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GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VI (New) EXAMINATION - WINTER 2019

Subject Code: 2161302 Date: 04/12/2019

Subject Name: Fundamentals of Air Pollution

Time: 02:30 PM TO 05:00 PM Total Marks: 70

Instructions:

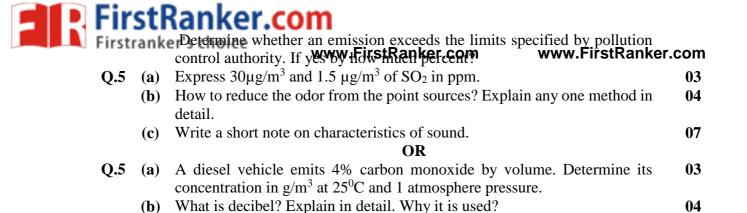
1. Attempt all questions.

2. Make suitable assumptions wherever necessary.

3. Figures to the right indicate full markss.

			MARKS		
Q.1	(a)	Classify air pollutants into different categories and indicate their sources.	03		
	(b)	· ·	04		
	(c)	Explain the effects of NO _x on Environment.	07		
Q.2	(a)	Define:	03		
		1. Traverse points 2. Isokinetic condition 3. Representative sample.			
	(b)	Differentiate between stack standards and ambient standards.	04		
	(c)	Explain the guidelines for sampling and analysis of SO ₂ in ambient air with	07		
		the help of flow chart.			
	OR				
	(c)	Explain the procedure of the particulate matter sampling from stack with	07		
		diagram.			
Q.3	(a)	Differentiate between fumigation and lofting.	03		
	(b)	Write a short note on MMD.	04		
	(c)	Derive the equation of DALR ($-dT/dz$) = 9.8 ° C.	07		
		OR O			
Q.3	(a)	Differentiate between Super adiabatic and sub adiabatic condition.	03		
	(b)	Write a short note on Wind velocity profile.	04		
	(c)	Enlist the factors affecting the dispersion of pollutants in the atmosphere?	07		
0.4		Note down the advantages and disadvantages of Gaussian Model.	0.2		
Q.4	(a)		03		
	(b)	1. Convective Turbulence 2. Downwind 3. Dispersion	04		
	(b) (c)	Briefly explain applications of windrose diagram. Find out the flow of flue gas and particulate matter concentration in	04 07		
	(0)		U7		
		mg/Nm ³ . Type of fuel is lignite (Mata no madh), fuel consumption is 5			
		T/day. Assume suitable data.			
		OR	0.0		
Q.4	(a)	Define following terms:	03		
	(I-)	1. Mechanical Turbulence 2. Sea breeze 3. Trapping	0.4		
	(b)		04 07		
	(c)	The result of stack monitoring report for the thermal power plant are as shown below:	U/		
		SHOWH UCIOW.			

Stack No.	SO ₂ Concentration	NO ₂ Concentration
1	200	2
2	400	1.5
3	600	1.2
4	700	3.5
Stack limit	100 ppm	50 ppm



Define odour and explain sources of odour.

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