

Roll No. ....

Total Pages : 3

**002623**

May 2024

**B.Tech. (Civil) Re-Appear VI SEMESTER**

**Air Noise Pollution Control (PEC-CV-403-1)**

Time : 3 Hours]

[Maximum Marks : 75

*Instructions :*

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any **four** questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*
4. *Use of Non-programmable scientific calculator allowed.*

**PART-A**

1. (a) What are primary and secondary pollutants? (1.5)
- (b) What are the global implications of air pollution? (1.5)
- (c) What are some examples of indoor air pollutants? (1.5)
- (d) How do meteorological factors influence air pollution dispersion? (1.5)
- (e) What are some methods for controlling particulate air pollutants? (1.5)

- (f) What are some examples of automotive emission control technologies? (1.5)
- (g) How is noise pollution measured? (1.5)
- (h) Define Lapse Rate. (1.5)
- (i) What are the key components of a noise rating scheme? (1.5)
- (j) What are some examples of noise control methods for industrial settings? (1.5)

### PART-B

2. (a) Define inversion. Briefly explain the different types of inversion with the aid of neat sketch. (10)
- (b) Write a short note on photo-chemical smog. (5)
3. (a) Explain the Gaussian plume dispersion equation for the gaseous pollutants. (5)
- (b) Write short notes on : (10)
  - (i) Air quality standards.
  - (ii) Noise pollution standards.
  - (iii) Environmental policy.
  - (iv) Kyoto Protocol.
4. A coal fired power plant releases from the stack SPM at the rate of 2.3g/s. The stack height is 60m while the temperature of the stack gases is 1600 c and the ambient air temperature is 30<sup>0</sup> C. The wind velocity at the stack height is 2.5m/s, while the stack gas velocity is 5.0m/s. The stack diameter is 3.5m. The atmosphere pressure is 1.005 bar. The wind speed at 10m height from the ground is 1.95 m/s. Estimate the

ground level concentration for 1 and 2 km downwind distance take the standard deviations for 1km as  $\sigma_y = 34$ ,  $\sigma_z = 14$ ; for 2km  $\sigma_y = 63$ ,  $\sigma_z = 22$  respectively. (15)

5. (a) With the neat sketch explain the working principle of Cyclone separator. (5)
- (b) With the help of the neat sketch explain high volume air sampler for measurement of particulate matter. (10)
6. (a) What are some examples of special noise environments studied in the context of noise pollution? (10)
- (b) Define Noise pollution. Explain the sources and different methods to control noise pollution. (5)
7. Explain the significance of noise indices in evaluating noise pollution levels and their effects on communities. (15)