

GUJARAT TECHNOLOGICAL UNIVERSITY

BE-6 SEMESTER – OLD PAPER – S22 TO W25 – QUESTION BANK

Subject Name & Code:

SOLID WASTE MANAGEMENT (3160515)

Unit 1: Introducing Municipal Solid Waste Management, its Generation and Characteristics of Waste

Repeated Questions:

1. **Classify solid waste.** (W24 - Q1a, 03 marks)
(S25 - Q1a, 03 marks)
(W22 - Q1a, 03 marks)
2. **List different sources of solid waste.** (S24 - Q1a, 03 marks)
(S23 - Q1a, 03 marks)
(S25 - Q1a, 03 marks)
3. **Explain the need for solid waste management.** (S22 - Q1a, 03 marks)
(S24 - Q1c, 07 marks)
(W24 - Q1c, 07 marks)
(W23 - Q2c, 07 marks)
4. **Explain the functional elements of municipal solid waste management.** (S25 - Q1b, 04 marks)
(S24 - Q1b, 04 marks)
(W23 - Q1b, 04 marks)
5. **Discuss in brief sampling and characteristics of waste.** (S24 - Q1b, 04 marks)
(W24 - Q1b, 04 marks)
(S23 - Q1b, 04 marks)
(W23 - Q3b, 04 marks)

Other Important Questions:

6. **Explain the need for solid waste management.** (S22 - Q1a, 03 marks)
 7. **Draw the pie chart of composition of solid waste management in India.** (S22 - Q1b, 04 marks)
 8. **Describe problems and issues of solid waste management.** (S22 - Q1c, 07 marks)
 9. **Classify the different sources of municipal solid waste.** (W22 - Q1a, 03 marks)
 10. **Explain issues of solid waste management.** (W22 - Q1c, 07 marks)
 11. **Describe the physical and chemical properties of municipal solid waste.** (S25 - Q1c, 07 marks)
 12. **List composition of municipal solid waste.** (W24 - Q1a, 03 marks)
(W22 - Q3a, 03 marks)
 13. **Define (i) Rubbish, (ii) Garbage, (iii) Ash.** (W24 - Q3a, 03 marks)
(S25 - Q2a, 03 marks)
(W22 - Q2a, 03 marks)
 14. **List factors affecting generation of solid wastes.** (W22 - Q1b, 04 marks)
 15. **Describe health impacts of solid waste management.** (W24 - Q4c, 07 marks)
(W22 - Q1c, 07 marks)
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Unit 2: Types of Solid Waste

Repeated Questions:

1. **Enlist/types of solid waste / List different types of solid waste.** (S22 - Q2a, 03 marks)
(S24 - Q2a, 03 marks)
(W23 - Q3a, 03 marks)
(W22 - Q1a, 03 marks)
 2. **Explain in brief about biomedical waste generation and its management.** (S22 - Q2c, 07 marks)
(S24 - Q3c, 07 marks)
(W24 - Q2c, 07 marks)
(W23 - Q3c, 07 marks)
(W22 - Q2c, 07 marks)
 3. **Explain in brief about e-waste generation and its management. / Discuss e-waste generation and its management.** (S22 - Q2 OR, 07 marks)
(S24 - Q2c, 07 marks)
(W24 - Q2 OR, 07 marks)
(W23 - Q3c OR, 07 marks)
(W22 - Q3c OR, 07 marks)
 4. **Discuss plastic waste disposal and its necessary equipment.** (S24 - Q2c, 07 marks)
(W23 - Q3c, 07 marks)
(S25 - Q2c, 07 marks)
 5. **Explain hierarchy of solid waste management.** (S24 - Q2b, 04 marks)
(S23 - Q2b, 04 marks)
(W23 - Q3b, 04 marks)
(S25 - Q2b, 04 marks)
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Other Important Questions:

6. **Enlist the various solid waste types.** (S22 - Q2a, 03 marks)
 7. **Describe operations of pollution control facilities.** (S22 - Q2b, 04 marks)
 8. **Discuss the wastes related to manufacturing and packaging industry.** (W22 - Q2b, 04 marks)
(W24 - Q3b, 04 marks)
 9. **Explain categories of biomedical waste.** (W23 - Q2c, 07 marks)
 10. **Explain sources of e-waste and problems associated with its disposal.** (W23 - Q2c OR, 07 marks)
 11. **Define hazardous waste. List different sources of hazardous waste.** (W23 - Q1b, 04 marks)
 12. **List characteristics of hazardous waste.** (W23 - Q1a, 03 marks)
 13. **Enlist properties of hazardous waste.** (W24 - Q4a, 03 marks)
(W22 - Q4a, 03 marks)
 14. **List the solid waste materials which can be recycled.** (W23 - Q4a, 03 marks)
 15. **Differentiate reuse and recycle. Give examples of each.** (W24 - Q2b, 04 marks)
(W22 - Q2b, 04 marks)
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Unit 3: Disposal of Solid Waste

Repeated Questions:

1. **Enlist the criteria for landfill-site selection.** (S24 - Q3a, 03 marks)
(W23 - Q3a, 03 marks)
(W24 - Q4a, 03 marks)
(W22 - Q3b, 04 marks)
2. **Explain segregation.** (S25 - Q3a, 03 marks)
(W24 - Q5a, 03 marks)
(W22 - Q3a, 03 marks)
(S23 - Q4a, 03 marks)
3. **Write a note on incineration.** (S24 - Q1b, 04 marks)
(S25 - Q3b, 04 marks)
(W24 - Q3b OR, 04 marks)
4. **State various leachate treatment methods.** (S24 - Q3b, 04 marks)
(W23 - Q2b, 04 marks)
(S25 - Q3b OR, 04 marks)
5. **Enlist the types of landfills.** (W23 - Q2a, 03 marks)
(S25 - Q3a OR, 03 marks)
(S24 - Q3a OR, 03 marks)
6. **Describe in brief municipal solid waste in Indian conditions.** (S24 - Q1c, 07 marks)
(W23 - Q1c, 07 marks)
7. **Discuss legal aspects of solid waste disposal.** (W22 - Q3c, 07 marks)
(S25 - Q4c, 07 marks)
(W24 - Q3c OR, 07 marks)
8. **Discuss the need for solid waste management and its functional elements.** (S23 - Q1c, 07 marks)
(W24 - Q1c, 07 marks)
(S24 - Q2c OR, 07 marks)

Other Important Questions:

9. **Explain the necessity of landfill gas management.** (W22 - Q3a, 03 marks)
10. **Write note on solid waste volume reduction at source.** (W22 - Q3b, 04 marks)
(S25 - Q5b, 04 marks)
(S23 - Q4b, 04 marks)
11. **Discuss the design and operation of sanitary landfill.** (W22 - Q3c OR, 07 marks)
12. **Write a note on vermicomposting.** (W22 - Q3b OR, 04 marks)
13. **Write different methods of landfill disposal.** (W22 - Q4b, 04 marks)
14. **Explain leachate management in detail.** (S22 - Q4c OR, 07 marks)
15. **What are various treatment methods of solid waste?** (S22 - Q5b, 04 marks)
16. **What are the options for plastic waste management?** (S22 - Q5a, 03 marks)
17. **Give classification of plastics as per BIS.** (S22 - Q5b, 04 marks)
18. **List all the important policy landmarks and initiatives by Government of India on solid waste management.** (S22 - Q5c, 07 marks)
19. **Describe composition of leachate, its effects on environment and ways to control it.** (W23 - Q3c, 07 marks)
20. **List the ill effects of open dumping of solid waste.** (W23 - Q3a OR, 03 marks)
21. **Describe methods to manage plastic waste.** (W23 - Q3c OR, 07 marks)
22. **Explain the methods of onsite storage and handling of solid waste.** (W23 - Q3b OR, 04 marks)
23. **Describe with sketch the well system for recovery of gases in landfills.** (S25 - Q3c, 07 marks)
(W24 - Q3c, 07 marks)
(W22 - Q3c, 07 marks)

24. **Write a note on incineration & pyrolysis.** (S25 - Q3b OR, 04 marks)
 25. **Give an overview of municipal solid waste management plan in urban area.** (S25 - Q3c OR, 07 marks)
 26. **Explain area and trench methods of land filling.** (S25 - Q5b OR, 04 marks)
(W24 - Q5b OR, 04 marks)
(W22 - Q5b, 04 marks)
 27. **Explain landfill closure and remediation.** (W22 - Q5b OR, 04 marks)
(S25 - Q5b OR, 04 marks)
(S23 - Q5b, 04 marks)
 28. **Explain post closure care for landfill.** (W22 - Q3b OR, 04 marks)
 29. **List steps in sequence for processing of solid waste.** (W22 - Q3a OR, 03 marks)
 30. **Describe plastic waste generation and its management.** (W22 - Q3c OR, 07 marks)
 31. **Explain volume reduction at source for disposal of solid waste.** (W22 - Q5b OR, 04 marks)
(W23 - Q5b OR, 04 marks)
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Unit 4: Waste Collection, Storage and Transport

Repeated Questions:

1. **List the factors to be considered for efficient collection system / factors affecting collection system.** (S24 - Q4a, 03 marks)
(S23 - Q4a, 03 marks)
(S25 - Q4a, 03 marks)
(W24 - Q4b, 04 marks)
(W23 - Q4b, 04 marks)
(W22 - Q4b, 04 marks)
2. **Discuss various collection methods of solid waste management system.** (S24 - Q4c, 07 marks)
(S23 - Q4c, 07 marks)
(S25 - Q4c, 07 marks)
3. **Discuss the waste minimization techniques at source.** (S24 - Q4b, 04 marks)
(S23 - Q5b, 04 marks)
(S25 - Q4b OR, 04 marks)
(W24 - Q5b, 04 marks)
4. **Enlist the factors to be considered in determining the size of collection and transportation vehicles.** (S24 - Q4b OR, 04 marks)
(S23 - Q4b OR, 04 marks)
(S25 - Q4b, 04 marks)
5. **Discuss the transportation systems in solid waste management system.** (S24 - Q4c OR, 07 marks)
(S23 - Q4c OR, 07 marks)
(S25 - Q4c OR, 07 marks)
6. **Explain collection and transportation in solid waste management.** (S22 - Q4a, 03 marks)
7. **Explain decentralized solid waste management systems.** (S22 - Q4b, 04 marks)

Other Important Questions:

8. **Explain all the collection operations of solid waste in detail.** (W22 - Q4c, 07 marks)
 9. **Explain all the transfer operations of solid waste in detail.** (W22 - Q4c OR, 07 marks)
 10. **Enlist different types of waste treatment.** (W22 - Q4a OR, 03 marks)
(W24 - Q3a OR, 03 marks)
 11. **Write note on municipal solid waste in Indian conditions.** (W22 - Q4b OR, 04 marks)
 12. **Explain Hauled container system with sketch. / Describe and differentiate Hauled container system and Stationary container system with schematic diagram.** (W24 - Q4c, 07 marks)
(W23 - Q4c, 07 marks)
(S25 - Q2c OR, 07 marks)
 13. **List various points to be considered while choosing the collection route of vehicle to pick up solid waste.** (S25 - Q4a OR, 03 marks)
(W23 - Q4a OR, 03 marks)
 14. **Explain methods of disposal of solid waste.** (W23 - Q4b OR, 04 marks)
 15. **List 3 basic types of transfer operations.** (S23 - Q5a OR, 03 marks)
 16. **Enlist objectives of transfer stations.** (W22 - Q4a OR, 03 marks)
 17. **Explain the transfer and transport of hazardous waste.** (W24 - Q4b OR, 04 marks)
(W22 - Q4c OR, 07 marks)
 18. **Describe incineration and pyrolysis.** (W22 - Q4b OR, 04 marks)
(W24 - Q3b OR, 04 marks)
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Unit 5: Risk Assessment and Environmental Legislation

Repeated Questions:

1. **Discuss laws for solid waste management.** (W22 - Q5c, 07 marks)
(S23 - Q5c, 07 marks)
(W24 - Q5c OR, 07 marks)
(S25 - Q5c OR, 07 marks)
2. **Discuss the risk assessment associated with solid waste management system / with solid waste management.** (S24 - Q5c, 07 marks)
(S23 - Q5c OR, 07 marks)
(W24 - Q5c, 07 marks)
(S25 - Q4c OR, 07 marks)
(W22 - Q5c OR, 07 marks)
3. **Explain EPR in brief. / Enlist guidelines on Extended Producer Responsibility.** (S23 - Q5a, 03 marks)
(W24 - Q5a OR, 03 marks)
(S25 - Q5a, 03 marks)
(W23 - Q5a OR, 03 marks)
4. **Explain landfill closure and remediation.** (S23 - Q5b, 04 marks)
(S25 - Q5b OR, 04 marks)
5. **Enlist EIA methods.** (S23 - Q5a OR, 03 marks)
(S24 - Q4a OR, 03 marks)

Other Important Questions:

6. **Explain RDF.** (S22 - Q5a, 03 marks)
7. **Illustrate the sequence of steps for conducting an Environment Impact Assessment (EIA).** (S22 - Q5c, 07 marks)
8. **Give an overview of developing a municipal solid waste management plan in an Urban Local Body (ULB).** (S22 - Q3c, 07 marks)
9. **Enlist all seven step approach for municipal solid waste management planning.** (S22 - Q3c OR, 07 marks)
10. **What are the elements of Overall Cost Assessment (Full Cost Accounting) in solid waste management?** (S22 - Q3b OR, 04 marks)
11. **Enlist the advantages of EPR systems.** (S22 - Q3b, 04 marks)
12. **Draw Integrated Solid Waste Management Hierarchy.** (S22 - Q3a, 03 marks)
13. **What are advantages of recycling?** (S22 - Q4a OR, 03 marks)
14. **State various methods of composting.** (S22 - Q4b OR, 04 marks)
15. **Write note resource recovery in solid waste.** (W22 - Q5a, 03 marks)
16. **Explain the need for environmental monitoring in landfill disposal technique.** (W22 - Q5b, 04 marks)
17. **Describe the risks associated with solid waste management.** (W22 - Q5a OR, 03 marks)
18. **Explain characterization and site assessment for solid waste management operations.** (W22 - Q5c OR, 07 marks)
19. **Enlist methods of energy generation from solid waste.** (W22 - Q5a OR, 03 marks)
20. **Describe the techniques of energy recovery from solid waste.** (S25 - Q5c OR, 07 marks)
(W23 - Q4c OR, 07 marks)
21. **List the parameters affecting the compost process.** (S25 - Q5a OR, 03 marks)
(W23 - Q5a, 03 marks)
22. **Explain recycle, reuse and reduce of solid waste as per the standard practice.** (W23 - Q5c OR, 07 marks)
23. **Explain trench method of land filling.** (W23 - Q5b, 04 marks)
