

- (b) Discuss the following methods of particulate pollutant control :

Fabric Filters, Electrostatic Precipitators and Wet Scrubbers.

How does each method work, and when is it used ? **10**

6. (a) What are the noise control and abatement measures ? Discuss both active and passive methods for controlling noise pollution. **10**

- (b) Discuss the concept of Noise Indices (L10, L50, L90, Leq, LDN, TNI). What do these indices represent and how are they used in assessing noise pollution levels ? **5**

7. Describe the various technologies used for controlling gaseous pollutants. Explain the principles behind each method and give examples. **15**

Roll No.

Total Pages : 04

754201

29/E

May 2025

M.Sc. (EVS) (Second Semester)

Air and Noise : Pollution and Abatement
(EVS-201-B/ESP-102-V)

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) Discuss the global and Indian scenarios of air pollution. **1.5**
- (b) What are National Air Quality Standards ? Discuss their significance and role in managing air quality in India. **1.5**
- (c) What is Indoor Air Monitoring ? Discuss the importance of monitoring indoor air quality and the typical pollutants found indoors. **1.5**

- (d) Write a note on air pollutant sampler : High-volume filtration. 1.5
- (e) Explain the concept of isokinetic sampling. 1.5
- (f) Explain Pressure-Swing Adsorption (PSA) and its application in air pollution control. 1.5
- (g) Differentiate between Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SCNR) catalytic converters used in reducing vehicular emissions. 1.5
- (h) Define Noise Pollution. Discuss the main sources of noise pollution in urban and industrial settings. 1.5
- (i) Explain the methods used to measure noise and vibration. 1.5
- (j) What is the Decibel Scale ? Explain, how sound pressure level is measured ? 1.5

Part B

- 2. (a) Discuss The Air (Prevention and Control of Pollution) Act, 1981, and its amendments. What are its objectives and key provisions ? 10

- (b) Define criteria air pollutants. List and explain the properties and health impacts of each criterion pollutant. 5

- 3. (a) Describe the following methods used to collect gaseous air pollutants :

Grab sampling, Absorption in liquid, Adsorption on solids, and Freeze-out sampling. 10

- (b) How does a Flue Gas Analyzer work ? Discuss flue gas analyser principles for CO_x, NO_x, SO_x and hydrocarbons. 5

- 4. Discuss the following models used to predict air pollutant dispersion :

Gaussian Plume Model, Line Source Model and Area Source Model.

What are the meteorological factors influencing pollutant dispersion ? 15

- 5. (a) Differentiate between Gravitational Settling Chambers and Cyclonic Separators. 5