

Total No. of Questions : 8]

SEAT No. :

**P3773**

**[4760]-80**

[Total No. of Pages : 2

**M.E. (Civil) (WR & EE)**

**SOLID AND HAZARDOUS WASTE MANAGEMENT**

**(2012 Course) (Semester-I) (Elective-I) (501604)**

*Time : 3 Hours]*

*[Max. Marks : 100*

*Instructions to the candidates:*

- 1) Answer any three questions from each section.*
- 2) Answers to the two sections should be written in separate books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) Assume suitable data, if necessary.*

**SECTION-I**

- Q1)** a) What are the functional elements of solid waste management and discuss the Environmental impacts of improper management. **[8]**
- b) Explain the hierarchy of integrated solid waste management. **[8]**
- Q2)** Discuss the classification of transfer stations for solid waste. Draw suitable sketches. **[16]**
- Q3)** Enlist various equipments used for size reduction of solid waste. Also explain in detail the working, design criteria and characteristics. **[16]**
- Q4)** Explain the principle, construction and working of the following with neat diagrams: **[18]**
- a) Waste Heat Boilers.
  - b) Pyrolysis.
  - c) Incineration.

**P.T.O.**

## **SECTION-II**

- Q5)** a) Explain with neat sketch a double linear hazardous waste land fill. [8]  
b) Discuss the manifest system for disposal of hazardous waste. [8]
- Q6)** Explain the goal of risk assessment. Discuss the concept of zero-risk hazardous waste management. [16]
- Q7)** a) Explain in detail how disposal and treatment of biomedical and necular waste is done. [10]  
b) Discuss the concept of vermicomposting. [6]
- Q8)** Write short notes: [18]  
a) Energy recovery from solid waste.  
b) Geotechnical Aspects of handfill sites.  
c) Wet air oxidation.

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