BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION MO/2023)

CLASS: B.TECH **SEMESTER : VII**
BRANCH: CIVIL **SESSION : MO/2023**

SUBJECT: CE420 AIR POLLUTION AND CONTROL

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Discuss about Indian air quality index in brief.	[2]	1	2
Q.1(b)	Explain the causes of indoor air pollution.	[3]	1	2
Q.2(a)	Differentiate between thermal NO_x and fuel NO_x.	[2]	1	5
Q.2(b)	Convert 10 ppm of Ozone concentration in $\mu g/m^3$ and compare the value with NAAQS standard.	[3]	1	3
Q.3(a)	Explain the working principle of manual respirable $PM_{2.5}$ dust sampler.	[2]	2	4
Q.3(b)	Calculate the concentration of PM_{10} in terms of $\mu g/m^3$. Weight of the clean filter paper 6.5g, weight of the filter paper after exposure 7.68g. Initial flow rate 1.5 m^3/min; final flow rate 1.3 m^3/min. Sampling exposure time 24 hrs.	[3]	2	4
Q.4(a)	Explain traverse points.	[2]	2	2
Q.4(b)	Explain how isokinetic sampling can be done in industrial stacks, also mention different kinetic conditions possible inside the stack.	[3]	2	3
Q.5(a)	Differentiate between dry adiabatic lapse rate and environmental lapse rate.	[2]	3	5
Q.5(b)	Identify the following plume behaviour and comment on their lapse rate conditions and meteorological conditions.	[3]	3	5

Fig. 1

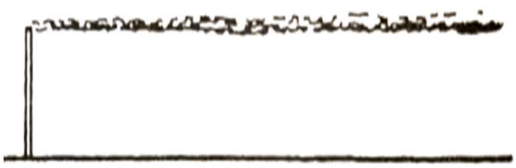

Fig. 2

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