



VII SEMESTER B.TECH (CIVIL ENGINEERING)
END SEMESTER EXAMINATION, DEC 2023
SUBJECT: AIR AND NOISE POLLUTION [CIE 4301]
/12 /2023

TIME: 3 HRS.

MAX. MARKS: 50

Note: 1. Answer all questions.

2. Any missing data may be suitably assumed.

Q.NO	QUESTION	Marks	CO	BL
1A.	Using a case study, explain the effects of meteorological conditions on air pollution disaster.	04	1	4
1B.	Are livestock farms a possible source of air pollution? Explain your understanding by categorizing the pollutant emission source, and the potential pollutants affecting climate change.	03	1	4
1C.	What is ground level ozone (GLO)? Is it of public health concern? If so, list its potential effects.	03	1	4
2A.	Distinguish between fumigation and lofting plume.	02	2	2
2B.	A factory emits 20g/s of SO_2 at height H. The wind speed is 3 m/s. At a distance of 1 km downwind, the values of σ_y and σ_z are 30 m and 20m, respectively. What are the SO_2 concentrations at the centerline of the plume, and at a point 60 meters to the side and 20 meters below the centerline?	04	2	4
2C.	What are the pollutants identified by Pollutant Standard Index (PSI)? For a given urban location, the ambient pollutant concentration of PM _{2.5} & PM ₁₀ has been recorded as 25 $\mu\text{g}/\text{m}^3$ and 200 $\mu\text{g}/\text{m}^3$. If PSI is the maximum of sub-index value, for the short-term standards for PM _{2.5} & PM ₁₀ as 15 $\mu\text{g}/\text{m}^3$ and 150 $\mu\text{g}/\text{m}^3$, determine the PSI value and its corresponding AQI category.	04	2	4
3A.	List the factors to be considered for industrial plant location.	03	3	2
3B.	Explain different types of air pollutant sampling.	04	3	2
3C.	Explain probit analysis and its application in toxicity test of air pollutants.	03	4	2
4A.	With the chemical reaction explain the formation of acid rain.	03	4	2
4B.	Define the following (i) Lethal dose (ii) Lethal concentration (iii) Dose threshold (iv) Threshold limiting value	04	4	2
4C.	Explain the effect of fluoride and arsenic poisoning in farm animals.	03	4	2
5A.	With a neat sketch explain the working of cyclone separators and gravity settling chamber.	04	3	2
5B.	Explain the various responsibilities of Central pollution control board in controlling air pollution.	03	4	2
5C.	Explain the various sources and effects of noise pollution.	03	5	1