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Question Paper Code : 91574

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019
Fifth/Seventh Semester

Environmental Engineering
EN 6501 – MUNICIPAL SOLID WASTE MANAGEMENT
(Common to Civil Engineering)
(Regulations 2013)

(Also Common to PTEN 6501 – Municipal Solid Waste Management for B.E.
(Part-time) Sixth Semester – Civil Engineering – Regulations 2014)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. What are the effects of improper disposal of municipal solid wastes ?
2. Name any four types of municipal solid waste.
3. List out the materials used for containers of municipal solid waste.
4. What are the health issues associated with improper storage of MSW ?
5. Enumerate the types of vehicles used for collection of MSW.
6. What is meant by transfer station ?
7. What is the significance of particle size in composting process ?
8. What are end products of pyrolysis ?
9. Name any two factors to be considered while selecting site for sanitary landfill.
10. Give the typical characteristics of leachate from a sanitary landfill.

PART – B

(5×13=65 Marks)

11. a) i) Briefly explain the sources of municipal solid wastes. (5)
ii) Compare and contrast the characteristics of solid wastes in Indian cities and that of developed countries. (8)
(OR)
- b) i) How to determine volatile solids of a solid waste sample ? What is its environmental significance ? (5)
ii) Discuss the role of NGO's in solid waste management. (8)



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

(OR)

b) i) What are requirements for storage of municipal solid wastes ? (5)

ii) Discuss the issues pertaining to the economic aspects of storage of MSW. (8)

13. a) Discuss the common principles to be considered while planning collection routes for solid waste collection in a metropolitan city.

(OR)

b) Explain the systems of solid waste collection.

14. a) i) Discuss the factors to be considered in the selection of waste processing techniques. (9)

ii) What are the objectives of resource recovery from solid wastes ? (4)

(OR)

b) Discuss the windrow composting process with the aid of a schematic diagram. List the factors controlling the process efficiency.

15. a) List and discuss the five phases sanitary landfill undergoes during the process of stabilization of wastes.

(OR)

b) Draw a neat sketch of a landfill bioreactor and explain the working principle.

PART – C

(1×15=15 Marks)

16. a) i) Briefly explain the tasks involved in the design of a sanitary landfill. (8)

ii) A rural community of 40,000 persons generates solid waste at an average rate of 0.4 kg/capita/d. A 10 ha landfill site is available, with an average depth of compacted waste limited to 6 m by local topography. It is estimated that the compacted waste will have a density of 800 kg/m³ and about 25% of volume will be taken by the cover material. What is the anticipated useful life of the landfill ? (7)

(OR)

b) Discuss the salient features of Indian legislation pertaining to management and handling of municipal solid waste. (15)