

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V • EXAMINATION – WINTER • 2014

Subject Code: 152303

Date: 03-12-2014

Subject Name: Plastics Recycling and Waste Treatment

Time: 10.30 am - 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.

Q.1 (a) Define: Primary recycling, secondary recycling, tertiary recycling, and quaternary recycling. **07**

(b) Write a note on float/sink (density) separation method for plastics waste. **07**

Q.2 (a) Which are the sources of plastics waste? Explain in detail. **07**

(b) Describe solvent extraction technique for separation of mixed plastic waste. **07**

OR

(b) Explain various size reduction techniques in detail with suitable diagram. **07**

Q.3 (a) Describe in detail about the Plastics Roads. With the help of flow sheet describe the road manufacturing process using plastics. **07**

(b) What is Biodegradable Polymer? Give its examples. Give Block diagram for “Cradle to Grave concept for Biodegradable materials in fast-food restaurant packaging applications. **07**

OR

Q.3 (a) Give plastics identification codes with their properties and applications. **07**

(b) Explain glycolysis for chemical decomposition of PET with suitable flow diagram. **07**

Q.4 (a) Draw flow diagrams for (i) conversion of PP/HDPE woven sacks into ropes (ii) conversion of PP/HDPE woven sacks into injection molded suit cases. **07**

(b) Write a note on: Recycling of multilayer packaging film waste. **07**

OR

Q.4 (a) Discuss in detail about the effects of recycling of plastics waste on Environment. **07**

(b) Define pyrolysis. List various pyrolysis reactions and also give advantages of pyrolysis. **07**

Q.5 (a) Discuss polymer degradation and write various factors affecting degradability. **07**

(b) Explain Vertical shaft reactor and Rotary kiln pyrolysis reactor with neat diagram. **07**

OR

Q.5 (a) What do you mean by incineration? Give various problems associated with the incineration of pure plastics waste. **07**

(b) Discuss medical plastics waste management. **07**
