

December 2023

M.Sc (Maths/Chemistry) 3rd Semester
Waste Management in Our Daily Life (OES-301B)

Time: 3 Hours

Max. Marks:75

- Instructions:**
1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
 2. Answer any four questions from Part -B in detail.
 3. Different sub-parts of a question are to be attempted adjacent to each other.

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PART -A

- Q1 (a) List the sources of domestic solid waste. (1.5)
 (b) What are the methods of collection system adopted in solid waste? (1.5)
 (c) What are the effects of solid waste on human health and environment? (1.5)
 (d) Distinguish between solid waste and hazardous waste. (1.5)
 (e) Outline the key role of public in solid waste management. (1.5)
 (f) What is the role of transfer station in solid waste management? (1.5)
 (g) List out various gases emitted from incineration process. (1.5)
 (h) Briefly discuss the Vermicomposting. (1.5)
 (i) Differentiate between hazardous and non-hazardous waste. (1.5)
 (j) Define integrated waste management. (1.5)
- Q2 (a) Discuss about the factors influencing the generation of solid waste. (5)
 (b) Explain the necessity of waste minimization and source reduction. Propose a recycling strategy for wastes from a residential area. (10)
- Q3 (a) Discuss in detail about the collection system based on mode of operation. (5)
 (b) Write about the interrelationship of the functional elements in a solid waste management system. (10)
- Q4 (a) What are the common techniques for material separation? What are its advantages? (5)
 (b) What are the various wastes processing systems? Give their suitability for processing of different types of wastes components. (10)
- Q5 (a) What are the unit preparations used for separation and transformation of solid waste. Discuss. (5)
 (b) Explain the following: (i) Pyrolysis (ii) Open dumping (iii) Refuse derived fuel (iv) Biogasification. Give suitability of these techniques in practice. (10)
- Q6 (a) Describe the sanitary land filling process in detail with a neat sketch. Write the adverse effects of a landfill leachate and list appropriate control measures. (15)
- Q7 (a) Compare the various thermal processes used in hazardous solid waste treatment. (5)
 (b) Explain EPA - identification of hazardous and toxic waste. Write down the characteristics of hazardous waste. (10)