GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER- V EXAMINATION-SUMMER 2023

Subject Code: 3151309   **Date: 03/07/2023**
Subject Name: Fundamentals of Air Pollution
Time: 02:30 PM TO 05:00 PM   **Total Marks: 70**
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Give the classification of sources of air pollution.	**03**
	(b)	Differentiate between primary & secondary air pollutants.	**04**
	(c)	Discuss the effects of oxides of sulfur (SOx) on Human health, Plants & Property.	**07**
Q.2	**(a)**	Define the terms: (1) Lapse Rate (2) Inversion (3) Maximum Mixing Depth (MMD)	**03**
	(b)	Enlist various types of plume behaviors & explain any two with figure.	**04**
	(c)	Write a short note on wind rose diagram.	**07**
		OR	
	(c)	Write a Short note on Gaussian Dispersion Model.	**07**
Q.3	**(a)**	Define the following terms: 1. Soot 2. Mist 3. Smoke	**03**
	(b)	Write the difference between sound & noise.	**04**
	(c)	Write short note on High Volume Air Sampler (HVAS).	**07**
		OR	
Q.3	**(a)**	Define the Heat Island effects with neat sketch.	**03**
	(b)	Enlist the meteorological factors influencing the air pollution.	**04**
	(c)	Differentiate between the stack gases sampling and ambient air sampling.	**07**
Q.4	**(a)**	Derive the relationship between ppm and $\mu g/m^3$.	**03**
	(b)	Enlist the four factors responsible for formation of photochemical smog.	**04**
	(c)	Discuss the effects of noise pollution on human health & list the methods for Noise pollution control.	**07**
		OR	
Q.4	**(a)**	Name the sources of odor pollution.	**03**
	(b)	Discuss various aspects of sampling to be considered while developing a sampling programme.	**04**
	(c)	Enlist odor control techniques and explain any three in detail.	**07**
Q.5	**(a)**	Write down the equations used for the determination of stack height.	**03**
	(b)	Discuss the Iso kinetic sampling in detail.	**04**
	(c)	Derive the equation of DALR $(- dT/dz) = 9.8 °C/km$.	**07**
		OR	
Q.5	**(a)**	Differentiate between continuous, intermittent & impulse noise.	**03**
	(b)	Find out the flow of flue gas and particulate matter concentration in mg/Nm^3. Type of fuel is lignite (Mata no madh), fuel consumption is 4 T/day. Assume suitable data.	**04**
	(c)	Write a short note on Plume rise.	**07**

****