CBCS SCHEME

USN | | | | | | | | | | |

18CV642

Sixth Semester B.E. Degree Examination, Jan./Feb. 2023
Solid Waste Management

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Explain the different sources and types of Solid Waste. **(10 Marks)**

b. Estimate the energy content of Solid Waste sample on unit energy content on dry basis and ash free basis. Assume 7% of ash.

Components	% by Mass	% Moisture content	Energy in kJ/kg
Food waste	15	70	4650
Paper	45	06	16750
Card board	10	05	16300
Plastic	10	02	32600
Garden trimming	10	60	6500
Wood	05	20	18600
Tin cons	05	03	700

(10 Marks)

OR

2 a. With neat sketch, explain hauled container system and stationary container system. **(10 Marks)**

b. Write a note on : i) Importance of transfer stations ii) Route Optimization. **(10 Marks)**

Module-2

3 Explain the following :

a. Component separation by Mechanical methods. **(10 Marks)**

b. Mechanical volume reduction by compaction. **(10 Marks)**

OR

4 a. Explain thermal volume reduction by incineration process. **(10 Marks)**

b. Explain any two methods of size reduction. **(10 Marks)**

Module-3

5 a. What is Composting? Explain the important factor for design of aerobic composting. **(10 Marks)**

b. Write a note on : i) Mechanical compositing ii) Vermi composting. **(10 Marks)**

OR

6 a. Determine landfill area required for a municipality with a population 50000.
i) Solid waste generation = 350 gms / person / day.
ii) Density of land fill = 504 kg/m^3.
iii) Depth of solid waste = 3m. **(08 Marks)**

b. List and explain briefly the various factors that must be considered in evaluating a potential landfill site. **(08 Marks)**

c. Write the advantages and disadvantages of Sanitary landfill. **(04 Marks)**

Module-4

7 Explain Source , Collection , Treatment and Disposal of Biomedical Waste. **(20 Marks)**

OR

8 Explain Source , Collection , Treatment and Disposal of Constructional and Demolition Waste. **(20 Marks)**

Module-5

9 a. With neat sketch, explain Municipal Incinerator. **(10 Marks)**

b. Define Pyrolysis. Briefly explain the process of pyrolysis. **(10 Marks)**

OR

10 a. Write a short note on :
i) Energy Recovery Operation ii) Hazards Waste. **(10 Marks)**

b. Describe the effect of 3T's in Incineration process. **(10 Marks)**

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