

Time: (3Hours)

- Note 1. Question 1 is compulsory
2. Attempt any 4 out of six questions
3. Assume any suitable data wherever required

Q.1

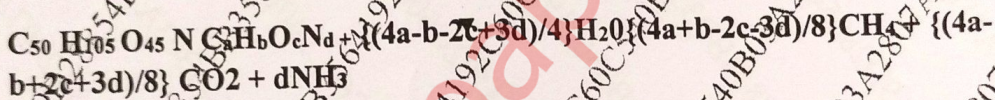
Attempt any four

- Write a note on Landfill gas management and landfill closure
- Define RDF and manufacturing process of RDF
- Write a note on Color coding of Biomedical waste.
- What is the ultimate and proximate analysis of solid waste?
- Write a note on Bioreactor landfill.

05
05
05
05
05

Q.2

- Estimate the volume of methane produce by aerobic digestion of one tone of Waste having chemical composition of



- Write a detail note on pyrolysis technology and its by-products.

10
10

Q.3

- Explain the Hauled container system with a neat sketch. Why is route optimization necessary?

- Explain significance of factors C/N, Aeration, Moisture content, pH on the rate of composting. Explain any one type of composting in detail.

10
10

Q.4

- Explain functional elements of solid waste management in India. What type of awareness programs and initiatives are taken by the government for solid waste management.

- Write a note on the following

- E- waste management in India
- Utilization of construction and demolition waste

10
10

Q.5

- Estimate the number of trips taken by the truck per week to collect the waste of the society having 250 residents. Assume following data given below:
Occupants per residents = 3.5, Solid waste generation rate = 1.45 kg/ person/ day,
collection vehicle capacity = 20 m³, compacted density of solid waste in collection vehicles = 325 kg/m³

05

BE (Civil) Sem III - Scheme

- b. Calculate the energy content of solid waste having the following composition using modified Dulong's formula. Figures in brackets are % by mass.
 - 1) Carbon (35) 2) Hydrogen (7) 3) Oxygen (52) 4) Ash (5.4) Nitrogen (0.5) 6) Sulphur (0.1)
- c. Define hazardous Waste. Give sources of generation, different methods of disposal and describe handling and storage of hazardous waste in detail

05

10

20

Q.6

Write short note on (any four)

- a. Energy recovery from municipal solid waste
- b. Stages of construction of secure landfill
- c. Legal aspects for hazardous waste and biomedical waste
- d. Compaction station
- e. Application of IOT in solid waste management
