

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII • EXAMINATION – SUMMER • 2015****Subject Code: 180608****Date: 05/05/2015****Subject Name: Air Pollution Control****Time: 10.30AM-01.00PM****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 types of air pollutants and their sources. **07**
 (b) What are Photochemical oxidants? Discuss their effects. **07**
- Q.2** (a) Discuss Bhopal Gas Tragedy, its reasons, its effects and the lesson which should be learnt by mankind. **07**
 (b) Discuss impact of air pollution on climate change and its subsequent effects. **07**
- OR**
- (b) Sketch and describe the effects of air pollutants on plants leaves. **07**
- Q.3** (a) What is CFC? What is its impact? Discuss in details. **07**
 (b) Discuss: Plume behavior under different atmospheric conditions. **07**
- OR**
- Q.3** (a) Enlist the exhaust gases produced by an automobile. Discuss its remedial measures. **07**
 (b) What is a Hybrid car? How does it help to solve problem of vehicular pollution? **07**
- Q.4** (a) Suggest alternatives for reducing pollution due to automobiles. **07**
 (b) Discuss effects of Carbon monoxide and Sulfur dioxide on human health. **07**
- OR**
- Q.4** (a) Discuss Process of adsorption for gaseous contaminants. **07**
 (b) Discuss application of scrubbers for removal of particulate matter from gas streams. **07**
- Q.5** (a) Sketch and explain the principle, construction and working of a bag house filter. **07**
 (b) Discuss a gravitational settling chamber and its application. **07**
- Calculate the minimum size of the particle that will be removed with 100 percent efficiency from a settling chamber under following conditions:
- Particle : Specific gravity = 2.0
 - Horizontal velocity = 0.25 m/s
 - Temperature = 75⁰C
 - Chamber :
 - Length = 8.0 m
 - Height = 1.6 m
 - Viscosity of air at 75⁰C = 2.0×10^{-5} kg/m.s
 - Take correction factor = 2
- OR**
- Q.5** (a) Calculate effective height of a stack for following data: **07**
- Physical height of stack = 150m
 - Inside diameter of stack = 1.0m
 - Wind velocity = 3.20m/s
 - Air temperature = 12⁰ C
 - Barometric Pressure = 1000 millibars
 - Stack gas velocity = 9.6 m/s
 - Stack gas temperature = 160⁰ C.
- (b) Sketch and explain working and use of a cyclone as particle removal device from the gas stream. **07**

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