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B.Tech. DEGREE EXAMINATION, NOVEMBER 2022
Sixth/ Seventh Semester

18CEE310T – SOLID AND HAZARDOUS WASTE MANAGEMENT
(For the candidates admitted from the academic year 2018-2019 to 2019-2020)

Note:

- (i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- (ii) **Part - B** should be answered in answer booklet.

Time: 2½ Hours

Max. Marks: 75

PART – A (25 × 1 = 25 Marks)

Answer **ALL** Questions

	Marks	BL	CO	PO
1. What is the final element in the solid waste management system? (A) Compost (B) Disposal (C) Burning (D) Recycling	1	1	1	1
2. Waste that decompose rapidly is called (A) Incineration (B) Recycling (C) Composting (D) Putrescible	1	1	1	1
3. Which of the following is inert waste? (A) Leather, tin, aluminium (B) Brick, sand, concrete (C) Carry bag, straw, food container (D) Cardboard, paper bag, diaper	1	1	1	1
4. The successful waste management depends upon the level of (A) Segregation at source (B) Storage of site (C) Collection components (D) Vehicle sued	1	1	1	1
5. Who is responsible for safe disposal of the generated hazardous waste? (A) Generator (B) Receiver (C) Waste facility (D) Municipality	1	1	1	1
6. Communal storage drums has a storage capacity of (A) 300 L (B) 200 L (C) 50 - 70 L (D) 20 - 30 L	1	2	2	6
7. Which one of the factors to consider for determination of crew size? (A) Labour cost (B) Types of containers (C) Street width (D) Traffic volume	1	2	2	7
8. Which of the following can be recycled many times? (A) Wood (B) Plastic (C) Aluminium (D) Organic materials	1	2	2	6
9. Which of the following is done on an individual level? (A) Burning (B) Disposal (C) Recycling (D) Source reduction	1	2	2	7

10. When waste are compressed, their volume is reduced, which is normally expressed? 1 1 2 1
(A) Volume reduction in percentage (B) Compaction ratio
(C) Weight reduction (D) Size reduction
11. When the disposal site is far away from the generation point, it is necessary to provide? 1 1 3 1
(A) Compact truck (B) More number of crew
(C) Transfer station (D) More number of vehicles
12. The segregate different kinds of wastes in India, generally used colour for bins are 1 1 3 1
(A) Yellow and blue (B) Red and yellow
(C) Yellow and green (D) Blue and green
13. In which of the following process the limited oxygen is maintained? 1 1 3 1
(A) Incineration (B) Pyrolysis
(C) Combustion (D) Mass burn
14. In residential area where refuse is collected manually, _____ containers are typically required for waste storage. 1 1 3 1
(A) Plastic or metal (B) Wooden
(C) Masonry (D) Concrete
15. _____ technique is used to observe and estimate the movement of collection crew with the help of stop watches. 1 1 3 6
(A) Macro routing (B) Micro routing
(C) Motion time measurement (D) Discrete
16. In which method of composting, decomposition takes place in anaerobic condition? 1 2 4 7
(A) Indian method (B) Depression method
(C) Bangalore method (D) Trench method
17. What is the goal of hazardous waste management unit? 1 2 4 7
(A) Protect health and reduce the environmental risk (B) Chemical analysis
(C) Import (D) Export
18. _____ refers to densifying waste in order to reduce their volume. 1 2 4 7
(A) Magnetic separation (B) Compaction
(C) Screening (D) Shredding
19. _____ is used to reduce high quantum of weight and volume of bio solids. 1 2 4 7
(A) Centrifugation (B) Drying beds
(C) Lagooning (D) Incineration
20. Which of the following is not a raw material in composting process? 1 1 4 6
(A) Organic matter (B) Micro organism
(C) Water (D) Heat

21. In order to dispose hazardous waste where there are no abundant lands which method is used? 1 1 5 6
(A) Land disposal (B) Burning
(C) Floats in water bodies (D) Incineration
22. Which of the following will lead for the ground water contamination? 1 1 5 6
(A) Incineration (B) Leachate
(C) Pyrolysis (D) Combusting
23. An environmentally sound sanitary landfill comprises appropriate _____ for protection of the ground water. 1 2 5 6
(A) Cover (B) Liners
(C) Membrane (D) Plastic cover
24. Which of the following is not the landfilling method? 1 1 5 1
(A) Bangalore method (B) Area method
(C) Depression method (D) Trench method
25. Which is not relevant to the leachate treatment process? 1 1 5 1
(A) Natural treatment (B) Biological treatment
(C) Physiochemical treatment (D) Waste treatment

PART – B (5 × 10 = 50 Marks)

Answer **ALL** Questions

- | | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 26. a. Explain detail about source based classification of solid waste. | 10 | 4 | 1 | 1 |
| (OR) | | | | |
| b. Describe about solid waste impacts of health and environment. | 10 | 5 | 1 | 1 |
| 27. a. Explain in detail about source reduction of solid waste with an example. | 10 | 4 | 2 | 1 |
| (OR) | | | | |
| b. Explain the physical and chemical properties of solid waste. | 10 | 4 | 2 | 6 |
| 28. a. Discuss about hazardous waste collection, storage and transportation. | 10 | 4 | 3 | 7 |
| (OR) | | | | |
| b. Describe the various collection mechanism involved in solid waste. | 10 | 3 | 3 | 7 |
| 29. a. Explain in detail about different types of composting. | 10 | 4 | 4 | 6 |
| (OR) | | | | |
| b. Discuss in detail about thermal treatment in solid and hazardous waste. | 10 | 4 | 4 | 6 |
| 30. a. Write in detail about various options for solid waste disposal and the relative merits of disposal options. | 10 | 4 | 5 | 1 |
| (OR) | | | | |
| b. Enumerate the essential components of land fill and explain that briefly with neat sketch. | 10 | 4 | 5 | 7 |

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