

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2152303****Date: 01/05/2017****Subject Name: Plastics Recycling & Waste Treatment****Time: 02:30 PM to 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	Short Questions	14
	1 What is Pyrolysis?	
	2 Define: Secondary recycling.	
	3 What is biodegradable plastic?	
	4 Give recycling codes for HDPE and LDPE.	
	5 List any two separation methods.	
	6 Define: Primary recycling.	
	7 What are 3R?	
	8 List various method of collection of plastics waste.	
	9 Give name of any four biodegradable plastics.	
	10 What is incineration?	
	11 Define: Tertiary recycling.	
	12 What is depolymerisation?	
	13 Give recycling codes for PET and PS.	
	14 What is nuisance plastic?	
Q.2	(a) List various size reduction techniques and explain any one.	03
	(b) Explain density separation (Float/sink) with flow diagram.	04
	(c) List out the different types of Pyrolysis systems. Explain about rotary kiln and Fluidized bed Pyrolysis Reactor with schematic diagram.	07
	OR	
	(c) Discuss various sources of Plastics waste.	07
Q.3	(a) Explain with flow diagram for recycling of PP/HDPE woven sack.	03
	(b) Explain recycling of PU using hydrolysis process.	04
	(c) Explain degradation mechanisms of thermoplastics due to repetitive processing explain with suitable examples.	07
	OR	
Q.3	(a) How Plastic waste is used in Road construction? Discuss.	03
	(b) Discuss life cycle analysis of any biodegradable plastics with suitable example.	04
	(c) Write a short note on recycling of medical plastic waste.	07
Q.4	(a) Give flow diagram of Multilayer Film Waste to Molded Products.	03
	(b) Explain recycling of PET by glycolysis processes.	04
	(c) Give plastics identification codes with their properties and applications.	07

OR

- Q.4** (a) Give advantages of Pyrolysis. **03**
(b) Discuss various technical approaches to secondary recycling. **04**
(c) Explain solvent separation process with neat flow diagram. **07**
- Q.5** (a) How plastics waste is used as fillers? Discuss. **03**
(b) Discuss various problems associated with the incineration of plastics. **04**
(c) How multilayer plastic films are recycled? Discuss. **07**
- OR**
- Q.5** (a) Write about Pollution due to plastics waste recycling. **03**
(b) Discuss in detail about the effects of recycling of plastics waste on Environment. **04**
(c) Write a note on: Plastics in Landfill. **07**
