PAPER ID-410480

Roll No: ☐☐☐☐☐☐☐☐☐☐☐☐☐

B.TECH.
(SEM V) THEORY EXAMINATION 2021-22
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

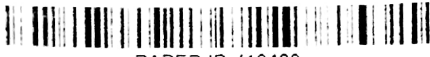| Q no.	Question	Marks	CO
a.	Define lithosphere.	2	1
b.	What do you understand by hydrocarbon?	2	1
c.	Define air pollution dispersion.	2	2
d.	What do you know about lapse rate?	2	2
e.	Enumerate ambient air quality standards adopted in India.	2	3
f.	What are wet collectors?	2	3
g.	Write method for removal of NO_x from fuel gases.	2	4
h.	List any two advantages and disadvantages of scrubbers.	2	4
i.	Define acoustic.	2	5
j.	Write effect of noise pollution on the human health.	2	5

SECTION B

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

Q no.	Question	Marks	CO
a.	Define troposphere , stratosphere with respect to the ranges of altitude, also mention the range of temperature and important gases found in each of these layers.	10	1
b.	How is maximum mixing depth (MMD) determines ? Explain the significance of maximum mixing depth in air pollution control.	10	2
c.	Briefly describe the Guassian dispersion model for air pollutants ? Also write Holland's equation for the calculation of plane height.	10	3
d.	Describe the principle of operation , advantages and limitations of the Gravitational settling chambers.	10	4
e.	Explain point and line sources of noise pollution. Also write noise standards and sound pressure level.	10	5

SECTION C

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

Q no.	Question	Marks	CO
a.	Mention the names of some important sources generating hydrocarbons in air.	10	1
b.	Discuss the adverse effects of carbon monoxide on human health . How can the reduction in carbon monoxide emission help mitigate these effects?	10	1

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

Q no.	Question	Marks	CO
a.	Discuss the criteria for fixing stack height.	10	2
b.	What is a high volume sampler? Explain its salient features and produced adopted for the sampling and measurement of suspended particulate matter.	10	2

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

Q no.	Question	Marks	CO
a.	How is a low voltage two stage electrostatic precipitator different from a high voltage single stage electrostatic precipitator , Show the schematic view of a plate type electrostatic precipitator and mention the size efficiency relationship.	10	3
b.	Derive the relation between temperature and altitude and explain its relation with atmospheric stability.	10	3

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

Q no.	Question	Marks	CO
a.	Discuss the pollution control process of gaseous contaminants through a absorption .	10	4
b.	With the help of suitable diagram explain the working principle of spray tower.	10	4

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

Q no.	Question	Marks	CO
a.	Explain the concept of equivalent continuous energy level(L_{eq})	10	5
b.	Explain in detail the outdoor noise propagation and indoor noise propagation in relation with noise pollution and control.	10	5