6. (a) Explain the sources and different methods to control the noise pollution. **10**

(b) Explain the significance of the equivalent continuous noise level (Leq). **5**

7. (a) Discuss the characteristics of sound waves. **5**

(b) What are Noise Rating Systems and how are they used to assess noise pollution ? Compare different noise rating methodologies. **10**

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Roll No. ..... Total Pages : 04

002609

May 2025

B.Tech. (Civil) (Sixth Semester)

Air and Noise Pollution Control

(PEC-CED-302-3)

Time : 3 Hours] [*Maximum Marks : 75*

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) What are the main layers of the atmosphere and their composition ? **1.5**

(b) What is particulate matter and why is it harmful ? **1.5**

(c) Define temperature lapse rate in meteorology. **1.5**

(d) Why is stack height important in air pollution management ? **1.5**

(e) What is the principle behind cyclone separators in air pollution control ? **1.5**

(f) What are the advantages of using wet collectors for particulate pollutant control ? **1.5**

(g) What is the difference between absorption and adsorption in controlling gaseous contaminants ? **1.5**

(h) What are the primary sources of sulphur oxides (SOX) in the atmosphere ? **1.5**

(i) What is the relationship between sound intensity and distance from the source ? **1.5**

(j) List the various ill effects of noise pollution. **1.5**

Part B

2. (a) Discuss the classification of air pollutants and their impact of air pollutants on humans, animals, property and plants. **10**

(b) What are the sources and effects of indoor air pollution ? How can it be mitigated ? **5**

3. (a) Discuss the meteorological factors influencing air pollution dispersion, focusing on temperature lapse rate, atmospheric stability and wind dynamics. **10**

(b) Explain the Gaussian Plume Model and its application in predicting air pollutant dispersion. **5**

4. (a) Explain the mechanism and efficiency of Electrostatic Precipitators (ESP) in capturing fine particulate matter. Compare their effectiveness to other control technologies. **10**

(b) Discuss the working principle of gravitational settling chambers for controlling particulate air pollutants. **5**

5. (a) Discuss the principles and mechanisms of controlling gaseous contaminants. **5**

(b) Explain the working of a catalytic converter in reducing emissions from automobiles and its impact on the air quality. **10**