

Total No. of printed pages = 2

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Roll No. of candidate

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2022/22 2021

BINA CHOWDHURY CENTRAL LIBRARY
(GIMT & GIPS)
Azara, Hatib, Guwahati,
Assam, India - 781017

B.Tech. 7th Semester End-Term Examination

ME

SOLID WASTE MANAGEMENT

New Regulation (w.e.f. 2017 - 2018) & New Syllabus (w.e.f. 2018 - 2019)

Full Marks – 70

Time – Three hours

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

Answer question No. 1 and any *five* from the rest.

1. Answer in brief (any *four*) :

(4 × 5 = 20)

- (a) 4-R principle of waste minimization
 - (b) Solid waste management hierarchy
 - (c) Zero waste philosophy
 - (d) Pyrolysis
 - (e) Incineration
2. Design a solid waste management process for a gated community focusing on waste storage, collection and transportation of waste. (10)
3. Analyse the characteristic and composition of solid waste generated in secondary bins. Use quartering method for the analysis and assume 1 ton of mixed waste generated. (10)
4. Mention the salient points as per the Solid Waste Management Rules 2016 which needs to be implemented for a city like Guwahati. (10)

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5. A residential waste has the following components:

Paper	50%
Glass	20%
Food	20%
Yard waste	10%

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Estimate its moisture concentration using typical values (Paper-6, Glass-2, Food-70, Yard waste-60) Assume a wet sample weighing 100kg. (10)

6. A sample of refuse is analysed and found to contain 10% water. The Btu of the entire mixture is measured in a calorimeter and found to be 4000 Btu/lb. A 1 gm sample is placed in the calorimeter and 0.2 gm ash remains in the sample cup after combustion. What is the comparable moisture-free Btu and the moisture- and ash- free heat value? (10)
7. "Composting process is used for treatment of wet waste". Devise the different composting techniques to be used by urban local bodies of India. (10)
8. Design a dry waste processing facility for municipal solid waste. Assume that the processing is based on a B2B model. (10)
9. Design a sanitary landfill with provisions for gas extraction and leachate collection with the help of a diagram. (10)