

This question paper contains 3 printed pages.

3058

Your Roll No. _____

MEC

J

Paper – CE.556

AIR POLLUTION

Time : 3 hours

Maximum Marks : 100

*(Write your Roll No. on the top immediately
on receipt of this question paper.)*

*Question No. 1 is compulsory and attempt any four
questions form the rest. Assume any missing data.*

1. (a) What do you mean by Hazards? Explain the different types of Hazards in the workplace. How are these hazards controlled by Hierarchy?
- (b) Discuss the economic aspects of various control equipment for particulate matter.
- (c) What are the methods used for sampling gases and vapours? Explain with example.
- (d) Name the Industries specified in Schedule under Air Act, 1981. Also discuss the reason for inclusion.
- (e) Name the basic mechanism of removing particulate matter from gaseous stream with example of control equipment. 5×4

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2. (a) List the criteria in the selection of control equipment. 3
- (b) Explain the functioning and capability of the following:
- (i) E.S.P. .
- (ii) Bay Filter. 10
- (c) A conventional cyclone with diameter 1.0m handles $3.0 \text{ m}^3/\text{s}$ of standard air carrying particles with density of 2000 kg/m^3 . For $Ne=6$, determine the cut size and the efficiency as a function of particle diameter. Take $\mu=1.81 \times 10^{-3} \text{ kg/m-s}$. 7
3. (a) Describe with neat sketches, how different atmospheric conditions give rise to different kinds of plumes. 10
- (b) Determine the stack height required when SO_2 emission is $100 \times 10^6 \text{ g/s}$ and SO_2 concentration of $30 \mu/\text{m}^3$ is permitted at a distance 500 m from the stack. Assume wind velocity 5 m/sec and stability coefficient as 35 and 19. 10
4. (a) Write explanatory notes on:
- (i) Duration of sampling
- (ii) Location of sampling sites
- (iii) Representative sampling. 9
- (b) Explain with neat sketch the principle and procedure for monitoring of particulate matter from ambient air. 10+1

5. (a) Air pollution is not a new phenomenon— Justify it. 5
- (b) Classify the air pollutants according to origin, physical state and sources. 5
- (c) Name the *four* major greenhouse gases. Define Kyoto Protocol. What do you mean by carbon trading and carbon credit? Write the merits and demerits of carbon credit. 10
6. Write short notes on any *four*:
- (i) Estimation of plume rise
- (ii) Calculation of stack height
- (iii) Environmental Protection Act 1986
- (iv) Bhopal gas disaster
- (v) Air pollution index. 4×5