

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019****Subject Code:2163505****Date:21/05/2019****Subject Name:Solid & Hazardous Wastes - Characterization & Treatment****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.

		MARKS
<b>Q.1</b>	(a) Define: Hazardous waste, e waste, calorific value.	<b>03</b>
	(b) Discuss the 4R principle of Waste management.	<b>04</b>
	(c) Define responsibilities of “Occupier” under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	<b>07</b>
<b>Q.2</b>	(a) Write about Essential Components of HW landfill.	<b>03</b>
	(b) What is the procedure of storage of hazardous and other wastes under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016?	<b>04</b>
	(c) Discuss Responsibilities of the producer under “E-Waste (Management) Rules, 2016.	<b>07</b>
<b>OR</b>		
	(c) Describe MSW; Discuss “physical and chemical properties of MSW” in detail.	<b>07</b>
<b>Q.3</b>	(a) Define: EPR, Occupier, Dismantler.	<b>03</b>
	(b) Write Short Notes on Manifest system.	<b>04</b>
	(c) Discuss the working of Incinerator with the help of typical process flow diagram.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Define: Illegal traffic, composting, leachate.	<b>03</b>
	(b) Write Short Notes on Vermi-composting.	<b>04</b>
	(c) Explain process of anaerobic digestion and bio gas production from of solid waste with the help of a suitable diagram.	<b>07</b>
<b>Q.4</b>	(a) Explain Bangalore method of composting.	<b>03</b>
	(b) What are the Liner criteria for hazardous waste landfill?	<b>04</b>
	(c) What are the location criteria for hazardous waste landfill?	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) What do you mean by Refused derived fuel?	<b>03</b>
	(b) What are the cover criteria for hazardous waste landfill?	<b>04</b>
	(c) Discuss the criteria for site investigation for hazardous waste landfill.	<b>07</b>
<b>Q.5</b>	(a) Define: Trem Card, TCLP, TSDF	<b>03</b>
	(b) Write a note on “slaughter house waste management”.	<b>04</b>
	(c) How movement of leachate in properly managed sanitary landfill sites can be controlled.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Define: PRO, Transboundary movement, Co-processing	<b>03</b>
	(b) Write a note on “Agricultural waste management”.	<b>04</b>
	(c) How movement of gas in properly managed sanitary landfill sites can be controlled.	<b>07</b>

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