

# CBCS SCHEME

USN

21CV734



Seventh Semester B.E./B.Tech. Degree Examination, June/July 2025

## 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. Define solid waste management. List and explain the sources of solid waste. (08 Marks)
- b. Explain with a flow diagram showing functional elements of solid waste management. (07 Marks)
- c. Explain briefly the Rag pickers and their roles in solid waste. (05 Marks)

OR

- 2 a. List the construction and demolition waste components and explain with their reuse. (07 Marks)
- b. Estimate the moisture content of 100 kg and S.W. sample with the following composition:

Component	% by mass	Moisture content
Food wastes	15	70
Paper	45	6
Cardboard	10	5
Plastics	10	2
Garden Trimmings	10	60
Wood	5	20
Tin Cans	5	3

- c. Enumerate the physical properties of solid waste. (06 Marks)

### Module-2

- 3 a. Define collection. Write the types of collection services. Explain in detail, high rise collection services and commercial and industrial services. (10 Marks)
- b. Explain with a neat sketch, hauled container system. Write its advantages and disadvantages. (10 Marks)

OR

- 4 a. Estimate unit solid waste generation rate for a residential area having 1200 dwellings with 5 persons/house. The observation taken for week at disposal facility are the following information.

Vehicle	No. of loads	Avg. vol m <sup>3</sup>	Density kg/m <sup>3</sup>
Truck	10	10	350
Tractor	10	1.5	150
Private vehicle	20	0.3	100

- b. Interpret the factors considered in the design of transfer station. (10 Marks)

**Module-3**

- 5 a. List and explain the types of size reduction of waste. (10 Marks)
- b. Write a short note on :  
(i) Bangalore Process Composting  
(ii) Vermi composting (10 Marks)

**OR**

- 6 a. Explain with a neat sketch Hydropulper used for size reduction in waste processing technique. (10 Marks)
- b. Define composting. Explain the important factors considered for design of aerobic composting. (10 Marks)

**Module-4**

- 7 a. What is sanitary landfill? Explain with a neat sketch procedure involved in the sanitary landfill. Write its advantages and disadvantages. (10 Marks)
- b. Enumerate the control of gases in landfill with neat sketches. (10 Marks)

**OR**

- 8 a. With a neat sketch explain the working of municipal incinerator. (10 Marks)
- b. Explain with a flow diagram of pyrolysis process for organic portion of municipal solid waste. (10 Marks)

**Module-5**

- 9 a. Define biomedical waste. Write its sources treatment and disposal methods. (10 Marks)
- b. Write a note on :  
(i) Open dumping (ii) Ocean disposal (10 Marks)

**OR**

- 10 a. Briefly explain the energy recovery – recovery techniques with a neat flow diagram. (10 Marks)
- b. Summarize the E-waste affects on human health and explain the treatment methods of E-waste. (10 Marks)

\*\*\*\*\*