

Total No. of printed pages = 3

ME 181 OE 13

05/01/2023

Roll No. of candidate

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BINA CHOWDHURY CENTRAL LIBRARY
(GIMT & GIPS)
Azara, Haikhowapara,
Guwahati - 781017

2022

B.Tech. 7th Semester End-Term Examination

ME

SOLID WASTE MANAGEMENT

(New Regulation w.e.f. 2017-18 & New Syllabus w.e.f. 2018-19)

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and any *four* from the rest questions.

1. Choose the correct option : (10 × 1 = 10)
- (i) Which among the following is used to dump the waste collected in the cities?
- (a) Landfills (b) Ocean
(c) River (d) Pond
- (ii) Which of the following materials can be recycled multiple times?
- (a) Wood (b) Aluminium
(c) Organic materials (d) Plastic
- (iii) The gas produced from landfill wastes is known as
- (a) LPG (b) Natural Gas
(c) Biogas (d) None of the above
- (iv) What is the major gas generated on the decomposition of the organic matter present in the sanitary landfill?
- (a) Oxygen (b) Methane
(c) Nitrogen (d) Hydrogen
- (v) Identify the incorrect statement :
- (a) Plastic can be used to form Compost
(b) When we burn plastic, toxic fumes are released
(c) These wastes last for a longer period of time
(d) All of the above

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- (vi) Name of the process for burning of Municipal Solid Waste in a properly designed furnace under Controlled operating conditions and temperature
- (a) Landfill (b) Recycling
(c) Vermicomposting (d) Incineration
- (vii) Identify the wastes that are known as MSW from the following :
- (a) Wood pieces (b) Plastic cans
(c) Food wastes (d) All of the above
- (viii) Eddy current is used for separation of which material
- (a) Steel (b) Plastic
(c) Aluminium (d) None of the above
- (ix) Composting is done in presence of oxygen
- (a) True (b) False
- (x) Solid waste treatment by Pyrolysis refers to
- (a) Treating with chemicals before heating
(b) No heating
(c) Heating in presence of air
(d) Heating in absence of air

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2. (a) Design a solid waste management process for a gated community focusing on waste storage, collection and transportation of waste. (10)
- (b) Develop a solid waste management hierarchy for proper disposal of municipal solid waste. (5)
3. (a) Draw a layout for a mixed waste Processing centre. Assume the mixed waste to consist of biodegradable waste, non-biodegradable waste with different materials and inert waste. (10)
- (b) How will you implement Zero Waste Philosophy? (5)
4. (a) A city is having 10,000 households Estimate the quantities of different categories of municipal solid waste generated from the households. Use quartering method for the estimation. Assume a per capita waste generation of 350 gms and average of 4 member per household The weight Percentage of different items are as follows: (10)

Item	% by weight of each recyclable
Pet bottle	9.43
Glass	30.43
Plastic	15.30
Carton	22.40

Steel/Tin	3.10
Copper/Brass	0.62
Aluminium	0.93
Polythene	5.90
Paper	10.35
Multiplayered polythene	1.54

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- (b) Identify the different materials based on the numbering (1-7) in plastics products. (5)
5. (a) Why incineration is adopted for disposal of Biomedical waste? (5)
- (b) Describe in brief the process of plasma gasification for waste? (5)
- (c) What is the process adopted for E-waste disposal as per EWM Rules 2016? (5)
6. (a) What are the different techniques of composting that can be adopted for a gated community? (10)
- (b) What are the advantages of using anaerobic composting? (5)