GUJARAT TECHNOLOGICAL UNIVERSITY

7th Semester Civil Engineering - PDDC

Subject Code & Name: X70604 - Air Pollution Control (Department Elective-I)

Sr. No.	Course content
1.	History of Air pollution and episodes, Sources of air pollution and types, Introduction to meteorology and transport of air pollution: Global winds, Headley cells, wind rose terrestrial wind profile, Effects of terrain and topography on winds, lapse rate, maximum mixing depths, plume rise
2.	Transport of Pollution in Atmosphere: Plume behaviour under different atmospheric conditions, Mathematical models of dispersion of air pollutants, Plume behaviour in valley and terrains. Plume behaviour under different meteorological conditions, Concept of isoplates
3.	Effects of Air Pollution on human beings, plants and animals and Properties. Global effects-Greenhouse effect, Ozone depletion, heat island, dust storms, Automobile pollution sources and control, Photochemical smog, Future engines and fuels
4.	Air Pollution control- at source-equipments for control of air pollution-For particulate matter-Settling chambers-Fabric filters-Scrubbers-Cyclones-Electrostatic precipitators, For Gaseous pollutants-control by absorption-adsorption-scrubbers-secondary combustion after burners, Working principles advantages and disadvantages, design criteria and examples
5.	Air Quality Sampling and Monitoring: Stack sampling, instrumentation and methods of analysis of SO2, CO etc, legislation for control of air pollution and automobile pollution

Note: Each module carries equal weightage

Term work: Tutorial problems based on above mentioned syllabus

Text Books:

1. H.C Parkins, Air Pollution Mc Graw Hill Publication
2. H.S. Peavy, D.R. Row & G. Tchobanoglous, Environmental Engineering, Mc Graw Hill International Edition
3. Martin Crawford, Air Pollution Control Theory, TMH Publ.

Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VII • EXAMINATION – SUMMER • 2015

Subject Code:X70604 **Date: 14/05/2015**

Subject Name: AIR POLLUTION CONTROL (DEPARTMENT ELECTIVE -I

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)**	Define " Air Pollution" Explain Aerosols as Ai Pollutant.	**07**
	(b)	Defining "Wind Rose", Explain with neat figure.	**07**
Q.2	**(a)**	Discuss Plum Behavior under different atmospheric conditions.	**07**
	(b)	Write explanatory notes on (i) Dispersion models and (ii)Estimation of Plum ise.	**07**
		OR	
	(b)	Explain the cause and effects of Inversion of atmosphere.	**07**
Q.3	**(a)**	(i)State the prime factors as regards to polluted air affecting Human health (ii) List the health effects by air pollutants.	**07**
	(b)	State the air pollutants affecting animals and discuss any one.	**07**
		OR	
Q.3	**(a)**	Explain Green House effect	**07**
	(b)	Discuss Automobile pollution sources and control	**07**
Q.4	**(a)**	(i)What information are needed to select the air pollution control equipment? (ii) state the objectives of using air pollution control equipments.	**07**
	(b)	List the types of particulate collection equipment. What are the advantages of using collectors in series?	**07**
		OR	
Q.4	**(a)**	Write short note on construction and working of Cyclone	**07**
	(b)	State the types of filters used for collection of particulates from air. Discuss Fabric Filter.	**07**
Q.5	**(a)**	State the categories of Air polluting Industries as per section 19-26 of The Air(Prevention and control of Pollution) act 1981. Discuss any one.	**07**
	(b)	List the industries specified in the schedule under Air Act 1981.	**07**
		OR	
Q.5	**(a)**	Give the classification of sampling methods used for the study of air pollution. What difficulties are encountered in sampling?	**07**
	(b)	Discuss chemical methods of analysis of atmospheric samples	**07**

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