17605

21819

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

Marks

1. (A) Attempt any THREE : **3 × 4 = 12**

(a) Enlist eight types of Solid Waste.

(b) State the various factors affecting solid waste generation.

(c) What are the measures to be taken towards the segregation of recyclable waste ?

(d) State the measures to be taken to improve the collection services of municipal waste.

(e) State any two advantages and disadvantages of incineration process.

(B) Attempt any ONE : **1 × 6 = 6**

(a) Describe any two methods of collection of waste from the following :

(i) Collection of bio-medical waste.

(ii) Collection of waste from vegetable, fruits, meat and fish markets.

(iii) Collection of construction and Demolition waste.

(b) Describe Indore and Banglore methods of composting. What is the main difference between them ?

2. Attempt any FOUR : **4 × 4 = 16**

(a) State two physical characteristics and two chemical characteristics of solid waste.

(b) Define solid waste. What is its impact on environment ?

(c) Explain the meaning of transfer station, its necessity and location.

(d) How is the leachate management done ?

(e) Define pyrolysis and Gasification.

(f) (i) Define landfill

(ii) State any four products of incineration process.

3. Attempt any FOUR : **4 × 4 = 16**

(a) Explain four R's in waste hierarchy.

(b) Enumerate various sources of solid waste.

(c) Describe the organisation pattern of solid waste management.

(d) Describe the principles of composing.

(e) (i) What is vermi composting ?

(ii) State the various methods of pyrolysis.

4. (A) Attempt any THREE : **3 × 4 = 12**

(a) How are the following recycled ?

(i) Fly ash

(ii) Blast furnace slags

(iii) Pulp and paper

(iv) Chromium Sludge

(b) Define E-waste. State the composition of E-waste.

(c) Describe the provisions in law for safe disposal of bio-medical waste in India.

(d) State different methods of communication for mass education.

(B) Attempt any ONE : **1 × 6 = 6**

(a) Describe the area method of land filling. Write its advantages and disadvantages.

(b) Describe the hazardous and non-hazardous substances, their origin and their health effects.

5. Attempt any FOUR : **4 × 4 = 16**

(a) Describe 'Waste Minimization Approach'.

(b) What is waste segregation ? Explain its importance.

(c) State how enforcement can help in stopping littering in the street.

(d) Describe the importance of public participation in solid waste management.

(e) How is the resource recovery through waste processing done ?

(f) Define recycling. What is the purpose of recycling ?

6. Attempt any FOUR : **4 × 4 = 16**

(a) State different component of biomedical waste.

(b) Describe the biomedical waste management techniques.

(c) Describe the health aspect during handling and processing of waste.

(d) Enlist the common products that can be made with recycled contents.

(e) Explain sorting prior to waste processing or land filling.
