

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2024

**Subject Code:3141311**

**Date:01-07-2024**

**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.

	MARKS
<b>Q.1</b> (a) Discuss about the Integrated Solid Waste Management.	<b>03</b>
(b) Draw the flowchart of material flow and solid waste generation.	<b>04</b>
(c) Write down the most important Functional Element of Solid Waste Management System.	<b>07</b>
<b>Q.2</b> (a) Enlist and explain the physical properties of municipal solid waste.	<b>03</b>
(b) Discuss the effect of storage on waste component.	<b>04</b>
(c) Describe Haul Container system with sketch.	<b>07</b>
<b>OR</b>	
(c) Explain in brief factors affecting generation rates	<b>07</b>
<b>Q.3</b> (a) Describe the need and purpose of processing..	<b>03</b>
(b) Explain about proximate analysis and ultimate analysis.	<b>04</b>
(c) Explain in detail various unit operations used for separation and processing of waste material.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Discuss about the need for transfer operation.	<b>03</b>
(b) Calculate waste per annum generated from a city having population of 50 Lac at a rate of 0.6 kg/cap/day.	<b>04</b>
(c) Enlist thermal techniques of solid waste processing and explain any one in detail.	<b>07</b>
<b>Q.4</b> (a) Define the terms : 1) Incineration 2) sanitary Landfill	<b>03</b>
(b) Discuss in detail landfill gas management.	<b>04</b>
(c) Draw Schematic diagram of land fill? Explain each essential Component of that.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) Define the terms : 1) Composting 2) Leachate	<b>03</b>
(b) Enlist and explain the land filling methods.	<b>04</b>
(c) Write down the advantages and disadvantages of sanitary landfill.	<b>07</b>
<b>Q.5</b> (a) Enlist the sources of E-waste.	<b>03</b>
(b) How to minimize biomedical waste.	<b>04</b>
(c) Explain different methods used for the treatment of bio medical waste.	<b>07</b>
<b>OR</b>	
<b>Q.5</b> (a) Define 1) Incinerable waste.2) Hazardous Waste	<b>03</b>
(b) Enlist properties of Hazardous waste.	<b>04</b>
(c) Explain about the categories of bio medical waste .	<b>07</b>

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