

22605

24225

3 Hours / 70 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE :

10

- (a) Define solid waste. State the sources of solid waste.
- (b) List the tools and equipments used in collection of solid waste.
- (c) State the factors affecting generation of solid waste.
- (d) State two advantages and two disadvantages of incineration process.
- (e) State the importance of legal aspects in solid waste management.
- (f) State physical and chemical characteristics of municipal solid waste.
- (g) Enlist the sources of generation of Biomedical waste.

2. Attempt any THREE :

12

- (a) Explain solid waste management techniques hierarchy.
- (b) Define transfer station. State its necessity and criteria of location of transfer station.
- (c) Draw a neat labelled sketch of single composite liner system of leachate control.
- (d) Explain the steps in process of Vermi-composting and state its suitability.



- 3. Attempt any THREE :** **12**
- (a) Explain the methods of collection of recyclables.
 - (b) Define biomedical waste and state classification of biomedical waste.
 - (c) Discuss the importance of public participation in solid waste management.
 - (d) Explain Area method and Trench method of Land filling.
- 4. Attempt any THREE :** **12**
- (a) Define E-waste and state the varieties of E-waste with examples.
 - (b) Explain the various control measures of Industrial waste.
 - (c) State the role of CPCB and MPCB in management of solid waste from various sources.
 - (d) Discuss health problems during segregation and recycling of solid waste.
 - (e) State the salient features of Plastic Waste Management Rules, 2016.
- 5. Attempt any TWO of the following :** **12**
- (a) With the help of neat sketches, explain the methods of collection of municipal solid waste.
 - (b) Explain Biomedical waste disposal techniques.
 - (c) Draw and explain organization pattern of solid waste management.
- 6. Attempt any TWO of the following :** **12**
- (a) Differentiate between Bangalore method and Indore method of composting.
 - (b) Explain the effects of E-waste constituents on health.
 - (c) State the methods of recycling of following industrial waste :
 - (i) Fly Ash
 - (ii) Blast furnace slags
 - (iii) Ferro alloy
 - (iv) By-products of gypsum
 - (v) Red mud
 - (vi) Lime sludge
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