

19 JUN 2023

Reg. No.

Question Paper Code

11914

**B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL/MAY 2023**

Sixth Semester

**Civil Engineering**

**20CEEL601 - MUNICIPAL SOLID WASTE MANAGEMENT**

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

- |  | <i>Marks,</i><br><i>K-Level, CO</i> |
|--|-------------------------------------|
| 1. What are 3 R' s principles?                                       | 2,K1,CO1                            |
| 2. What is a hazardous waste?  | 2,K1,CO1                            |
| 3. List out the merits of source reduction technique.                | 2,K1,CO2                            |
| 4. What are the effects of improper disposal of solid waste?         | 2,K1,CO2                            |
| 5. What is source reduction?   | 2,K1,CO3                            |
| 6. State the importance of onsite segregation of solid waste.        | 2,K1,CO3                            |
| 7. List out the various waste collection vehicles followed in India. | 2,K1,CO4                            |
| 8. Differentiate between open and closed dumping of waste.           | 2,K2,CO4                            |
| 9. Define "waste processing".  | 2,K1,CO5                            |
| 10. List out types of Composting process.                            | 2,K1,CO5                            |

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

- |   |           |
|---|-----------|
| 11. a) Explain the ill effects of improper disposal of solid waste.                       | 13,K2,CO1 |
| <b>OR</b>   |           |
| b) List and explain the factors affecting waste generation in rate?                       | 13,K2,CO1 |
| 12. a) What are the roles of NGOs in Solid Waste Management System?                       | 13,K2,CO2 |
| <b>OR</b>   |           |
| b) Write down the salient features of Municipal Solid Waste Management Rules 2016.        | 13,K2,CO2 |
| 13. a) Explain the various techniques used in Source Reduction process.                   | 13,K2,CO3 |
| <b>OR</b>   |           |
| b) Write a note on Air pollution, Water pollution and Soil pollution out of open dumping. | 13,K2,CO3 |

*K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create*

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14. a) Write a note on waste collection routes. 13,K2,CO4  
          **OR**  
      b) Write a note on Large, Medium and small Transfer stations. 13,K2,CO4
15. a) Explain the Composting process with a neat sketch. 13,K2,CO5  
          **OR**  
      b) Differentiate between Incineration, Composting and Pyrolysis processes. 13,K2,CO5

**PART - C (1 × 15 = 15 Marks)**

16. a) Draw the cross section of a Sanitary Land Fill and explain. 15,K2,CO6  
          **OR**  
      b) List out the parameters to be considered in the selection of site for Sanitary Land Fill. 15,K2,CO6