Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

VI SEMESTER B.TECH (CIVIL ENGINEERING)
END SEMESTER EXAMINATIONS, MAY/JUNE 2022

SUBJECT: **SOLID WASTE MANAGEMENT [CIE 4058]**

REVISED CREDIT SYSTEM

(_ / / 2022)

Time: 3 Hours Max. Marks: **50**

Instructions to Candidates:

- Answer ALL the questions

Q.No		Marks	CO
1A.	Briefly explain (any three) environmental effects of mismanagement of solid wastes.	03	1
1B.	Enlist (any six) factors affecting the waste composition and quantity	03	2
1C.	Briefly explain (any four) chemical characteristics of solid wastes.	04	2
2A.	With a neat sketch explain the elements of municipal solid waste management system.	05	2
2B.	Write a short note on windrows composting system.	03	2
2C.	Enlist the objectives of incineration of solid wastes.	02	2
3A.	Calculate the number of trips that can be made per vehicle per day with a Haul Container System (Conventional mode). Time from dispatch station to collection area= 15 min Time from disposal site to dispatch station = 20 min Time required to pick up loaded container= 0.2 h/trip Time required to unload and redeposit empty container= 0.2 h/trip Average drive time between container location= 0.1 h/trip Avg. haul distance (one-way) from collection area to disposal site= 15.5 km (a= 0.112 h/trip; b =0.011 h/km) At-site time= 0.133 h/trip Length of workday = 8 h Off route factor = 15%	04	3
3B.	With a neat sketch explain the Hauled Container System (exchange container mode) for waste collection.	04	3
3C.	Write a short note on Trammel Screen.	02	4
4A.	With a neat sketch explain the working of Optical Sorter.	04	4
4B.	Define Material Recovery Facility (MRF). Briefly explain different types of MRF.	04	4
4C.	Write a short note on Environmental Monitoring System for landfill site.	02	5
5A.	With a neat sketch explain the major components of sanitary landfill.	05	4
5B.	Enlist any six factors affecting the site selection for landfill.	03	5
5C.	Enlist any four potential restoration options for landfill on completion.	02	5