

MANIPAL INSTITUTE OF TECHNOLOGY

A Constituent Institution of Manipal University

## IV SEMESTER B.TECH. (CIVIL ENGINEERING) END SEMESTER EXAMINATIONS, MAY/JUNE 2017

## SUBJECT: AIR AND NOISE POLLUTION [CIE 3284]

## REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

## Instructions to Candidates:

- ✤ Answer ALL the questions.
- ✤ No tables are allowed.
- Missing data may be suitable assumed.

QNo	Questions	Marks	СО
1A.	Explain the impact of oxides of carbon on the environment.	4	1
1B.	Derive the expression to find pollution concentration of a point P lying above the center line of the plume as per Gaussian dispersion model.	4	2
1C.	List the various norms laid out in National Air Act (1981).	2	4
2A.	Describe with details on the effect of air pollution on human	3	1
2B.	Define air quality index. State the objectives laid out for the same.	5	4
2C.	Determine the effective stack height when gas emitted has a stack exit speed of 15 m/s, Wind speed 5 m/s, stack dia is 3 m and a heat emission rate of 3000 KJ/s. Atmospheric condition is neutral.	2	2
3A.	Explain RDF method of incineration with neat sketch.	3	3
3B.	Explain various method to treat Air pollution control residues.	3	3
3C.	Distinguish between UV fluorescence and Chemiluminiscence with a neat flowchart of the process.	4	3
4A.	Explain the working of an electrostatic precipitator with neat sketch. Also find the migration velocity for an existing electrostatic precipitator, which the collection plate area is 110 m <sup>2</sup> , gas flow rate is 2.5 m <sup>3</sup> /s and collection efficiency is 99.5%	5	3
4B.	Explain the various technical measures to control vehicular air pollution	5	1
5A.	List the principles of noise measurement with examples.	4	5
5B.	Explain the following acoustic concept- infrasound, ultrasound, sound reduction coefficient.	3	5
5C.	Explain the impact of Asbestos and radon in indoor air pollution. Also explain pressurization system in case of smoke during fire emergency.	3	1