

22605

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

- 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.

**Marks**

**1. Attempt any FIVE of the following :**

**10**

- (a) State the classification of solid waste.
- (b) List collection methods of Municipal Solid Waste.
- (c) List the tools & equipments for storage and collection of Municipal Solid Waste.
- (d) Define Aerobic Composting.
- (e) List the existing legal provisions made for SWM (Any Two).
- (f) State the characteristics of Hazardous Solid Waste.
- (g) Define Biomedical waste.

**2. Attempt any THREE of the following :**

**12**

- (a) Explain solid waste management techniques hierarchy.
- (b) Explain any one method of collection of Municipal Solid Waste.
- (c) Differentiate between Area method and Trench method of landfill.
- (d) Draw a neat labelled sketch of any one method of Leachate control.

- 3. Attempt any THREE of the following : 12**
- (a) Suggest the measures to be adopted in execution of vermicomposting.
  - (b) State classification of Biomedical waste as per BMW (Management) Rules, 2016.
  - (c) Explain health problems to persons during handling municipal solid waste.
  - (d) Suggest improvements in present practices of recycling of municipal solid waste.
- 4. Attempt any THREE of the following : 12**
- (a) Enlist varieties of Industrial solid waste.
  - (b) State control measures taken for industrial waste.
  - (c) Explain provisions regarding duties of waste generator, made in MSW Rules, 2016.
  - (d) Explain major provisions of Construction and Demolition Waste Management Rules 2016.
  - (e) Explain role of CPCB & MPCB in municipal solid waste management.
- 5. Attempt any TWO of the following : 12**
- (a) Prepare the organisation chart for any municipal corporation managing solid waste and state the duties of each level.
  - (b) (i) Suggest the appropriate management technology for the Biomedical waste category 1 to 6 as per schedule-I of BMW Rules, 2016.  
(ii) Justify the need of public participation in effective management of municipal solid waste in any city.
  - (c) Suggest the relevant method of storage of solid waste for residential apartment and draw a neat labelled sketch of litter bin.
- 6. Attempt any TWO of the following : 12**
- (a) (i) State the products of incineration process with their use.  
(ii) State advantages and disadvantages of incineration process.
  - (b) Suggest the ways of recycling of industrial waste in
    - (i) Cement and
    - (ii) Sugar industry
  - (c) Suggest with justification appropriate disposal method for E-waste.
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