

(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

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May 2025

M.Sc. (EVS) (Second Semester)

Air and Noise : Pollution and Abatement

(EVS-201-B/ESP-102-V)

29/E

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 convertors 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**