BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

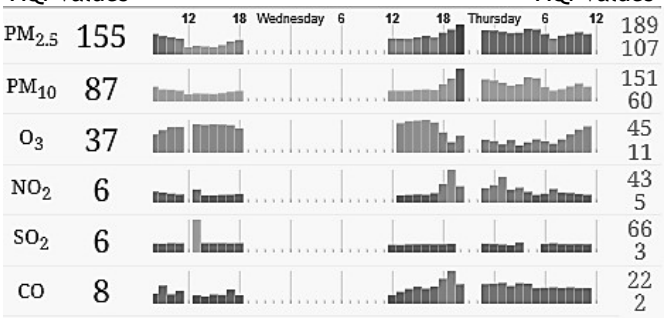
CLASS: B.Tech **SEMESTER : IVTh**
BRANCH: Civil **SESSION : SP/2025**

SUBJECT: CE420 AIR POLLUTION AND CONTROL

TIME: 3 Hours **FULL MARKS: 50**

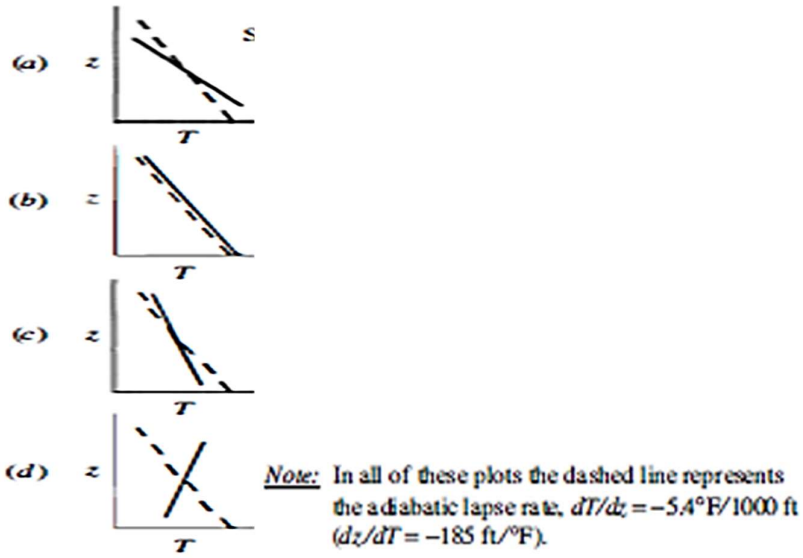
INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q.1(a)	i) 'Ambient air pollution exist in all scales', justify the statement by explaining the scales of air pollution. ii) Explain the concept of aerodynamic diameter of particulate matter.	[3+2]	1	2
Q.1(b)	Describe the sources and effects of six criteria air pollutants.	[5]	1	2
Q.2(a)	Explain the principle of sampling and analysis (by AAS and ICP-OES) of Lead, Nickel and Arsenic in particulate matter of ambient air.	[5]	2	2
Q.2(b)	i) Explain what is CAAQMS? ii)	[2+3]	1 and 2	2, 3



Interpret and explain the graph and determine what should be the AQI value on Wednesday and Thursday according to the given AQI values.

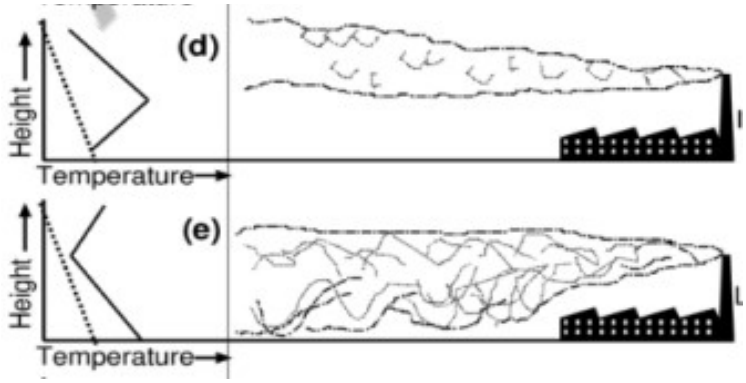
Q.3(a)		[5]	3	2



Identify the stability condition based on the DALR and ELR conditions and explain the above graphs.

PTO

Q.3(b)	A stack in and urban area is emitting 80g/s of NO. Effective stack height is 100m. Wind speed is 4m/s at height 10m. Estimate the ground level concentration at 2km downwind. Stability class B, p=0.15, σ_z =220, σ_y =290.	[5]	3	3
Q.4(a)	i) identify the following plume conditions and explain the reason of their behaviour.	[5]	3	2



Q.4(b)	Discuss the types of scrubbers used to remove particulate matters and gases from the flue gases.	[5]	4	2
Q.5(a)	Explain the necessity of fluidized gas desulphurization in coal industries.	[5]	4	2
Q.5(b)	Explain how an internal combustion engine works and write what are the emission sources in a vehicle which contributes to ambient air pollution.	[5]	5	2

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