Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

VI SEMESTER B.TECH (CIVIL ENGINEERING)

END SEMESTER EXAMINATIONS, MAY/JUNE 2022

SUBJECT: AIR POLLLUTION AND CONTROL [CIE 4055]

REVISED CREDIT SYSTEM

(_ / / 2022)

Time: 3 Hours Max. Marks: **50**

Instructions to Candidates:

- Answer ALL the questions
- Missing data may be suitably assumed
- Draw neat sketches wherever necessary

Q.No		Marks	CO
1A.	What are primary and secondary air pollutants? Explain the different classification of air pollutants based on the sources with suitable examples.	05	1
1B.	Illustrate with neat sketches the different types of inversion.	03	2
1C.	Define lapse rate and dry adiabatic lapse rate	02	2
2A.	Explain the reactions involved in the formation of Photochemical Smog in the atmosphere.	05	1
2B.	Explain with neat sketches any three types of plume behavior under non uniform lapse rate.	03	2
2C.	What causes plume rise and what is the center line of the plume known as?	02	2
3A.	An Industrial plant of 500 MW is to be built using a stack to disperse the effluent. The stack radius and height is 2m & 60m respectively. The stack exit velocity is 14m/sec & exit temperature is 290°F. Calculate the plume rise and effective stack height for a neutral atmosphere with wind speed of 10miles/h. The ambient temperature is 60°F.	05	2
3B.	Explain the filtration method and laboratory analysis of ambient air sampling of suspended particulate matter.	03	3
3C.	Explain with a neat sketch the construction and working of a dust-fall jar.	02	3
4A.	Explain in detail with neat sketches isokinetic and non-isokinetic stack sampling of particulate matter pollutants.	05	3
4B.	Illustrate with a neat sketch the construction and working of a cyclone separator	03	4
4C.	Write a note on wind rose diagram.	02	5
5A.	Explain any five factors to be considered for industrial plant location to prevent air pollution.	05	5
5B.	Discuss the phenomenon and effects of Acid rain.	03	4
5C.	What do you mean by AQI and how is it measured?	02	5