



# 17646

**16172**

**3 Hours / 100 Marks**

Seat No.

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- 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) *Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.*

- |   | <b>Marks</b> |
|---|--------------|
| <b>1. A) Attempt any three :</b>  | <b>12</b>    |
| a) Define Air Pollution. Classify the Air Pollutants.                                       |              |
| b) Define water pollution. List sources of water pollution (any four).                      |              |
| c) Name any two pollutants produced from urea plant and state their effects.                |              |
| d) Explain term solid waste and give classification of it.                                  |              |
| <b>B) Attempt any one :</b>   | <b>6</b>     |
| a) Describe air pollution controlling method by using wet scrubber.                         |              |
| b) Explain 3 R's principle with example.  |              |
| <b>2. Attempt any four :</b>  | <b>16</b>    |
| a) State the principle of Incineration. Draw neat labeled sketch of catalytic incinerator.  |              |
| b) Explain the following water pollution types :  |              |
| a) Ground water pollution   |              |
| b) Sea water pollution.   |              |
| c) Classify waste water and state its characteristics.                                      |              |
| d) Explain in a brief about collection of solid waste.                                      |              |
| e) State the necessity of Environmental Audit for any chemical plant.                       |              |
| <b>3. Attempt any four :</b>  | <b>16</b>    |
| a) State the working principle of fabric filter. Draw neat labeled sketch of fabric filter. |              |
| b) State the effect of air pollution on human health.                                       |              |
| c) Describe working of trickling filter with diagram.                                       |              |

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- d) Explain working of cyclone separator with neat sketch.
- e) State the role of pollution control board.
- f) Explain preliminary and primary treatment of waste water.
- 4. A) Attempt any three :** **12**
- a) Explain activated sludge method for waste water treatment with neat sketch.
- b) Explain sludge thickening.
- c) List the natural and man-made sources of air pollution ? Write name of pollutants in them.
- d) State the business benefits of ISO 14000.
- B) Attempt any one :** **6**
- a) Explain the pollution problems occurred due to black liquor in paper industry.
- b) Write the procedure adopted for environmental audit.
- 5. Attempt any four :** **16**
- a) Explain the working principle of high volume sampler with neat sketch.
- b) Give classification of biomedical wastes and state the methods used for handling biomedical waste.
- c) State any four drinking water quality standards specified by WHO.
- d) Explain the need of ISO 14001 certification in industry.
- e) Describe sludge dewatering and disposal method.
- f) Identify possible effects of water pollution on eco system.
- 6. Attempt any four :** **16**
- a) Describe with neat sketch, a working cyclone scrubber.
- b) Explain working of electrostatic precipitator. State its advantages and disadvantages.
- c) Define the terms BOD and COD. State their significance.
- d) Explain the treatment methods for Ammonia plant effluents.
- e) Explain Grab and composite sampling methods.
- f) State the possible ways to create wealth from waste.
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