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10CV757

Seventh Semester B.E. Degree Examination, July/August 2021**Solid Waste Management**

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1 a. Explain three general categories of solid waste. (10 Marks)
b. Estimate the moisture content, density of the following waste composition:

Component	% by mass	Typical % M.C	Typical density
Food waste	15	70	290
Paper	45	6	85
Cardboard	10	5	50
Plastics	10	2	65
Garden Trimmings	10	60	105
Wood	5	20	240
Tin cans	5	3	90

Based on 100 kg samples.

(10 Marks)

- 2 a. With the help of flow chart, explain functional units of solid waste management. (10 Marks)
b. What are the management possibilities, is it important to consider solid waste management? (10 Marks)
- 3 a. Explain briefly how the collection routes of municipal solid waste are fixed. (10 Marks)
b. Explain the processing techniques of volume reduction and component separation in the treatment of municipal solid waste. (10 Marks)
- 4 a. Explain the important processing techniques used in municipal solid waste management. (10 Marks)
b. With the aid of neat sketch, explain the process of municipal incinerator. (10 Marks)
- 5 a. Explain briefly Indore process and Bangalore process of composting. (10 Marks)
b. Determine the amount of air required to oxidize completely 1 tonne of waste having the chemical equation $C_{50}H_{100}O_{40}N$. (10 Marks)
- 6 a. What are the factors to be considered in the selection of potential landfill site? (10 Marks)
b. With the help of neat sketches, explain the method to control gas movement. (10 Marks)
- 7 a. Explain the biomedical waste disposal methods. (14 Marks)
b. Determine landfill area required for a municipality with a population 50,000 given that:
(i) Solid waste generation = 350 gm/person/day
(ii) Compacted density of landfill = 504 kg/m^3
(iii) Average depth of compacted solid waste = 30 m (06 Marks)
- 8 Write short notes on:
a. Refuse derived fuels
b. Gasification
c. Pyrolysis
d. Transfer and Transport (20 Marks)
