

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– IV EXAMINATION – SUMMER 2026

Subject Code:3141311

Date:28-05-2026

Subject Name:Municipal & Industrial Solid Waste Management

Time:10:30 AM TO 01:00 PM

Total Marks:70

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Enlist the factors affecting solid waste generation rates. 03  
(b) Write down the most important Functional Element of Solid Waste Management System. 04  
(c) Draw waste management hierarchy & explain each component with suitable example. 07
- Q.2** (a) Define “Waste” & enlist different types of solid waste based on its sources of generation. 03  
(b) Differentiate between hauled & stationary container solid waste collection system. 04  
(c) Write down the full form of TSDF & explain the activities carried out on TSDF site. 07
- OR**
- (c) Explain the Manifest system for hazardous waste. 07
- Q.3** (a) Enlist various volume reduction equipment and draw any one with neat sketch. 03  
(b) Describe the environmental effects due to poor management of solid waste. 04  
(c) Write down the significance of solid waste processing & discuss the importance & need of shredding processing. 07
- OR**
- Q.3** (a) What do you mean by Refused Derive Fuel (RDF)? 03  
(b) Write down the categorization of E – waste. 04  
(c) Discuss the merits & demerits of incineration & pyrolysis processes as solid waste treatment. 07
- Q.4** (a) Name the biomedical waste categories. 03  
(b) Discuss the sitting criteria for municipal solid waste landfill. 04  
(c) Discuss the need & requirements of transfer station. 07
- OR**
- Q.4** (a) Differentiate between sanitary & secured landfill sites for waste disposal. 03  
(b) Calculate solid waste generation per annum of a city having population 25 lakh and per capita generation rate of solid waste is 0.405 kg / day. 04  
(c) Discuss in detail landfill gas & leachate management. 07
- Q.5** (a) Categorize Landfill Liner system. 03  
(b) A city has a population of 50 lakh & average per day solid waste generation is average 0.60 kg/d. Assume density of the municipal solid waste generated is 300 kg/m<sup>3</sup> & capacity of the container 20 m<sup>3</sup> & calculate the number of containers required in a city. 04  
(c) What is composting? Explain the two principal methods of composting. 07
- OR**
- Q.5** (a) Define Proximate &Ultimate analysis of solid waste. 03  
(b) List the physical properties of municipal solid waste. 04  
(c) Explain the disposal strategies for biomedical waste. 07

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