Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V (NEW) EXAMINATION – WINTER 2018

Subject Code:2153504   **Date:27/11/2018**
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.

			MARKS
Q.1*	(a)	Define: Lapse Rate, NAAQS, Secondary pollutant.	03
	(b)	What do you mean by air pollution? How pollution sources can be classified?	04
	(c)	Discuss Gaussian Plume model in detail.	07
Q.2	(a)	Discuss Power law.	03
	(b)	Define: VOC, POP, GHG, ODS	04
	(c)	Discuss working of ESP in detail.	07
		OR	
	(c)	Discuss working of Cyclone separator in detail.	07
Q.3	(a)	Discuss Weighted Decibels for measurements of noise.	03
	(b)	Discuss sources of emission, characteristics and health impact of SOx.	04
	(c)	Discuss control of gaseous pollutants with the help of absorption. Describe any one control equipment with the help of suitable diagram.	07
		OR	
Q.3	(a)	Two machines in an industry produce a sound 60 dB each. What sound level will be experienced by a man who is working in the vicinity?	03
	(b)	Discuss sources of emission, characteristics and health impact of PM.	04
	(c)	Discuss working of Bag filter in detail.	07
Q.4	(a)	What do you mean by Plume Rise? Explain any formula used for calculating plume rise.	03
	(b)	Discuss various ways of industrial Noise Control.	04
	(c)	What do you understand by inversion? Discuss common types of inversion.	07
		OR	
Q.4	(a)	Define: Necrosis, Epinasty, Chlorosis.	03
	(b)	Discuss different instruments used for Noise measurement.	04
	(c)	Discuss various types of plume behavior in detail.	07
Q.5	(a)	Calculate effective stack height, for following data, Physical stack height = 100 m, with I.d = 1.07 m Wind velocity = 3.56 m/s Air temperature = 13°C Barometric pressure=1000 mb	03

Stack gas velocity = 9.14 m/s
Stack gas temperature = 149 °C

(b) Write a note on Kyoto Protocol.   **04**

(c) An industry utilizes 0.3 ML of oil fuel per month. It has also been estimated that for every 1ML of fuel oil burnt in the factory, per year, the quantities of various pollutants emitted are given as: **07**

PM = 2.9 T/year, SO_2 = 60T/year, NO_x = 8 T/year, HC = 0.4 T/year, CO = 0.5 T/year

Calculate the height of the chimney required to be provided for safe dispersion of pollutants.

OR

Q.5 **(a)** Discuss various types of particulate matter.   **03**
(b) Write a note on Montreal Protocol.   **04**
(c) Following atmospheric condition exists in atmosphere,   **07**

Altitude (m)	0	100	200	300	400	500	600
Temperature (°C)	20	18	16	15	16	17	18

If the maximum daytime surface temperature is 22°C and at a height of 10m, the average wind speed was observed as 4m/s. What would be the ventilation coefficient?

(Assume the value of n=0.20 for prevailing stability class and surface roughness and average wind speed is same as wind speed at the halfway of MMD.)

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