

DEPARTMENT OF CIVIL ENGINEERING

Continuous Learning Assessment	: CLA-2	Date	: 10.04.2023
Course Code & Course Name	: 18CEO306T Municipal Solid Waste Management	Duration	: 90 minutes
Year / Semester	: III/ VI	Maximum Marks	: 50
Academic year	: 2022 - 2023 (Even Semester)	Mode of Exam	: Offline

Course Articulation Matrix																	
Course Learning Outcomes (CLO):			Engineering Knowledge	Problem Analysis	Design & Development	Analysis, Design, Research	Modern Tool Usage	Society & Culture	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO - 3
CO-1 :	Recognize the various sources of solid and hazardous waste	3	-	-	-	-	-	2	3	-	-	-	-	-	3	-	-
CO-2 :	Identify the options for Reduction, reuse and recycling of waste	3	-	-	-	-	-	2	3	-	-	-	-	-	3	-	-
CO-3 :	Analyze the collection and transport of solid and hazardous waste	3	-	-	-	-	-	2	3	-	-	-	-	-	3	-	-
CO-4 :	Recognize the various waste processing techniques	3	-	-	-	-	-	2	3	-	-	-	-	-	3	-	-
CO-5 :	Identify the waste disposal methods and management	3	-	-	-	-	-	2	3	-	-	-	-	-	3	-	-

Qn. No.	Question	Marks	BL	CO	PO	PI
PART A : Answer all the questions(10 × 1 = 10 Marks)						
1	In the waste management hierarchy , which less preferable a. Source reduction b. Recycling c. Treatment d. Disposal	1	4	2	7	7.1.1
2	Which is Non-recyclable dry waste a. Glass bottles	1	1	2	1	1.2.1

	b. Shoes c. Tyres d. Hazardous chemicals					
3	Solid waste Generation (kg/percapita/day) in middle income countries in the range of a. 0.4 – 0.6 b. 0.5 – 0.9 c. 0.7 – 1.8 d. 0.1 – 0.4	1	1	2	7	7.1.1
4	According to CPHEEO in the year 2000 , Institutional refuse generation in India (kg/percapita/day) a. 0.05 – 0.2 b. 0.01 – 0.02 c. 0.3 – 0.6 d. 0.1 – 0.2	1	3	2	1	1.2.1
5	Substitution of lead and cadmium in inks (solvent based to water based) Is an example of a. Product reuse b. Material volume reduction c. Decreased Consumption d. Toxicity reduction	1	2	2	7	7.1.1
6.	In the one way method of waste collection, waste is picked up in clear plastic or plastic bags whose volume is limited to a maximum of a. 100 litre b. 110 litre c. 150 litre d. 200 litre	1	3	3	1	1.2.1
7	Storage containers are used for contents to be directly transferred to collection vehicle at the site of	1	3	3	1	1.2.1

	storage a. Stationary Containers b. Hauled Containers c. Moving Containers d. Hauled vehicles					
8	When the disposal site is far away from the generation point, it is necessary to provide a. Transfer station b. Compact truck c. More number of crew d. More number of vehicles	1	3	3	1	1.2.1
9	Small to medium transfer stations have capacities generally less than a. 50 tonnes/day b. 100 tonnes/day c. 200 tonnes/day d. 300 tonnes/day	1	3	3	1	1.2.1
10	Which technique is adopted to observe and estimate the movement of the collection crew with the help of stopwatches? a. Motion time measurement b. Measurement time motion c. Manual time motion d. Speed time motion	1	2	3	1	1.3.1
PART B: Answer any four questions (4 × 4 = 16 Marks)						
11	What are the importances of waste stream assessment in municipal solid waste management system?	4	1	2	6	6.1.1
12	Write a short note on source reduction in waste management.	4	3	2	7	7.1.1
13	What do you mean by Material	4	1	2	6	6.1.1

	Recovery Facility (MRF) and what the different factors influences MRF?					
14	List out the various types of waste collection method.	4	2	3	7	7.1.1
15	What is transfer station and list out the different types of transfer stations?	4	2	3	7	7.1.1
PART C : Answer any one question (2 × 12 = 24 Marks)						
16.a	Explain the factors causing variation in waste generation.	12	3	2	6	6.1.1
	OR					
16.b.	Discuss in detail about the processing equipment's for recycling of solid waste and write the significance of recycling.	12	3	2	6	6.1.1
17.a.	List out and explain the collection components of waste management system.	12	2	3	7	7.1.2
	OR					
17.b.	Write in detail about the waste collection components and waste collection methods.	12	2	3	7	7.1.2

-----ALL THE BEST -----