

Reg. No.



# MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

## VI SEMESTER B.TECH. (CIVIL ENGINEERING)

### END SEMESTER EXAMINATIONS, MAY/JUNE 2017

SUBJECT: **SOLID WASTE MANAGEMENT (CIE 4025)**  
REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

#### Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitable assumed.

QNo	Questions	Marks	CO
1A.	Briefly explain any two types of transfer station.	3	1
1B.	With a neat sketch explain the protective barriers used in a landfill.	5	2
1C.	List any four advantages of going for leachate recirculation treatment?	2	4
2A.	Determine the number of pick up locations for a waste collection system using two person crew when the following data are given. Also determine the required truck volume and the number of trips required per week when the volume of wastes per week per location is $0.25 \text{ m}^3$ .  Pick up time per trip = 4.2 h Pick up time per location = 1.3 collector-min Collection vehicle compaction ratio = 2.5 Number of family dwellings = 900	3	1
2B.	List the use of recycled paper in other industries.	4	4
2C.	Dust has particles with migration velocity of $0.25 \text{ m/s}$ . For a total air flow of $65 \text{ m}^3/\text{s}$ , what must be the number of collecting plates each having area of $50 \text{ m}^2$ . Assume collection efficiency to be 95%.	3	2
3A.	Explain the various test that can be employed to test compost maturity.	3	3
3B.	List the various types of ocean disposal waste.	2	3
3C.	Explain the principle of working of an electrostatic precipitator with neat sketch. How resistivity of the particles play a role in the collection process.	5	3
4A.	Describe any two density separation methods used in solid waste processing industry.	2	3
4B.	With a neat sketch explain the differences between Stationary container and hauled container system.	5	1
4C.	Explain the various factors affecting waste collection, storage and transport.	3	1

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<b>5A.</b>	With a neat sketch explain mass burning incineration process.	<b>5</b>	<b>5</b>
<b>5B.</b>	List the advantages and disadvantages of incineration process. Differentiate between gasification and pyrolysis.	<b>5</b>	<b>5</b>