Beaufort Scale.

- iv) The Cartagena Protocol is regarding safe use, transfer and handling of
 - a) Nuclear waste
 - b) Invasive Alien Species
 - c) Living Modified Organisms (LMOs)
 - d) Toxic bye-products and industrial effluents.
- v) Green Economy is led by
 - a) United Nations Environment Programme
 - b) International Hydrological Organization
 - c) Intergovernmental Panel for Climate Change
 - d) European Union.
- vi) Headquarters of Biodiversity International is located at
 - a) Rome
 - b) Geneva
 - c) Paris
 - d) Manila.
- vii) Now-a-days Environmental Accounting is making news. What is Environment Accounting ?
 - a) It is a method to measure the consumption of the environment / natural resources
 - b) It is a method to statistically analyze the green areas of the country
 - c) It is a method of accounting in which all units are expressed in terms of loss / gain of Carbon Dioxide
 - d) It is a method of accounting in which all measurement is expressed in Carbon Credits.
- viii) In the E-waste generated by the Mobile Phones, which among the following metal is most abundant ?
 - a) Copper
 - b) Silver
 - c) Palladium
 - d) Gold.

- ix) Parambikkulam wildlife sanctuary is located in which among the following states ?
 - a) Kerala
 - b) Karnataka
 - c) Tamil Nadu
 - d) Andhra Pradesh.
- x) Which among the following is the "legally binding" convention ?
 - a) United Nations Framework Convention on Climate Change
 - b) Asia-Pacific Partnership on Clean Development and Climate
 - c) Vienna Convention for the Protection of the Ozone Layer
 - d) United Nations Convention to Combat Desertification.
- xi) To fulfill the obligations under which among the following treaties, the government of India publishes the National Communication (NATCOM) periodically ?
 - a) U.S.-India Civil Nuclear Cooperation Initiative
 - b) World Summit on the Information Society
 - c) United Nations Framework Convention on Climate Change
 - d) None of these.
- xii) In the UNFCCC convention at which among the following places, the decision to set up a "Green Climate Fund" was taken ?
 - a) Copenhagen
 - b) Cancun
 - c) Bali
 - d) Paris.

GROUP - B
(Short Answer Type Questions)

Answer any *three* of the following.

3 × 5 = 15

2. Define the term environment.
3. What are the major objectives of environmental education ?
4. Demonstrate Nitrogen cycle.
5. Write a short note on soil erosion.
6. Write a short note on oxidation pond.

GROUP - C

(Long Answer Type Questions)

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

7. Discuss the methods of solid waste disposal.
8. Discuss the principles of resource recovery from solid waste.
9. What are the causes of ground water pollution ?
10. Classify solid wastes. How are solid wastes collected ?
6 + 9
11. What are the different causes of environmental ground water pollution.

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