



CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

15CV651

Sixth Semester B.E. Degree Examination, Dec.2018/Jan.2019 Solid Waste Management

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. With a neat schematic diagram, explain the functional elements of solid waste management. (10 Marks)
- b. Estimate the energy content of a solid waste sample in unit energy on dry basis and ash free dry basis, assume ash 5%.

Component	% by mass	% moisture content	Energy (kJ/kg)
Food waste	15	70	4650
Paper	45	06	16750
Card board	10	05	16300
Plastics	10	02	32600
Garden trimming	10	60	6500
Wood	05	20	18600
Tincans	05	03	700

(06 Marks)

OR

- 2 a. With a neat schematic diagram explain
i) Hauled container system
ii) Stationary container system. (10 Marks)
- b. An area consisting of 1000 houses of average 5 person per home is contributing solid waste to a transfer station designed for a week. The waste is carried in 2 types of vehicle i.e., compactor trucks and flat bed trucks whose volume are 15 and 1.15 m³ with their densified of the material is 400 and 50 kg/m³ respectively. Assuming 10 compactor trucks loads and 40 flat bed trucks loads per weeks. Estimate the unit waste generation rate. (06 Marks)

Module-2

- 3 a. Explain the following processing techniques briefly:
i) Mechanical volume reduction
ii) Mechanical size reduction. (10 Marks)
- b. Explain chemical volume reduction. (06 Marks)

OR

- 4 a. Give list of component separation techniques, explain them. (10 Marks)
- b. What are 3T's of incineration process? Explain them. (06 Marks)

Module-3

- 5 a. Explain the following composting methods:
i) Bangalore method
ii) Indore method. (10 Marks)
- b. With a neat sketch, explain the trench method of sanitary land filling. (06 Marks)



15CV651

OR

- 6 a. Discuss the important affecting the aerobic composting process. (10 Marks)
b. Determine the landfill area required for municipality with a population of 50,000 given that solid waste generation = 360gm/person/day compacted density of landfill = 504 kg/m³. Average depth off compacted solid waste = 3m. (06 Marks)

Module-4

- 7 a. Explain briefly the bio medical waste classification and disposal techniques. (10 Marks)
b. Write a note on: i) Hazardous waste; ii) Construction waste. (06 Marks)

OR

- 8 a. Explain the Cell vent and Well vent methods of controlling gas movement in land fills. (08 Marks)
b. Define E-waste. List the sources and disposal methods of E-waste. (08 Marks)

Module-5

- 9 Explain any four types of incinerators. (16 Marks)

OR

- 10 a. Define pyrolysis. With the help of flow chart explain the process of pyrolysis. (08 Marks)
b. Explain the various factors to be considered in selection of a site for sanitary land fill. (08 Marks)

* * * * *