

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2163505****Date: 08/05/2017****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.

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| Q.1 | Short Questions | 14 |
| 1 | Define Solid waste. | |
| 2 | What is E-waste? | |
| 3 | What is Sanitary Landfill? | |
| 4 | What do you mean by the term Sustainable management? | |
| 5 | What do you mean by the term Integrated solid waste management? | |
| 6 | Define Hazardous waste. | |
| 7 | Define Leachate. | |
| 8 | Define Handling. | |
| 9 | What is Refuse? | |
| 10 | What is Heat value? | |
| 11 | What do you mean by the term Recycling? | |
| 12 | What do you mean by the term Reuse? | |
| 13 | What is HDPE? | |
| 14 | What do you mean by the term Biological degradation? | |
| Q.2 | (a) What do you mean by Waste hierarchy? | 03 |
| | (b) What are the duties of waste generator? | 04 |
| | (c) Discuss the characterization of Solid waste & Hazardous waste. | 07 |
| | OR | |
| | (c) Discuss the 4R principle of Waste management. | 07 |
| Q.3 | (a) What do you mean by Bio-methanation? | 03 |
| | (b) What are the criteria for Solid waste management in hilly areas? | 04 |
| | (c) What are the objectives & salient feature of E-waste management & handling rules 2011? | 07 |
| | OR | |
| Q.3 | (a) What do you mean by Co-processing? | 03 |
| | (b) What are the responsibilities of manufacturer of E-waste? | 04 |
| | (c) What are the objectives & salient features of Municipal solid waste management rules 2000? | 07 |
| Q.4 | (a) Enlist thermo-chemical methods of treating Solid waste. | 03 |
| | (b) Explain in brief E-waste processing. | 04 |
| | (c) Write a short note on energy recovery from Solid waste? | 07 |
| | OR | |
| Q.4 | (a) What do you mean by Combustible waste? | 03 |
| | (b) Enlist biological methods of treating Solid waste and explain any one. | 04 |
| | (c) Explain the process of Pyrolysis with neat sketch. | 07 |
| Q.5 | (a) What do you mean by Composting? | 03 |
| | (b) What are the Liner & cover criteria for hazardous waste landfill? | 04 |
| | (c) What are the criteria for site selection of Sanitary landfill? | 07 |
| | OR | |

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|------------|------------|--|-----------|
| Q.5 | (a) | What do you mean by Refused derived fuel? | 03 |
| | (b) | What are the waste acceptance criteria at hazardous waste landfill? | 04 |
| | (c) | Discuss the important criteria for design of Hazardous waste Landfill. | 07 |
