

Total No. of printed pages = 3

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

2023

**B.Tech. 8<sup>th</sup> Semester End-Term Examination**

**SOLID AND HAZARDOUS 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.

1. Answer the following / MCQ (10 × 1 = 10)
- (i) Permeability determines the following characteristic of solid waste-
- (a) Physical (b) Chemical  
(c) Biological (d) All of the above
- (ii) Separation of waste into different categories is termed as
- (a) Recovery (b) Segregation  
(c) Treatment (d) Diversion
- (iii) \_\_\_\_\_ is the least preferable waste management option
- (a) Disposal (b) Recycle  
(c) Recovery (d) Treatment
- (iv) RMW in the domain of waste management refers to
- (a) Recycled Municipal Waste (b) Regulated Medical Waste  
(c) Regulated Municipal Waste (d) Recovered Medical Waste
- (v) \_\_\_\_\_ is a process in which sterilization is done by superheated steam under pressure at a temperature of 121<sup>o</sup>C
- (a) Microwave (b) Autoclaving  
(c) Irradiation (d) Incineration

[Turn over



- (vi) The most toxic gas released during incineration is
- (a) CO (b) Dioxin  
(c) NO<sub>2</sub> (d) H<sub>2</sub>S
- (vii) Proximate analysis of solid waste is used to determine the following except
- (a) Moisture content (b) Fixed carbon  
(c) Volatile combustible matter (d) Fusing point of ash
- (viii) Leachate is
- (a) Non-recyclable type of plastic  
(b) Water proof seal used to line sanitary landfills  
(c) By-product of waste incineration  
(d) Liquid that results when garbage substances in a landfill dissolve in water
- (ix) Major consistent of biogas is
- (a) CO<sub>3</sub> (b) CH<sub>4</sub>  
(c) NO<sub>2</sub> (d) H<sub>2</sub>S
- (x) Pyrolysis is the thermal decomposition of organic matter -
- (a) In presence of air (b) In absence of air  
(c) Both (d) None of the above
2. (a) With the help of a flow chart, explain different elements of solid waste management. (9)  
(b) What do you mean by biomedical waste? Mention the different sources of biomedical waste. (2+4=6)
3. (a) What is leachate? What problems are posed by leachate and what are the measures that can be taken to overcome the problems? (2+7=9)  
(b) Define transfer station and mention the points considered while selecting the location for a transfer station. (2+4=6)
4. (a) What is soil contamination? What are the various processes of site remediation? (2+5=7)  
(b) List the various methods of disposal of solid waste. Explain any one of the methods. (3+5=8)
5. (a) Define hazardous waste and write down its characteristics. (2+3=5)  
(b) Explain the process of pyrolysis in the context of waste management and energy recovery. (5)  
(c) What are the ill effects of improper disposal of municipal solid wastes? (5)

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6. (a) Explain with the help of a neat labelled diagram the different components of an engineered landfill. (9)
- (b) What are the different methods of collection of municipal solid wastes? (6)
7. (a) Discuss any three methods of treatment and disposal of biomedical waste. (6)
- (b) What do you mean by incineration and composting of waste? Explain in brief. (2+2=4)
- (c) What are the various types of waste? Classify. (5)

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