Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII • EXAMINATION – SUMMER 2014

Subject Code: 180608 **Date: 27-05-2014**

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) Explain how transportation has become an important source of air pollution. **07**

(b) Write short note on "Plume Behaviour". **07**

Q.2 (a) What is the impact of air pollution on various meteorological conditions? **07**

(b) Explain biological effects air pollution on human being in general. **07**

OR

(b) Write a Short Note on "Future Engines". **07**

Q.3 (a) What is SPM? What are the air quality standard of PM_{10} and $PM_{2.5}$. **07**

A glass fiber filter paper is found to have an initial weight of 8.023 grams. After 24 hours of sapling, using high volume air sampler, the final paper weighed 8.162 grams and the air flow at the start and end of the experiment is 1.4 m^3/min and 0.6 m^3/min. calculate the concentration of suspended particulate matter.

(b) Describe the procedure for collection and analysis of NO_2 from ambient air. **07**

OR

Q.3 (a) What is plume rise? Enumerate the factors which affect the plume rise? Compute plume rise for the following data. **07**

- Inner diameter of the stack = 2.0m
- Ambient air temperature = 27° C
- Stack gas temperature = 177° C
- Wind velocity= 4.0 m/sec
- Stack gas exit velocity =8 m /sec
- Atmospheric pressure = 1000 mb

(b) Write short note on " Environmental friendly alternative fuels" **07**

Q.4 (a) Explain the working of fabric filter with sketch. **07**

(b) Write a short note on " Cyclone Scrubber" **07**

OR

Q.4 (a) Classify the Air Pollution Models. Explain the "Box Model". Estimate the concentration of CO using " Box Model" for a town having a length of 8 km. Mixing height may be assumed as 350 m and the wind velocity is 6 km/hour. It is observed that the CO emission is 4 kg per m^2/day. **07**

(b) Write a Short note on " Gravity Settling Chamber". **07**

Q.5 (a) Discuss Salient features of Air Act'81. **07**

(b) Describe air pollution control by flames and flares. **07**

OR

Q.5 (a) Explain in brief with sketch, the working of Electrostatic Precipitators. **07**

(b) Enlist the different types of absorbers used in gaseous pollutant control. Explain any one in Detail. **07**

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