b.	Explain with case study about source reduction and recycling.	10	3	2	1
28. a.	Summarize in detail about the components involved for waste collection system design process.	10	3	3	1
	(OR)				
b.	Analyze in detail about collection operation and its parameters essential for solid waste management system.	10	3	3	1
29. a.	Write in detail about the drying and dewatering methods.	10	3	4	1
	(OR)				
b.	Categorize the various types of waste processing techniques and instruments in solid waste management system.	10	3	4	1
30. a.	Why do you need landfill? List out the important components of landfill design.	10	3	5	1
	(OR)				
b.	Evaluate in detail about the waste disposal with relevant case study.	10	3	5	1

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Reg. No.														

B.Tech. DEGREE EXAMINATION, NOVEMBER 2022

Sixth/ Seventh Semester

18CEO306T – MUNICIPAL SOLID 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.	Which one of the following is not a source-based classification of waste? (A) Residential waste (B) Municipal waste (C) Industrial waste (D) Garbage waste	1	1	1	1
2.	The percentage of moisture content caused in the solid waste during dry season (A) Less than 75% (B) Greater than 60% (C) Less than 50% (D) Greater than 50%	1	1	1	1
3.	Which of the following is not related to physical characteristics of municipal solid waste management system? (A) Lipids (B) Moisture content (C) Size (D) Density	1	1	1	1
4.	The final stage of solid waste management system is _____. (A) Storage (B) Collection (C) Disposal (D) Reuse	1	1	1	1
5.	The quantities of wastes which is generated per day ranges from _____. (A) 0.25 to 2.3 kg per person (B) 3 to 5 kg per person (C) 5 to 10 kg per person (D) 1 to 1.5 kg per person	1	1	1	1
6.	Rational for analysis of waste composition, characteristics and quantity provides the basic data for (A) Planning (B) Planning designing and operation of the management systems (C) Both planning and designing (D) Designing	1	1	2	1
7.	Choose the correct statement (A) Waste stream assessment is used to determine the waste reduction (B) Waste stream assessment is one time activity to understand waste generation (C) Waste stream is not meant for identifies major material categories (D) Waste stream used to determine quantity	1	1	2	1

8. In the given below which is not a factor for implementation of material recovery facilities? 1 1 2 1
(A) Market demand (B) Type of material
(C) Number of different recyclables (D) Quantities of materials

9. What is the best way to reduce the amount of solid waste is to limit the _____. 1 1 2 1
(A) Manufacturing (B) Secondary manufacturing
(C) Processing (D) Consumption of raw materials

10. In the given below which is not considered parameter to implement the source reduction? 1 1 2 1
(A) Education and research (B) Toxicity reduction
(C) Financial incentives and disincentives (D) Regulation

11. What is the waste storage capacity of transfer station? 1 1 3 1
(A) One day storage capacity (B) 1.5 to 2 day storage capacity
(C) 3 days storage capacity (D) 7 days storage capacity

12. In the given below which is not the reason to have solid waste collection system? 1 1 3 1
(A) Environmental sustainability (B) Economic development
(C) Health of citizens (D) To determine the waste quantity and characteristics

13. Which technique is adopted to observe and estimate the movement of the collection crew with the help of stop watch? 1 1 3 1
(A) Measurement time motion technique (B) Motion time measurement technique
(C) Manual time motion technique (D) Speed time motion technique

14. What is necessary, when the disposal site is far away from the generation point? 1 1 3 1
(A) Compact truck (B) More number of crews
(C) More number of vehicles (D) Transfer station

15. What is the maximum capacity of waste can be collected by using one-way method? 1 1 3 1
(A) 5 L (B) 10 L
(C) 100 L (D) 110 L

16. _____ refers to densifying wastes in order to reduce their volume 1 1 4 1
(A) Magnetic separation (B) Compaction
(C) Screening (D) Shredding

17. Which of the following is not a raw material in composting process? 1 1 4 1
(A) Organic matter (B) Heat
(C) Micro organisms (D) Water

18. In the given below which is used to reduce high quantum of weight and volume of bio-solids? 1 1 4 1
(A) Centrifugation (B) Drying beds
(C) Lagooning (D) Incineration

19. The high speed cutting blade is converts friable materials into slurry with the solid content varying in the percentage of 2.5 to 3.5. 1 1 4 1
(A) Hammer mills (B) Cutters
(C) Hydropulper (D) Rasp mills

20. The thermal degradation of carbonaceous material to gaseous is called _____. 1 1 4 1
(A) Anaerobic digestion (B) Drying
(C) Pyrolysis (D) Dewatering

21. In the given below which is designated to segregate wet and dry waste at source? 1 1 5 1
(A) Municipal solid waste (B) Sewer waste
(C) Integrated waste management (D) Leachate management

22. Which is not relevant to leachate treatment process? 1 1 5 1
(A) Waste treatment (B) Natural treatment
(C) Biological treatment (D) Physiochemical treatment

23. In the given which is not a parameter to control landfill gas emission? 1 1 5 1
(A) Restrict the amount of organic waste (B) Minimize moisture content to limit gas production
(C) Provide physical barriers or vents to remove the gas (D) Increase moisture content to limit gas production

24. The liquid that collects at the bottom of a landfill is known as _____. 1 1 5 1
(A) Runoff (B) Effluent
(C) Surface water (D) Leachate

25. Which is not type of landfilling method? 1 1 5 1
(A) Area method (B) Canyon/depression method
(C) Trench method (D) Volume method

PART – B (5 × 10 = 50 Marks) Marks BL CO PO
Answer **ALL** Questions

26. a. Enumerate in detail the factors are influencing the solid waste management system. 10 2 1 1

(OR)

b. Illustrate about characteristics of solid waste in detail. 10 2 1 1

27. a. Discuss in detail the factors causing variation in solid waste generation. 10 3 2 1

(OR)