

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**DIPLOMA ENGINEERING – SEMESTER – VII • EXAMINATION – SUMMER 2016**

**Subject Code: 3372305****Date: 18/05/2016****Subject Name: Recycling of Plastic****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.
4. Each question carry equal marks (14 marks)

- Q.1** Answer any seven out of ten. **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. Which are the factors which affect solvent separation method?
  5. Sketch flow diagram of in-line recycling method.
  6. Define: Post consumer plastic waste and industrial plastic waste.
  7. Give applications of co-injection moulding for plastic recycling.
  8. Define pyrolysis. Which products we can get by pyrolysis process?
  9. State any two advantages of chemical decomposition of plastic waste.
  10. Name any one polymer which can be recycled by depolymerization process. Which product we get as a result of depolymerization?
- Q.2** (a) What do you mean by land filling of plastic waste? State disadvantages of it. **03**  
OR  
(a) Give any three suggestions for reducing plastic waste. **03**  
(b) Explain the economical and environmental impacts of plastic wastes. **07**  
OR  
(b) Explain flow of plastic product and waste by line diagram. **07**  
(c) Draw recycling codes for various plastics. **04**  
OR  
(c) State various physical waste separation methods and explain any one in brief. **04**
- Q.3** (a) Draw plunger type stuffer and label different parts. **03**  
OR  
(a) What is the use of granulators in recycling? Which materials are difficult to granulate? **03**  
(b) Which are the methods uses for separation of mixed plastics waste? Explain float/sink separation method. **07**  
OR  
(b) Explain methods of recycling plastic waste by chemical modification. **07**  
(c) State various advantages of pyrolysis process. **04**  
OR  
(c) Explain glycolysis process. **04**
- Q.4** (a) State uses of plastic waste as filler. **03**  
OR  
(a) List out the forms of waste generated of PVC material. **03**  
(b) Explain various problems associated with incineration of pure plastic waste. **04**

OR

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|            | (b) Explain electro dynamic separation method.                       | <b>04</b> |
|            | (c) Explain the constructional features of an incinerator.           | <b>07</b> |
| <b>Q.5</b> | (a) Explain recycling methods of PET products.                       | <b>07</b> |
|            | (b) Explain any one method of HDPE recycling.                        | <b>04</b> |
|            | (c) Explain in brief the principle of co-extrusion recycling method. | <b>03</b> |

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