PAPER ID-310412

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B TECH
(SEM-V) THEORY EXAMINATION 2020-21
AIR AND NOISE POLLUTION CONTROL

Time: 3 Hours   *Total Marks: 100*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1.   **Attempt *all* questions in brief.**   **2 x 10 = 20**

Q no.	Question	Marks	CO
a.	What do you understand by Gustiness?	2	2
b.	List four major zones of atmosphere with their average distance from Earth's surface.	2	2
c.	What is the minimum particle size removed by Gravitational Settling Chambers?	2	3
d.	Name some of the special noise environment.	2	6
e.	Differentiate between: Dust, Smoke and Fumes.	2	1
f.	What do you mean by the term acoustic?	2	6
g.	Define Radiation Inversion.	2	1
h.	Enumerate any two merits of Fabric Filters.	2	3
i.	Write down the Indian Specifications of Euro-II.	2	5
j.	Name all absorption units which are used to control of gaseous pollutants.	2	4

SECTION B

2.   **Attempt any *three* of the following:**

Q no.	Question	Marks	CO
a.	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°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 1and 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.	10	1
b.	Define Air (Prevention and Control of Pollution) Act. Discuss its Salient features.	10	3
c.	Describe the catalytic convertor. Also, explain how it can be used to reduce the automobile emissions with the help of reactions?	10	5
d.	Briefly explain the effects of varying concentrations of CO, SO_2, H_2S, NO and NO_2 in air.	10	1
e.	What are the effects of the noise pollution on health?	10	6

SECTION C

3.   **Attempt any *one* part of the following:**

Q no.	Question	Marks	CO
a.	Describe various types of pollutants emitted from petrol-driven and diesel driven motor vehicles. Also write Euro-1, Euro-II and Euro-III specifications for pollution control in petrol driven passenger cars.	10	4
b.	Differentiate between absorption and adsorption process in detail with examples.	10	4

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4.   Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Explain Gaussian plume in detail. What is prefeasibility report? Mention salient points of EIA notification, 2006.	10	1
b.	Enumerate the impacts of atmospheric pressure, moisture, and precipitation on dispersion of air pollutants.	10	1

5.   Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Differentiate between L_n, L_{eq} and L_{dn} in relation to expression of sound levels.	10	6
b.	Explain in brief the major factors and actions that may help in noise abatement in a modern society.	10	6

6.   Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Describe the principle of operation, advantages, and limitations of Gravitational settling chamber for particulate contaminants.	10	3
b.	Enumerate and describe the various natural properties which clean the ambient air over time by removing the various air pollutants.	10	3

7.   Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Enumerate the effects of the air pollution on humans, animals, property, and plants.	10	1
b.	What is photochemical smog and how is it formed? Explain in detail.	10	1