Reg. No. : | | | | | | | | | | |

Question Paper Code: 31192

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Elective

Civil Engineering

01UCE917 – MUNICIPAL SOLID WASTE MANAGEMENT

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. What is mean by solid waste management?
2. What are the effects of improper disposal of solid waste on the environment?
3. State the purpose of onsite processing?
4. Define segregation.
5. Enumerate the type of vehicle used for collection of municipal solid waste?
6. How many collection vehicles required being to collect a city having population 50000 generating MSW at rate of 850*g/capita/day* of density 960kg/m^3, single carrying 8m^3/day?
7. Say true or false: and justify your answer. The compost should have C/N ratio is 25:1. While ratios below 25:1, may create odour.
8. What is meant by bio-methanation?
9. Mention waste to be disposed in landfill?
10. Outline the benefits of landfill bioreactor.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the various characteristics of solid waste. (16)

Or

(b) Discuss the requirement of various elements of solid waste management as per M and H rules. (16)

12. (a) Describe the factors to be considered for selecting good storage container. Also discuss the various material used for storage container. (16)

Or

(b) Explain the waste minimization by 3R technique with suitable examples. (16)

13. (a) Explain the stationary and hauled collection system with neat sketches. (16)

Or

(b) Mention the selection criteria for transfer station and also explain the different types of transfer station. (16)

14. (a) (i) Explain the physical processing of municipal solid waste management. (8)

(ii) Discuss the control performance parameters of composting method. (8)

Or

(b) Explain the working principal of incineration and Pyrolysis options with its merits and demerits under Indian condition. (16)

15. (a) (i) List out the factors for site selection of landfill. (6)

(ii) Mention its specification and function of each components of engineered landfill system with a neat sketch. (10)

Or

(b) (i) Explain the biological and physico-chemical treatment of leachate. (10)

(ii) A city having population of 60,00,000 people generating waste at the rate of 600*g/capita/day* has a compacted density 700kg/m^3 in the fill, average fill depth is 23*m* and design life is 25 years. Calculate how much land required for sanitary landfill. (6)