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Question Paper Code: 99106

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Elective

Civil Engineering

19UCE906- MUNICIPAL SOLID WASTE MANAGEMENT

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10 x 1 = 10 Marks)

1. Which of the following solid wastes describes the term 'Municipal Solid Waste'? CO1- U
(a) Toxic (b) Hazardous (c) Non-toxic (d) Non-hazardous
2. What is the animals act as carriers of disease? CO1- U
(a) rodents (b) dogs (c) Pigs (d) All of the above
3. If the distance is longer, a potentialcloser than 10 km from the collection area is required. CO1- U
(a) Transfer station (b) Railway station (c) Police Station (d) Fire Station
4. The weight of solid wastes collected per trip is 2 to 2.5 times larger in CO1- U
(a) Small-scale collection (b) Non-compactor trucks
(c) both (a) & (b) (d) Compactor truck
5. When the organic matter present in the sanitary landfill decomposes, generates CO1- U
(a) Methane (b) Nitrogen (c) Hydrogen (d) All of the above
6. The process of burning municipal solid wastes under suitable temperature and conditions in a specific furnace is _____. CO1- U
(a) Landfill (b) Incineration (c) Recycling (d) Vermi-composting

- 7 What type of protection is needed when you are exposed to hazards from flying particles? CO1- U
- (a) Eye protection (b) Face protection (c) Head protection (d) Both (a) and (b)
- 8 Autoclaving and microwaving are done for which of the following types of medical waste CO1- U
- (a) Human Anatomical Waste (b) Recyclable Contaminated Waste
(c) Cytotoxic Drugs (d) Microbiological Waste
- 9 Special wastes can be generated from electronic waste and medical waste. In which of the following set shows the two kinds of special waste? CO1- U
- (a) serums and syringes (b) cassettes and computer
(c) old syringes and compact disc (d) styrofoam and phones
- 10 Which of the following element make e-waste hazardous in nature? CO1- U
- (a) Lead (b) Glass (c) Plastic (d) Iron

PART – B (5 x 2 = 10 Marks)

6. Define dry waste. CO1- U
7. Define Waste sampling and characterization CO1- U
8. What are the different types of collection systems? CO1- U
9. Define Incineration CO1- U
10. What is leachate and landfill gas? CO1- U

PART – C (5 x 16= 80 Marks)

11. (a) Describe the origins and types of solid waste in detail. CO2-U (16)
- Or
- (b) Give specifics on the integrated waste management elements CO2-U (16)
12. (a) What are the strategies of most effective waste reduction CO3-U (16)
- Or
- (b) Provide an in-depth description of physical, chemical and biological properties of solid waste. CO3-U (16)
13. (a) Create a clear diagram that shows how Mumbai's Haul Container system moves MSW to the disposal site. CO4- U (16)
- Or

- (b) A facility for the treatment, storage, or disposal of hazardous waste on the generating site. Explain how sorting and processing trash are Part of waste management activities. **CO4- U** (16)
- 14 (a) Write the Case studies under Indian conditions based on waste processing. **CO3-U** (16)
- Or
- (b) Explain in detail about the incineration process. **CO3-U** (16)
- 15 (a) Create a clear design of the flowchart for locating sanitary rubbish dumping sites. **CO2-U** (16)
- Or
- (b) Draw a sanitary landfill and describe how it operates. **CO2-U** (16)

