Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – SUMMER • 2014

Subject Code: 171302 **Date: 03-06-2014**

Subject Name: Air Pollution Control and Management

Time: 02.30 pm - 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.**

Q.1	**(a)**	Write a short note: Air pollution indices	**07**
	(b)	What do you mean by NAAQS? Explain objectives of NAAQS.	**07**
Q.2	**(a)**	Enlist the pollutants emitted from a diesel engine. What sort of modifications you suggest to control the pollutants?	**07**
	(b)	A packed absorption tower is designed to remove SO_2 from a coke oven stack. The stack gas flow rate measured at 1 atm and 30 °C is 10 m^3/s, and the SO_2 content is 3.0%. Using an initially pure water, 90% removal is desired. The equilibrium curve of SO_2 in water may be approximated by $y_i = 30x_i$. Determine the water requirement if 150% of the minimum flow rate is deemed adequate.	**07**
		OR	
	(b)	Draw a neat sketch of gas turbine combustion chamber. Explain ways of reducing emissions of carbon monoxide and hydrocarbon	**07**
Q.3	**(a)**	Explain in brief acid rain and show through series of reactions formation of acids in atmosphere.	**07**
	(b)	Summarize all pertinent photochemical reactions.	**07**
		OR	
Q.3	**(a)**	With the help of graphical representation, explain the effects of air-fuel ratio on hydrocarbon, carbon monoxide, and nitric oxide exhaust emissions.	**07**
	(b)	Write a short note: Photochemical smog	**07**
Q.4	**(a)**	With a neat sketch explain activated carbon adsorption for cleaning dirty gas.	**07**
	(b)	Enlist the potential methods of reducing sulfur dioxide. Explain any one in detail.	**07**
		OR	
Q.4	**(a)**	Explain in detail: Incineration of gaseous wastes.	**07**
	(b)	Enlist the advantages and disadvantages of Baghouse filters.	**07**
Q.5	**(a)**	Explain principle, construction and working of a Cyclone Separator.	**07**
	(b)	Explain combustion control methods for NO_x from stationary sources.	**07**
		OR	
Q.5	**(a)**	Write a short note: Particulate control mechanisms	**07**
	(b)	Write a short note: Flue gas desulfurization.	**07**

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