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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester, B.E. - Civil Engineering

Semester End Examination; Dec - 2017 / Jan - 2018

Solid Waste Management

Time: 3 hrs *Max. Marks: 100*

***Note**: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.*
ii) Substantiate your answer with neat sketches wherever necessary.

UNIT - I

1 a. Define Solid Waste. Explain the importance of Solid Waste Management. 10

b. Explain the interrelationship of different functional elements in Solid Waste Management with a flow chart. 10

2 a. Define Solid Waste Generation rate and mention the factors influencing the quantity of municipal waste generation. 10

b. Explain the different sources and types of solid wastes. 10

UNIT - II

3 a. With neat sketches, explain the different types of collection system of municipal wastes. 12

b. Estimate the moisture context of a solid-waste sample with the following composition, based on 100 kg sample of waste : 8

Sl. No.	Component	Percentage by mass	Moisture content %
1	Food waste	15	70
2	Paper	45	6
3	Card board	10	5
4	Plastics	10	2
5	Garden trimmings	10	60
6	Wood	5	20
7	Tin cans	5	3

4 a. Mention the various factors to be considered for evaluating processing technique. 10

b. Briefly explain the processing techniques of volume reduction and component separation in the treatment of municipal solid waste. 10

UNIT - III

5 a. What is incineration process? What are the products of incineration? 6

b. What is pyrolysis? Briefly explain the process of pyrolysis. 8

c. Explain the role of 3T's in incineration. 6

6 a. Discuss the important factors considered in the anaerobic compositing process design. 10

b. Explain the following compositing methods : 10

i) Bangalore method ii) Indore method.

Contd....2

UNIT - IV

7 a. Explain the various factors to be considered in the selection of a site for a sanitary land fill. 10

b. With neat sketches, explain Ramp method and Pit method of land filling for municipal solid wastes. 10

8 a. What is a Leachate? Discuss on prevention of site pollution. 8

b. What are the gases generated in land fills? Explain the methods for control of gas movement in land fills? 12

UNIT - V

9. Write brief notes on : 20

i) Open dumping ii) Ocean disposal

iii) Hog feeding iv) Biomedical waste disposal.

10 a. Discuss the importance of recycle and reuse in solid waste management. 10

b. Briefly discuss on material and energy recovery operations, as applied to recycle and reuse of solid waste materials. 10

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