Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII EXAMINATION – WINTER 2015

Subject Code:180608 **Date:12/12/2015**

Subject Name: Air Pollution Control

Time: 2:30pm to 5:00pm **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)**	Discuss the sources and classifications of air pollutants .	**07**
	(b)	Discuss various effects of Air Pollutants on human being.	**07**
Q.2	**(a)**	Discuss "London smog". How did it occur? What were it effects?	**07**
	(b)	Discuss “Global Warming", its causes and effects .	**07**
		OR	
	(b)	Discuss the effects of different air pollutants on properties, art treasures and materials.	**07**
Q.3	**(a)**	Discuss in details, “Ozone Depletion”.	**07**
	(b)	What is Adiabatic lapse rate? Describe different atmospheric conditions.	**07**
		OR	
Q.3	**(a)**	Discuss emission of gases from an automobile. What is the significance of a catalytic converter in an automobile?	**07**
	(b)	What are the alternative fuels for an automobile? Justify their use as a solution to control the problem of auto-exhaust gases.	**07**
Q.4	**(a)**	Discuss, Acid Rain, Heat Island effects and Dust Dome Effects.	**07**
	(b)	Discuss different aspects of stake monitoring.	**07**
		OR	
Q.4	**(a)**	Sketch and discuss , different types of Wet Scrubbers used to remove particulate from a gas stream	**07**
	(b)	Sketch and explain construction and operation of a cyclone collector.	**07**
Q.5	**(a)**	Sketch and explain the principle, construction and working of a gravitational settling chamber.	**07**

(b) Discuss a bag house filter and its application. **07**

A fabric filter is to be constructed using bags of 0.25 m in diameter and 6.oo m long. The air flow is 12. 00 m^3/s and the filtering velocity is 3.0m/min. Determine the number of bags required for a continuous cleaned operation.

OR

Q.5 **(a)** Calculate effective height of a stack for following data*:* **07**

- Physical height of stack = 180m
- Inside diameter of stack = 1.2m
- Wind velocity = 2.80m/s
- Air temperature = 30^0 C
- Barometric Pressure = 1000 millibars
- Stack gas velocity = 9 .2 m/s
- Stack gas temperature = 152^0 C.

(b) Sketch and explain working and use of a ESP as particle removal device from the gas stream. **07**

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