



# CBCS SCHEME

USN: A Y 1 7 C V 4 2 3

15CV651

## Sixth Semester B.E. Degree Examination, June/July 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. Explain the different sources and types of solid wastes. (06 Marks)  
b. Estimate the density of a solid waste sample, on as discarded basis. Take 1000kg sample. (10 Marks)

Component	% by mass	Density (kg/m <sup>3</sup> )
Food waste	20	300
Paper	40	100
Plastics	5	90
Garden trimmings	15	150
Wood	5	250
Tin cans	5	100
Cardboard	10	80

OR

- 2 a. With a neat sketch, explain hauled container system and stationary container system. (10 Marks)  
b. With a neat sketch, explain the different types of Transfer stations. (06 Marks)

### Module-2

- 3 a. Explain the process of incineration with the aid of neat sketch. (08 Marks)  
b. Explain the following : (08 Marks)  
i) Mechanical volume reduction ii) Component separation.

OR

- 4 a. Describe the effect of 3T's in incineration process of solid waste. (08 Marks)  
b. Write a note on Air pollution and its control. (08 Marks)

### Module-3

- 5 a. What are the important factors for the design consideration in Anaerobic composting? (06 Marks)  
b. Write a note on Vermi composting. (04 Marks)  
c. Determine the amounts of oxygen required to oxidize 1 tonne of waste and also to stabilize Ammonia in having the chemical equation  $C_{50}H_{100}O_{40}N$ . (06 Marks)

OR

- 6 a. Determine the landfill area required for municipality with a population of 50,000 given that Solid waste generation = 350gm/person/day ; Compacted density of landfill = 504 kg/m<sup>3</sup> ; Average depth of compacted solid waste = 3m. (04 Marks)  
b. What is Leachate? What are its effects on ground water? (04 Marks)  
c. List and explain briefly the various factors that must be considered in evaluating a potential landfill site. (08 Marks)

**Module-4**

- 7 a. Explain the Bio – medical waste disposal methods. (08 Marks)  
b. List the various sources of e – waste, hazardous and construction waste. (08 Marks)

**OR**

- 8 a. Explain the categories of hazardous waste and its method of disposal. (08 Marks)  
b. Discuss about collection , treatment and disposal of construction waste. (08 Marks)

**Module-5**

- 9 a. Describe about the various types of incinerations. (08 Marks)  
b. Write short notes on :  
i) Energy recovery operation      ii) Significance of Reuse in solid waste. (08 Marks)

**OR**

- 10 a. Define Pyrolysis. Briefly explain the process of pyrolysis. (08 Marks)  
b. Explain the design criteria for incineration. (08 Marks)

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