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**Question Paper Code : 50568**

**B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017**

**Fifth/Seventh Semester**

**Civil Engineering**

**EN 6501 – MUNICIPAL SOLID WASTE MANAGEMENT**

**(Common to Environment Engineering)**

**(Regulations 2013)**

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**PART – A**

**(10×2=20 Marks)**

1. Mention any four types of municipal solid wastes.
2. What are the factors affecting generation of solid wastes ?
3. What are the qualities of materials used for the containers ?
4. Name any two diseases transmitted by improper storage of MSW.
5. Enumerate the types of vehicles used for collection of MSW.
6. What role does transfer station play in solid waste management ?
7. What do you mean by composting process ?
8. What are the end products of pyrolysis of solid waste ?
9. List out two benefits associated with leachate recirculation in a landfill.
10. Give the composition of landfill gas.



## PART – B

(5×13=65 Marks)

11. a) i) Explain the sources and various types of municipal solid wastes. (10)  
ii) What are the issues associated with improper disposal of municipal solid wastes? (6)

(OR)

- b) Briefly discuss the salient features of Municipal solid waste (Management and Handling) rules.

12. a) "Segregation of solid wastes at source is the key to waste management" – Explain with the help of a case study.

(OR)

- b) Explain the various issues related to public health and economic aspects of open storage of MSW.

13. a) Discuss the common principles to be considered while planning collection routes.

(OR)

- b) Explain the methods of residential and commercial solid waste collection.

14. a) What are the objectives of waste processing? Discuss the options for processing of municipal solid waste from larger urban areas of the developing world.

(OR)

- b) i) What is window composting? List the factors controlling the process efficiency. (8)  
ii) Discuss the application of biomethanation process for resource recovery from solid wastes. (8)

15. a) Draw a neat sketch of a landfill bioreactor and explain the various components of the unit. Also explain the biological process involved in it.

(OR)

- b) Explain the design and operation aspects of sanitary landfills.

## PART – C

(1×15=15 Marks)

16. a) Explain in detail about the different methods of sampling and characterisation of Municipal Solid Waste. Also explain the role of NGO's and public awareness in MSW.

(OR)

- b) With a case study explain the selection of location, operation and maintenance of waste. What are the field problems? Explain.
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