

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023****Subject Code:3141311****Date: 06-02-2024****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
Q.1	(a) Which are the Factors that affecting the Waste generation Rate?	03
	(b) Write down the hierarchy of integrated Solid Waste Management.	04
	(c) Explain factors that should be considered in the on-site storage of solid waste.	07
Q.2	(a) Enlist and explain the physical properties of municipal solid waste.	03
	(b) Write down the most important Functional Element of Solid Waste Management System.	04
	(c) Define Pick up Haul, at site & Off-route with reference to the hauled Container system & stationary Container System. Draw a net diagram of operational sequences of both the system	07
	OR	
	(c) Explain in detail Need of Transfer & Transport in the management of MSW.	07
Q.3	(a) Enlist the chemical properties of municipal solid waste.	03
	(b) What is the role of size separation? Enlist different equipment can be used for size separation.	04
	(c) Enlist and explain design and operational consideration of Aerobic composting.	07
	OR	
Q.3	(a) Explain the purpose of processing of solid waste.	03
	(b) Discuss the effect of storage on waste component.	04
	(c) Describe process of methane generation by anaerobic digester.	07
Q.4	(a) Explain the important characteristics of hazardous waste.	03
	(b) Write a short note on Manifest.	04
	(c) Draw Schematic diagram of land fill? Explain each essential Component of that.	07
	OR	
Q.4	(a) What do you mean by Refused Derive Fuel (RDF)?	03
	(b) Write a short note on Leachate & its Management.	04
	(c) Explain in detail all the three methods used for land filling along with neat sketches.	07

- Q.5** (a) Discuss treatment techniques used for biomedical waste. **03**
(b) Explain categories of Bio-medical Waste. **04**
(c) Enlist & explain types of shredder used for MSW processing. **07**

OR

- Q.5** (a) Write a short note on energy from MSW. **03**
(b) Enlist & explain the treatment Technologies of Hazardous Waste. **04**
(c) What is composting? Explain the two principal methods of composting. **07**
