

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME Semester –I Examination Feb. - 2012**

**Subject code: 711803N****Date: 17/02/2012****Subject Name: Municipal and Hazardous Solid Waste Management****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) Explain the factors affecting the waste generation rates. **07**  
(b) Explain the components of municipal solid waste with examples. **07**
- Q.2** (a) What is biomedical waste ? Explain classification of biomedical waste in detail. **07**  
(b) Write a short note on material mass balance method for waste estimation. **07**
- OR**
- (b) Give the classification of hazardous waste based on process and chemical constituents. **07**
- Q.3** (a) Explain single and double liner system for secured landfill site with sketches. **07**  
(b) Write a short note on need of transfer and transport in the management of municipal solid waste. Explain any one in detail. **07**
- OR**
- Q.3** (a) Enlist various reagents and chemicals used for stabilization and solidification of hazardous waste and explain its working mechanisms with sketch. **07**  
(b) Give the difference between incineration and pyrolysis for hazardous waste treatment **07**
- Q.4** (a) Write a short note on uses of closed landfills. **07**  
(b) Explain phased operation of secured landfill and closer of landfill. **07**
- OR**
- Q.4** (a) Explain the knock down criteria for selection of hazardous landfill site. **07**  
(b) Explain requirements of composting of municipal solid waste. **07**
- Q.5** (a) Write a short note on material recovery from municipal solid waste. **07**  
(b) Write the importance of linear programming in solid waste management. **07**
- OR**
- Q.5** (a) Explain any two physico - chemical treatment technologies for hazardous waste with examples. **07**  
(b) Write a short note on leachate generation and its management. **07**

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