

B.E. (Civil Engineering) Semester Seventh (C.B.S.)
Elective - I : Air Pollution and Solid Waste Management

P. Pages : 2

Time : Three Hours



KNT/KW/16/7436

Max. Marks : 80

- 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) Explain the effect of air pollutants any two on man. **7**
b) Define air pollution and explain any one air pollution episode. **6**

OR

2. a) Write short note on Green house effect and how to control it. **7**
b) Explain standards for air pollution as per I.S. **6**
3. a) Explain with neat sketch 'High volume sampler' to measure the pollution level in ambient air. **7**
b) A factory uses 300,000 liters of furnace oil (Specific gravity 0.98) per month. Factory runs 24 hours in a day and 300 days in a year. If the factory uses 1.0 mL of oil per year, then following are the pollutants emitted into the atmosphere through chimney. **7**
- 1) Particulate matter : 4.0 t/year.
 - 2) SO₂ : 30 t/year.
 - 3) HC : 0.37 t / year.
 - 4) Carbon monoxide: 0.7t
Calculate the height of chimney required to be provided for a safe dispersion of pollutant.

OR

4. a) Write short note on stack sampling. **7**
b) Find the concentration of pollutant in atmosphere by using high volume sampler. **7**
- 1) Actual sampling time = 24 hrs or 1440 mints.
 - 2) Sampling rate when filter is clean = 1.70 m³/min.

3) Sampling rate after exposer = $1.5\text{m}^3/\text{min}$.

4) Wt. of filter paper before exposer } = 3.618gms.

5) Wt. of filter paper after exposer } = 3.965gms.

5. a) State the various types of equipment used to control particulate matter and explain any one in detail. 7

b) Explain incineration method to control the gaseous pollutants. 6

OR

6. a) Write short note on noise pollution and its ill effect and how to control it. 7

b) Write short note on pollution due to petrol and diesel engines. 6

7. a) Write short note on classification of solid waste based on their sources and composition. 7

b) Explain per capita solid waste production and explain the factors on which it depends. 6

OR

8. a) How the sampling of solid waste is carried out? 7

b) Write short note on physical and chemical characteristics of solid waste. 6

9. a) Explain in detail the house to house collection of solid waste. 7

b) Explain in detail the transfer station and its type. 6

OR

10. a) What are the different methods used for planning of refuse vehicle route and explain Heuristic method. 7

b) Explain treatment for Refuse Derive fuel (RDF). 6

11. a) What is composting and explain the various factors on which it depend. 7

b) Write short note on mechanical composting. 7

OR

12. a) What are the various methods of sanitary land fill and explain each with sketch. 7

b) Explain with sketch the recovery of methane from sanitary land fill. 7
