

**Model Question Paper**

**(Pages: 3)**

**Reg. No. :** .....

**Name:** .....

**Eighth Semester B.Tech. Degree Examination, May 2017**

**(2013 Scheme)**

**Chemical Engineering Branch**

**13.806.7 SOLID WASTE MANAGEMENT (H) (ELECTIVE V)**

**Time: 3 hours**

**Max. Marks : 100**

**Part A**

*Answer all questions. Each question carries 2 marks.*

1. Explain the composition of municipal solid wastes.
2. Discuss the factors that affect the generation of solid wastes.
3. Specify the role of transfer station in municipal solid waste management?
4. Define waste disposal. Point out the factors to be considered while disposing solid waste.
5. Define composting.
6. Differentiate between hazardous and non-hazardous waste.
7. Describe the factors which affect production of leachate and landfill gas in the landfill?
8. Write short notes on treatment of biomedical waste.
9. Define integrated waste management.
10. List the various activities of NGO's.

**Part B**

*Answer any one question from each module.*

**Module I**

11. a) Municipal solid waste is generated within the community from several sources, not just the household. List and discuss these sources. **4**
- b) Write briefly on Hauled – Container Systems (HCS) for collection of solid wastes. **6**

c) Identify the activities responsible for successful implementation of collection system.

Write briefly on the rules to be kept in mind while designing the collection route? **10**

*OR*

12. a) Explain the adverse health and environmental impacts due to improper handling of solid waste. **5**

b) List out the factors to be considered while deciding collection efficiency in a SWM system. **5**

c) List out the factors to be considered in selecting solid waste collection equipment? **10**

### **Module II**

13. a) How does incineration help in the management of solid waste? Describe the incineration technologies and air emissions and its control in detail. **10**

b) Explain the following:

(i) Pyrolysis

(ii) Open dumping

(iii) Refuse derived fuel

(iv) Biogasification

**10**

*OR*

14. a) Describe the design and operation of a sanitary landfill with a neat sketch. **10**

b) Explain the various phases of municipal solid waste decomposition in a closed landfill cell. **4**

c) Identify the adverse effects of a landfill leachate and list appropriate control measures. **6**

### **Module III**

15. a) Compare the various thermal processes used in hazardous solid waste treatment. **10**

b) Explain EPA - identification of hazardous and toxic waste. Write down the characteristics of hazardous waste. **10**

*OR*

16. Describe the various techniques of hazardous waste processing and methods of disposal. **20**

### **Module IV**

17. a) State the key role of public in solid waste management. **10**

b) Explain Integrated Solid Waste Management by citing out the political, environmental and economic aspects along with its advantages. **10**

*OR*

18. a) Write short notes on legal aspects of solid waste disposal. **10**

b) Explain briefly the Krakow and Stockholm Municipal solid waste management models. **10**