

**Seventh Semester B. E. Civil / Eighth
Semester B. E. P. T. (Civil) Examination**

Elective - I

**AIR POLLUTION AND SOLID WASTE
MANAGEMENT**

Time : Three Hours]

[Max. Marks : 80

- N. B. :
- (1) Separate answer book must be used for each section.
 - (2) Answer **Three** questions from Section A and **Three** questions from section B.
 - (3) Illustrate your answers wherever necessary with the help of neat sketches.
 - (4) Use of non programmable calculator is permitted.

SECTION A

1. (a) What is atmosphere ? State the percentage of various gases present in clean dry atmosphere. 6
- (b) What is photochemical smog ? Explain the chemistry of photochemical smog and its effects on human health. 7
2. (a) State and explain various meteorological parameters which affect the dispersion of air pollutants. 6
- (b) A factory uses 3.6 ML of oil per month. A factory works for 16 hours in a day. If the factory uses one ML of oil per year, then the various pollutants concentration emitted from the factory in to the atmosphere are:

particulates 8.5 t, SO₂ 35t, NO₂ 9.5 t, HC 1.8 t, and CO 0.9 t. Determine the safe height of chimney required for the safe dispersion of pollutants. 7

3. (a) What is green house effect ? Explain in detail. Also state the causes and ill effects of it. 6

(b) What do you understand by 'ambient air sampling' ? How is it carried out by using 'High Volume Sampler' ? Explain. 7

4 (a) Explain, various principles adopted for the collection of SPM and gaseous pollutants from the gas stream. 6

(b) Explain with neat sketch basic principle and working of 'Electrostatic Precipitator'. 7

5. Write a note on following (any three) :—

(a) Collective effects of air pollution on human health.

(b) Automobile exhaust emission and its control.

(c) Noise pollution and its control.

(d) Wind rose and its use.

(e) Operational troubles in bag filter. 14

SECTION B

6. (a) What is solid waste management ? Why is it necessary ? Explain. 6

(b) State and explain compositions of solid waste by giving its value for a typical Indian City. 7

7. (a) What do you understand by house-to-house collection system ? State and explain various types of house-to-house collection system with neat sketch. 6
- (b) What is 'transfer station' ? When is the construction of transfer station economical ? Explain in detail with neat sketch. 7
8. (a) What is 'heuristic method' ? What are the guiding principles and general steps involved in heuristic method ? 6
- (b) What is salvaging ? How is it carried out ? Explain in detail. 7
9. (a) What is incineration ? Explain 3-Component diagram and its use in incineration. 6
- (b) What is composting ? Explain Indian methods of composting in detail. 7
10. Write a note on following (any two) :—
- (a) Factors affecting 'composting'.
- (b) Methods of sanitary land filling.
- (c) Procedure of determination of various characteristics of solid waste. 14