

Total No. of Questions: 8]

SEAT No. :

P267

[6003]-345

[Total No. of Pages : 3

T.E. (Civil)

SOLID WASTE MANAGEMENT

(2019 Pattern) (Semester-II) (Elective -II) (301015 F)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
- 2) *Figures to the right indicate full marks.*
- 3) *Draw neat figures wherever necessary.*
- 4) *Assume suitable data, if necessary.*
- 5) *Use of scientific calculator is allowed.*

- Q1)** a) Explain mechanical volume reduction method of processing technique. **[6]**
- b) Explain manual component separation method of processing technique. **[6]**
- c) State the terms related to solid waste management- **[6]**
- i) Segregation
 - ii) Recovery
 - iii) Recycling
 - iv) Reuse

OR

- Q2)** a) Define recycling of solid waste. State the purposes of recycling of municipal solid waste. **[6]**
- b) What is the importance of 3R principle in solid waste management? **[6]**
- c) What are the factors to be considered in the design of aerobic composting system. **[6]**

P.T.O.

- Q3)** a) Suggest the relevant situations for the disposal of solid waste through incineration. [6]
- b) Describe the incineration technologies and air emissions and its control in detail. Explain the following. [6]
- i) Pyrolysis
 - ii) Refuse derived fuel
 - iii) Bio gasification
- c) List the products of incineration process and state its utility value. [5]

OR

- Q4)** a) Write short note on energy content of MSW. [6]
- b) Write difference between pyrolysis and plasma gasification. [6]
- c) What are the different stages of anaerobic digestion? [5]

- Q5)** a) Explain area method of landfilling and state the factors to be considered for site selection. [6]
- b) Define waste disposal. Point out the factors to be considered while disposing solid waste. [6]
- c) Describe the design and operation of a sanitary landfill with a neat sketch. [6]

OR

- Q6)** a) Explain the various phases of municipal solid waste decomposition in a closed landfill cell. [6]
- b) Enlist methods of Biomining and explain any one method of it. [6]
- c) Write short notes on legal aspects of solid waste disposal. [6]

- Q7) a) List the sources of generation of biomedical waste. [6]
b) Define E-waste and its harmful effects on environment. [6]
c) Explain the role of Maharashtra Pollution Control Board in Plastic waste management. [5]

OR

- Q8) a) How waste minimization is done in Industrial solid waste? [6]
b) Write short note on to life cycle assessment (LCA) in solid waste management. [6]
c) Write objectives and major provision in plastic waste management rules - 2016. [5]