

Time : 3 hours

Total marks: 100

**Instructions to the candidates:-**

- 1) All the questions are compulsory. Choice is internal.
- 2) Figures to the right indicate full marks.
- 3) All questions carry equal marks.
- 4) Draw flowcharts /diagrams wherever necessary.

Q1A) Fill in the blanks: (**any three**) 3

- i) Atmospheric concentration of carbon dioxide is about \_\_\_\_\_ ppm
- ii) The temperature range in mesosphere is \_\_\_\_\_
- iii) Ozone is present in \_\_\_\_\_
- iv) \_\_\_\_\_ is a natural source of sulphur oxides.

Q1B) Define and explain **any one** : 3

- i) Enlist the minor components comprising the atmosphere
- ii) What is the Van Allen Belt?

Q1C) Write a short note on **any one** : 6

- i) Green House effect
- ii) Different regions of the atmosphere.

Q1D) Attempt **any one**: 8

- i) In detail discuss hydrocarbons and photochemical smog as air pollutants.
- ii) Oxygen and its ionic species of oxygen as well as sulphur dioxide lead to chemical and photochemical reactions in the atmosphere. Elaborate on the same.

Q2A) Fill in the blanks: (**any three**) 3

- i) \_\_\_\_\_ is a very toxic form of mercury.
- ii) \_\_\_\_\_ % of earth's water supply is unfit for human consumption
- iii) The solubility of oxygen \_\_\_\_\_ with increasing temperature.
- iv) Evaporation converts \_\_\_\_\_ form of water to gaseous form

Q2B) Define and explain the term **any one**: 3

- i) Flocculation
- ii) Water cycle

Q2C) Write a short note on **any one**: 6

- i) Secondary water treatment (ii) Organic water pollutants

Q2D) Answer **any one**: 8

- i) Give a detailed account of oil spills
- ii) Elaborate on heavy metal pollution.

- Q3A) Fill in the blanks: (**any three**) 3
- Permissible value of noise in residential area is \_\_\_\_\_
  - Pests can be killed by use of a \_\_\_\_\_
  - Weathering of rocks leads to the formation of \_\_\_\_\_
  - Nitrobacter converts \_\_\_\_\_ to nitrate
- Q3B) Answer in brief **any one**: 3
- Define and explain: Decibel
  - How is soil formed?
- Q3C) Answer **any one** : 6
- Write a note on Classification of noise.
  - Describe the biogeochemical cycle by which nitrogen is converted into various chemical forms .
- Q3D) Answer in detail **any one** : 8
- Discuss the harm pesticides and herbicides can cause to soil.
  - Elaborate on many people complaining of various ill-health conditions arising due to noise pollution in cities across India.
- Q4A) Fill in the blanks: (**any three**) 3
- \_\_\_\_\_ is a pollutant free energy source
  - Asbestos is used in \_\_\_\_\_ industry
  - \_\_\_\_\_ is added to low density plastic
  - Chemiluminescence is used to monitor \_\_\_\_\_
- Q4B) Define and explain the following **any one**: 3
- Poly Chlorinated Biphenyls
  - SNG
- Q4C) Write short notes on **any one** of the following: 6
- Acid mine drainage
  - Approaches to monitor water
- Q4D) Justify **any one** of the following : 8
- Elaborate on the energy resources of the future.
  - Write a descriptive note on biopolymers and plastics being major industrial pollutants.

Q5 A) Write brief notes on:

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i) Composition of atmosphere

OR

i) Particulate matter in atmosphere

ii) Thermal pollution

OR

ii) Chlorination for water treatment

iii) Soil profile

OR

iii) Methods used for measurement of noise.

iv) Air monitoring

OR

iv) Coal and coke

Q5B) State TRUE or FALSE: (any four)

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i) Ozone hole is present over Africa

ii) Troposphere is the region of atmosphere closest to the earth surface

iii) Humus is dark organic material in soils, produced by the decomposition of vegetable or animal matter and essential to the fertility of the earth.

iv) Human ear is susceptible to sound of 2 Hz

v) Sulphur oxides lead to acid rain

vi) Remote sensing has no application in pollution control