



B.E DEGREE EXAMINATIONS: NOV 2015

(Regulation 2009)

Seventh Semester.

CIVIL ENGINEERING

CEE211: Municipal Solid Waste Management

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Garbage is
 - (a) Non putricible matter
 - (b) Putricible matter
 - (c) Vegetable waste
 - (d) Fruit waste
2. Major fraction municipal solid waste
 - (a) Industrial waste
 - (b) Textile waste
 - (c) Putricible waste
 - (d) Paper
3. Waste management implies
 - (a) Recovery of waste
 - (b) collection of waste
 - (c) Disposal of waste
 - (d) all the above
4. Transfer stations is
 - (a) Processing place
 - (b) receiving refuse
 - (c) collecting station
 - (d) disposing place
5. Main method of disposal of MSW
 - (a) Composting
 - (b) Incineration
 - (c) Sanitary land filling
 - (d) open dumping
6. End products of pyrolysis is
 - (a) Gas, liquid, solid
 - (b) gas
 - (c) liquid
 - (d) solid products
7. Composting includes
 - (a) digestion of solids
 - (b) decomposition

- (c) Shredding (d) trenching the solids
8. Leachate is
- (a) contains higher COD liquid from sanitary landfill
 - (b) heavy polluting matter
 - (c) waste water generated from industry
 - (d) waste water from treatment plant
9. Per capital / day contribution of solid waste is
- (a) 0.4 kg
 - (b) 0.5 kg
 - (c) 0.8 kg
 - (d) 1 kg
10. C/N ratio for compost is decided by
- (a) ≤ 16
 - (b) ≤ 18
 - (c) ≥ 10
 - (d) ≥ 30

PART B (10 x 2 = 20 Marks)

- 11. What are the characteristics of solid waste?
- 12. Define municipal solid waste.
- 13. Why onsite segregation is necessary for solid waste management?
- 14. What are the containers used for solid waste collection?
- 15. What are transfer stations?
- 16. What are the methods of collections?
- 17. Define Composting.
- 18. What are the important parameters to be optimized for composting?
- 19. Why leachates are collected?
- 20. What is sanitary landfill?

PART C (5 x 14= 70 Marks)

21. a) (i) What are the factors affecting solid waste generation? (8)
- (ii) How Indian solid waste differ from foreign solid waste composition? (6)
- (OR)**
- b) (i) What are the effects of improper solid waste disposal? (7)
- (ii) What is the principle of solid waste management? (7)

22. a) (i) What are the various options of storing the waste methods? (8)
(ii) What are the economical aspects of storage? (6)
(OR)
- b) (i) How onsite segregation of waste done and what are the products utilizable? (10)
(ii) What are the machineries used? (4)
23. a) (i) What are the collection methods used for collecting solid waste? (7)
(ii) What are the necessity of transfer station? (7)
(OR)
- b) (i) What are the parameters involved in location of transfer station? (7)
(ii) How these transfer station are maintained? (7)
24. a) (i) What are the principles behind pyrolysis and what are the uses of pyrolysis? (10)
(ii) What are the waste suitable for pyrolysis? (4)
(OR)
- b) (i) What are the incineration process? (4)
(ii) What are the requirements and preparation for incineration of waste? And give the advantages of incineration of waste? (10)
25. a) (i) What are the advantages of sanitary landfills over ordinary dumping? (7)
(ii) What are the precaution care taken in sanitary landfill sites to safeguard the site? (7)
(OR)
- b) (i) What are the site selection procedure for sanitary landfill? (7)
(ii) Give the procedure for leachate collection and treatment. (7)
