



- Notes :
1. All questions carry marks as indicated.
  2. Solve Question 1 OR Questions No. 2.
  3. Solve Question 3 OR Questions No. 4.
  4. Solve Question 5 OR Questions No. 6.
  5. Solve Question 7 OR Questions No. 8.
  6. Solve Question 9 OR Questions No. 10.
  7. Solve Question 11 OR Questions No. 12.
  8. Assume suitable data whenever necessary.
  9. Illustrate your answers whenever necessary with the help of neat sketches.
  10. Use of non programmable calculator is permitted.

1. a) Define air pollution. Explain various sources of an air pollution. 7  
b) What is photo chemical smog? Explain the chemistry of photo chemical smog and its effect on human health. 6
2. a) Explain the effects of air pollution on human and plants. 6  
b) Write note on **any two**. 7
  - i) Ozone depletion.
  - ii) Primary and secondary air pollutants.
  - iii) Zones of atmosphere.
3. a) Explain meteorological factors affecting air pollution. 6  
b) Explain different types of plume behavior with neat sketches. 7

**OR**

4. a) Explain procedure for collection of SPM by high volume dust sampler. 6  
b) A factory used 1.2 Million liter of oil per month. A factory works for 16 hrs. in a day. If the factory uses 1 Million liter of oil per year then following are the pollutants concentration emitted into atmosphere. 7
  - i) Particulate matter = 5t/year
  - ii) SO<sub>2</sub> = 25t/year
  - iii) Oxides of nitrogen = 7t/year
  - iv) Hydrocarbons = 0.3t/year
  - v) Carbon monoxide = 0.52t/yearDetermine the safe height of stack required for the safe dispersion of pollutants.

5. a) What are the principles on which gaseous control equipment works? Explain any two. 7  
b) Write short note on Automobile exhaust (Due to diesel and petrol engine) 7

**OR**

6. a) Explain electrostatic precipitator & Draw neat sketch. 7  
b) Explain Bag filter with working, construction & Draw neat sketch. 7
7. a) Explain the various sources of generation of solid waste. 7  
b) Explain the physical and chemical characteristics of solid waste. 6

**OR**

8. a) Write down the functional elements of solid waste management. 6  
b) Write note on **any two**. 7  
i) Sampling of solid waste.  
ii) Quality and quantity of solid waste.  
iii) Composition of solid waste in Indian cities.
9. a) Explain various methods of solid waste collection with sketch. 7  
b) What is transfer station? state it's types. 6

**OR**

10. a) Describe various types of transportation. Vehicles used for collection and transportation of solid waste. 7  
b) Write Note on **any two**. 6  
i) 3-R concept of solid waste.  
ii) Optimization of transport route.  
iii) Method of separation of solid waste.

11. a) Explain in brief various method of sanitary Landfilling. 7  
b) Define composting. Explain different types of composting. 7

**OR**

12. a) Draw neat sketch of 3T diagram and state advantages & disadvantages of incineration. 7  
b) How to control leachate and gas from sanitary landfilling. 7

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