Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:3161308 Date:22-05-2024

Subject Name:Air Pollution Control and Management

Time:10:30 AM TO 01:00 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.**

Q.1	**(a)**	Explain the particulate matter removal mechanisms.	**03**
	(b)	Draw a neat sketch of Cyclone separator & write down the importance of following components, 1. Vortex finder 2. Tangential Entry 3. Hopper bottom	**04**
	(c)	Explain step by step working of Electrostatic Precipitator (ESP) with figure.	**07**
Q.2	**(a)**	Briefly explain factors affecting efficiency of cyclone separator.	**03**
	(b)	Define the Air – to – cloth & Air – to – fuel ratios with their units of expression.	**04**
	(c)	Write a note on Gravity settling chamber & their industrial applications.	**07**
		OR	
	(c)	Write a short note on working of Venturi scrubber & discuss the performance parameters.	**07**
Q.3	**(a)**	Differentiate between two stroke & four stroke engine.	**03**
	(b)	Draw APCM scheme for the cement industry.	**04**
	(c)	Enlist cleaning mechanisms of Bag filter & explain the working of Pulse Jet type bag filter with neat sketch.	**07**
		OR	
Q.3	**(a)**	Name the type of pollutants emitted from following fuel driven four stroke engines; 1. Petrol 2. Diesel 3. CNG	**03**
	(b)	Classify the SOx control method & compare fuel & flue gas desulfurization methods.	**04**
	(c)	Write a short note on turbo jet engine.	**07**
Q.4	**(a)**	Define VOC. Enlist control techniques of VOC.	**03**
	(b)	Explain the need of Catalytic convertor.	**04**
	(c)	Discuss the importance to study Air Pollution Control & Management (APCM) subject.	**07**
		OR	
Q.4	**(a)**	Discuss the roles of oxides of nitrogen in “photo oxidation”	**03**
	(b)	Describe how the engine design changes affect the auto exhaust emission.	**04**
	(c)	Write sources, types of air pollutants & draw neat APCM scheme to achieve stack standards in Foundry industry.	**07**
Q.5	**(a)**	Define air pollution index. What are the uses of air pollution indices?	**03**
	(b)	Suggest the air pollution control scheme for ceramic industry.	**04**
	(c)	Discuss combustion control for NO_X.	**07**
		OR	

Q.5	**(a)**	Differentiate between wet & dry scrubbing technologies for pollutants control.	**03**
	(b)	List the types & sources of air pollution from Thermal Power plant.	**04**
	(c)	Explain the magnesium oxide process for control of Sulfur dioxide with its reaction chemistry.	**07**

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