

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII • EXAMINATION – SUMMER 2013****Subject Code: 180608****Date: 09/05/2013****Subject Name: Air Pollution Control****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.

- Q.1** (a) Define Photochemical Smog. Discuss its causes and effects of it. **07**
 (b) Write short note on "Indoor Air Pollution" and suggest remedy for it. **07**

- Q.2** (a) Describe the effects of air pollution on animals. **07**
 (b) Describe the mechanisms of action of air pollutants on materials. **07**

OR

- (b) Discuss the sources, characteristics and effects of following air pollutant on Human: Particulate Matter (ii) CO **07**

- Q.3** (a) What are the objectives of stack sampling? Discuss the importance of isokinetic sampling with sketch. **07**

- (b) What is RSPM? Describe the procedure for collection of RSPM for ambient air quality monitoring. **07**

OR

- Q.3** (a) Describe types of winds and effects of terrain on dispersion of pollutants. **07**

- (b) Write a short note on "Gaussian Plume Model". **07**

- Q.4** (a) Enlist various types of scrubbers. Explain with sketch working of any one scrubber. **07**

- (b) Estimate the average liquid droplet size in the venturi scrubber using gas as air at NTP and water as liquid: **07**

Gas flow rate: $0.06 \text{ m}^3/\text{sec}$;Liquid flow rate = 0.6 l/min ;Throat Area = 6.5 cm^2 ;Surface Tension of liquid = 72 dynes/cm ;Density of liquid = 1 gm/cm^3 ;Dynamic viscosity of liquid = 0.0982 poise ;**OR**

- Q.4** (a) Write short note on "Electrostatic Precipitator". **07**

- (b) Describe various adsorption devices of gaseous pollutants. **07**

- Q.5** (a) Describe the methods of automobile air pollution control. **07**

- (b) Explain the criteria to arrive at air quality standards. Write a brief note on the Indian Standards for ambient air quality. **07**

OR

- Q.5** (a) Write short note on "Atmospheric Stability". **07**

- (b) Estimate the plume centre line concentration of SO_2 which is released from a power plant, by burning of 10,000 tons of 1% sulphur coal per day. The stack height is 300 m. The average wind speed at 10 m above ground level is 4 m/s. The variance (hourly mean) values are as follows: **07**

The atmospheric condition is unstable:

Distance (x)	y	z
1	140	125
5	540	500
