

MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL

A Constituent Institution of Manipal University

VI SEMESTER B.TECH. (CIVIL ENGINEERING) END SEMESTER EXAMINATIONS, APRIL/MAY 2017 SUBJECT: SOLID WASTE MANAGEMENT (CIE 4025) REVISED CREDIT SYSTEM

(29/04/2017)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

✤ Answer ALL the questions.

✤ Missing data may be suitable assumed.

Q.No	Questions	Marks	CO
1A.	Define kick's law. It is found that the energy required to reduce particles from a mean diameter of 1 cm to 0.3 cm is 11 KJ/Kg. Estimate the energy requirement to reduce the same particles from a diameter of 0.1 cm to cm kick's law.	3	1
1B.	Explain the various chemical analysis method for determination of solid waste characteristics.	5	3
1C.	How to determine biodegradability of organic fraction?	2	3
2A.	Explain the various stages of anaerobic digestion process.	3	3
2B.	Explain any two attached growth biological treatment of Leachate.	3	1
2C.	With a neat sketch explain the working of an ESP. A plate type ESP use in a cement plant for removing dust particles consist of 10 equal channels. The spacing between plates is 15 cm and the plates are 3 m high and 3 m long. Unit handles 20,000 m ³ /h of gas. Determine the efficiency of the ESP and the collection rate of particles having density 9.2 gm./m ³ .	4	1
3A.	Explain RDF method of incineration with neat sketch.	3	3
3B.	Explain the various sanitary landfill methods.	3	4
3C.	List the various factors to be considered in .the closure and rehabilitation of dumpsite.	4	4
4A.	With a neat flowchart describe the semi mechanical process of glass recycling.	5	5
4B.	With explanation list the various processing stages in a material recovery for solid waste.	5	5
5A.	Explain the various stages of microbial activity in landfill.	5	4
5B.	What is vermicomposting? Explain NADEP method of composting with a sketch.	5	3