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18CV642

## Sixth Semester B.E. Degree Examination, July/August 2022

### 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? Explain the classification and sources of solid wastes. (10 Marks)
- b. Estimate the overall moisture content of a sample as collected residential MSW with the typical composition given in detail.

Components organic	Percent by weight	Moisture content %
Food waste	9	70
Paper	34	6
Cardboard	6	5
Plastics	7	2
Textiles	2	10
Rubber	0.5	2
Leather	0.5	10
Yard waste	18.5	60
Wood	2	20
Misc. organics	-	
Inorganic		
Glass	8	2
Tin can	6	3
Aluminum	0.5	2
other metal	3	3
Dirt.ash etc.,	3	8

(10 Marks)

**OR**

- 2 a. With neat sketch, explain hauled container system and stationary container system. (10 Marks)
- b. What is transfer station, explain the factors to be considered in the design of transfer station. (10 Marks)

#### Module-2

- 3 a. Explain the following :  
 i) Mechanical volume reduction (Any one)  
 ii) Mechanical size reduction (Any one). (10 Marks)
- b. List and explain the various factors considered during selection of processing techniques. (10 Marks)

**OR**

- 4 Explain the different methods of component separation in municipal solid waste management (Any four) (20 Marks)

**Module-3**

- 5 a. What is composting? Differentiate between aerobic and anaerobic composting. (10 Marks)  
 b. Explain :  
 i) Vermi composting  
 ii) Mechanical Compositing. (10 Marks)

**OR**

- 6 a. With an neat sketch explain the different method of sanitary landfill. (14 Marks)  
 b. Determine landfill area required for a municipality with a population 50000, given that  
 i) Solid waste generation = 350gms/person/day  
 ii) Compacted density of landfill = 504Kg/m<sup>3</sup>  
 iii) Average depth of compacted solid waste = 3m (06 Marks)

**Module-4**

- 7 a. Explain sources and disposal methods of Bio medical waste. (10 Marks)  
 b. Explain the sources and recycling of E – waste. (10 Marks)

**OR**

- 8 Explain the sources, treatment and disposal of construction and demolition waste. (20 Marks)

**Module-5**

- 9 a. Explain the concept of 3T's factors affecting incineration. (10 Marks)  
 b. With neat sketch, explain the working principle of municipal incinerator. (10 Marks)

**OR**

- 10 a. What is Pyrolysis, with neat flow diagram, explain the process of pyrolysis. (10 Marks)  
 b. Explain the different energy recovery techniques in solid waste management. (10 Marks)

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