

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER – VII • EXAMINATION – WINTER - 2016

Subject Code: 3372305

Date: 29-11-2016

Subject Name: Recycling of Plastic

Time: 2:30PM TO 5:00PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of only simple calculator is permitted in Mathematics.
6. English version is authentic.

- Q.1** Answer any seven out of ten. દશમાંથી કોઇપણ સાતના જવાબ આપો. **14**
1. Define: Nuisance plastic and waste plastic.
 2. Give the terms of 4 R in waste plastic management.
 3. Name the properties of waste use as a basis for separation process.
 4. Sketch flow diagram of in-line recycling method.
 5. Define: Post consumer plastic waste and industrial plastic waste.
 6. Define pyrolysis. Which products we can get by pyrolysis process?
 7. What is size reduction? List equipments used for size reduction.
 8. List applications of co-extrusion for plastic recycling.
 9. State advantages of the use of refuse as a supplemental fuel in power plants.
 10. List polymer which can be recycled by depolymerization process.
- Q.2** (a) List various types of crushers. Explain impact type crusher. **03**
OR
(a) Explain disk mill with neat sketch for size reduction. **03**
(b) Write short note on Rasp mills. **03**
OR
(b) Explain solvent extraction method. List steps of solvent extraction method. **03**
(c) Write short note on hot cylinder separation method for paper/plastics mixtures. **04**
OR
(c) Draw a neat sketch for riverside recovery process. **04**
(d) Explain float/sink separation method for mixtures of plastics with flowsheet. **04**
OR
(d) Explain hammer mill with neat sketch for size reduction. **04**
- Q.3** (a) Explain plunger type stuffer with neat sketch. **03**
OR
(a) What is the use of granulators in recycling? Which materials are difficult to granulate? **03**
(b) Draw a neat sketch of Mitsubishi reverzer for mixed plastic waste. **03**
OR
(b) Explain methods of recycling plastic waste by chemical modification. **03**
(c) Describe technical approaches to secondary recycling. **04**

		OR	
	(c)	Write a brief note on granulators.	04
	(d)	Write a note on cryogenic grinding.	04
		OR	
	(d)	Write a note on regal converter.	04
Q.4	(a)	Define the term pyrolysis. List advantages of pyrolysis.	03
		OR	
	(a)	Write a brief note on mitsui's thermal cracking process.	03
	(b)	Explain vertical shaft type of pyrolysis reactor with neat sketch.	04
		OR	
	(b)	Discuss pyrolysis reactions.	04
	(c)	Explain the constructional features of an incinerator.	07
Q.5	(a)	Discuss future of waste disposal.	04
	(b)	Explain flow of plastic with neat sketch of plastic cycle.	04
	(c)	Write a note on recycling of PET.	03
	(d)	Explain any one method of PVC recycling.	03
