

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2183511****Date:17/05/2019****Subject Name:Municipal Waste & Sewage Management****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

| | | MARKS |
|------------|--|--------------|
| Q.1 | (a) Write a short notes on composting. | 03 |
| | (b) Explain energy recovery system with suitable diagram. | 04 |
| | (c) Briefly explain onsite handling of municipal solid waste in urban area. | 07 |
| Q.2 | (a) Define: Separate sewage system & Combined sewage system. | 03 |
| | (b) Discuss the working of density separation unit. | 04 |
| | (c) Briefly discuss separation for recycling and reuse of plastic, paper and glass from the MSW. | 07 |
| OR | | |
| | (c) What are the systems that used for the collection of MSW? Discuss briefly. | 07 |
| Q.3 | (a) What are the various sources of MSW generation? | 03 |
| | (b) Write a short notes on magnetic separation unit. | 04 |
| | (c) Briefly discuss steps need to be considered during design of layout of collection routes. | 07 |
| OR | | |
| Q.3 | (a) Define: Septic sewage, Trunk Sewer, Sullage | 03 |
| | (b) What are the factors that must be considered in the design of collection routes? | 04 |
| | (c) What are the factors that must be considered during onsite storage of MSW? Discuss briefly. | 07 |
| Q.4 | (a) What are the causes of damage to sewers? | 03 |
| | (b) Enlist the methods of municipal solid waste treatment. | 04 |
| | (c) Briefly discuss the recovery of material from MSW with suitable process diagram and enlist various unit operations also. | 07 |
| OR | | |
| Q.4 | (a) What are the aims and objectives of sewage disposal? | 03 |
| | (b) Write a short note on control of gases in sanitary landfill sites. | 04 |
| | (c) Enlist various methods of MSW disposal. Explain Sanitary landfilling with suitable diagram. | 07 |
| Q.5 | (a) Draw a block diagram for the interrelationship among the functional elements of solid waste management? | 03 |
| | (b) Discuss the sanitary works in brief. | 04 |
| | (c) Discuss the various types of materials used for construction of sewers. | 07 |
| OR | | |
| Q.5 | (a) Draw cross-sectional diagram of various open drains. | 03 |
| | (b) Enlist various patterns of collection system and discuss any one with suitable diagram. | 04 |
| | (c) Discuss the self-purification process in brief. | 07 |
