



17605

21718

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.

Marks

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

20

- a) State any eight impacts of solid waste on environment.
- b) State the various factors affecting solid waste generation.
- c) Explain in brief about organisation pattern of solid waste management according to the population of city.
- d) State the factors affecting composting process.
- e) Explain about any four effects of biomedical waste.
- f) State about the strategy for public participation in solid waste management.
- g) Define recycling of solid waste and state the purposes of recycling.

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

16

- a) Define following terms :
 - i) Commercial waste.
 - ii) Industrial waste.
 - iii) Agricultural waste.
 - iv) Institutional waste.
- b) Differentiate between hazardous and nonhazardous solid waste.
- c) Explain in brief the present scenario with regard to collection of municipal solid waste.
- d) State the method of storage for following types of waste.
 - i) Vegetable/fruit market waste.
 - ii) Street food vendors waste.
 - iii) Household waste.
 - iv) Garden waste.
- e) State any two advantages and disadvantages of incineration of solid waste.
- f) State any four factors affecting the site selection for landfilling of solid waste.

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3. Attempt **any four** of the following : 16
- a) “Solid waste is creating a global problem for modern world”. Justify the statement.
 - b) State the methods of provisions of Litter bin on streets and public places.
 - c) Enlist the methods of land filling of solid waste. Explain in brief about any one method.
 - d) State the products of incineration process of solid waste and also state their uses.
 - e) Define ‘E-Wastes’. Enumerate the effects of E-Waste constituents on human health.
 - f) Explain the health aspects during handling and processing of solid waste.
4. Attempt **any four** of the following : 16
- a) Explain the four “R_s” of solid waste management hierarchy.
 - b) Describe about mechanical road sweepers used in SWM practices with sketch.
 - c) Define vermicomposting. Explain its concept in brief.
 - d) Define - Biomedical waste and write down its components.
 - e) Enlist the varieties of industrial solid waste. Explain in brief.
 - f) State the health problems that may be faced during segregation, reuse, recovery and recycling of solid waste.
5. Attempt **any four** of the following : 16
- a) Define transfer station. State about its necessity and criteria of location of transfer station.
 - b) Explain about Bangalore method of manual composting of solid waste.
 - c) Explain about varieties of E-Waste stating its sources of generation.
 - d) State the control measures to be adopted about industrial solid waste regarding its generation, collection and adverse effects.
 - e) State the measures to be taken to bring about a change in public for solid waste management w.r.t. ‘3R’ strategy.
 - f) Explain in brief present status of solid waste recycling in India.
6. Attempt **any two** of the following : 16
- a) Explain in detail about Biomedical waste management and handling as per Rule 1998.
 - b)
 - i) Define Leachate. State the necessity to control it.
 - ii) Explain with neat sketch about single composite liner system and double liner system for the leachate control.
 - c)
 - i) State the various benefits of recycling of solid waste.
 - ii) Explain about various methods of collection of recyclable materials (solid waste).
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