



21718

17646

**3 Hours / 100 Marks**

Seat No.

--	--	--	--	--	--	--	--

- Instructions :**
- (1) *All questions are **compulsory**.*
  - (2) *Answer **each** next main Question on a **new** page.*
  - (3) *Illustrate your answers with neat sketches **wherever** necessary.*
  - (4) *Figures to the **right** indicate **full** marks.*
  - (5) *Assume suitable data, if **necessary**.*
  - (6) *Use of Non-programmable Electronic Pocket Calculator is **permissible**.*
  - (7) *Mobile Phone, Pager and any other Electronic Communication devices are **not permissible** in Examination Hall.*

**Marks**

**1. A) Attempt any three :**

**12**

- a) List any eight sources of air pollution.
- b) Write down the physical characteristics of waste water and explain any one.
- c) List out pollutants produced from urea plant and their effect (atleast two).
- d) Write classification of solid waste.

**B) Attempt any one :**

**6**

- a) Describe the use of electrostatic precipitator as controlling device for gaseous emission.
- b) Describe methods for solid waste collection.

**2. Attempt any four :**

**16**

- a) Define air pollution. List classification with two examples of each.
- b) State any four drinking water quality standards specified by WHO.
- c) List down the effects of thermal pollution.
- d) Explain activated sludge treatment.
- e) What are the need of environmental audit ?

**P.T.O.**



- 3. Attempt any four :** **16**
- a) Explain the working of cyclone separator.
  - b) Name the sampling devices used for particulate air pollution (any two). Explain grab sampling used for gaseous pollutants.
  - c) List out chemical characteristic of waste water (any four) and define the term TDS.
  - d) Explain absorption sampling method for gaseous pollutants.
  - e) State the role of pollution control board.
  - f) What are the control methods for sea water pollution ?
- 4. A) Attempt any three :** **12**
- a) Explain working of trickling filter.
  - b) Name the primary treatment methods for waste water and explain any one in details.
  - c) Write working principle of fabric filter with its neat diagram.
  - d) Outline the objectives of environmental management.
- B) Attempt any one :** **6**
- a) State the necessity of recovery of chemical from black liquor.
  - b) What are the business benefits of ISO 14000 (any six point).
- 5. Attempt any four :** **16**
- a) Explain working of gravity settling chamber with neat sketch.
  - b) Name the sources of biomedical waste and list its treatment methods.
  - c) Explain 3R principle for solid waste management.
  - d) Write down the procedure for environmental audit.
  - e) Describe sludge dewatering and disposal methods.
  - f) State the principle of incineration. Draw neat labeled sketch of catalytic incinerator.
- 6. Attempt any four :** **16**
- a) State the effect of air pollution on human health.
  - b) Explain freeze out sampling method for gaseous pollutants.
  - c) State the meaning of the terms BOD and COD. State its significance.
  - d) Name the methods used for pollution control in fertilizer industry.
  - e) What are the secondary treatment for waste water ?
  - f) Describe segregation, storage and transportation in case of biomedical waste.
-