Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:3161308 Date:02-12-2024

Subject Name: Air Pollution Control and Management

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.**

Q.1	**(a)**	Enlist Selection criteria of Air Pollution Control Equipments.	**03**
	(b)	Which six mechanisms are responsible for particulate collection?	**04**
	(c)	Explain the working principle of venturi scrubber along with sketch. Discuss advantages & disadvantages of venturi scrubber.	**07**
Q.2	**(a)**	Enlist applications of Electrostatic precipitator.	**03**
	(b)	Write a short note on "various bag cleaning mechanism for bag house filter."	**04**
	(c)	Explain working principle of Electrostatic precipitator with neat sketch. Explain advantages and disadvantages of Electro Static Precipitator.	**07**
		OR	
	(c)	Briefly explain the working principle of gravity settling chamber along with sketch. Explain advantages & disadvantages of gravity settling chamber.	**07**
Q.3	**(a)**	Define AQI & explain the benefits of AQI.	**03**
	(b)	Enlist & explain factors affecting efficiency of cyclone separator.	**04**
	(c)	Write short notes on Cyclone separator with their principal, construction and working.	**07**
		OR	
Q.3	**(a)**	Define the following terms (i) Stoichiometric Air-Fuel Ratio. (ii) Lean mixture (iii) Rich Mixture.	**03**
	(b)	Differentiate between single & double alkali scrubbing.	**04**
	(c)	Draw Air pollution control scheme for foundry and also mentioned sources and types of air pollutants.	**07**
Q.4	**(a)**	Write a short note on "pollutants emitted from diesel engine."	**03**
	(b)	Write a short note on Magnesium Oxide scrubbing with neat sketch.	**04**
	(c)	(i) Write a brief note on "methods used to reduce sulfur dioxide emission". (ii) Differentiate between throwaway and regenerative process for flue-gas desulfurization with example.	**07**
		OR	
Q.4	**(a)**	Write a short note on Turbojet Engine with diagram.	**03**
	(b)	Write a short note on " Roles of oxides of nitrogen in photo oxidation"	**04**
	(c)	In which circumstances flue gas control methods for NOx emission is used. Enlist and explain any one flue gas control method for NOx emission.	**07**
Q.5	**(a)**	Write a note on Crankcase and evaporative emissions.	**03**
	(b)	Brief note on Alternative fuel for automobile.	**04**
	(c)	Identify the sources of pollution emission and suggest appropriate air pollution control scheme for thermal power plant.	**07**

OR

Q.5	**(a)**	Explain catalytic convertor in detail.	**03**
	(b)	How engine design changes to reduce automobile pollution.	**04**
	(c)	Identify the sources of pollution emission and suggest appropriate air pollution control scheme for cement industry.	**07**

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