B.Tech IV Year I Semester (R15) Regular Examinations November/December 2018

AIR POLLUTION & QUALITY CONTROL

(Civil Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Write about aerosols.
(b) Write any two effects of air pollutions on plants.
(c) Write about air-fuel ratio's in the thermodynamics of air pollution.
(d) What are the meteorological properties that influence the plume dispersion?
(e) List out the advantages of cyclones with respect to the collection of particulate matter.
(f) What is fumigation type of plume behavior? Draw a rough diagram.
(g) List out the different methods of control of gaseous pollutants.
(h) Differentiate between absorption and adsorption.
(i) Write about ambient air quality standards.
(j) What do you mean by air pollution index?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 (a) What are the classifications of pollutants? Write briefly.
(b) What are the sources of air pollution?

OR

3 (a) List out the industries that cause major air pollution problems.
(b) Explain with a neat sketch the mechanism of action of air pollutants on human beings.

UNIT – II

4 (a) Discuss the thermodynamics and kinetics of SO_x formation and removal
(b) Discuss the thermodynamics of NO to NO_2 conversion.

OR

5 (a) Describe with neat sketches, how different atmospheric conditions give rise to different kinds of plumes.
(b) Define a wind rose. Explain the importance of wind roses in air pollution studies.

UNIT – III

6 (a) Explain how the plume rise is estimated.
(b) Write about Gaussian model for plume dispersion.

OR

7 (a) Explain the main purpose of a scrubber. Differentiate between dry and wet scrubbers.
(b) Write short notes on control of particulates at sources.

UNIT – IV

8 (a) Explain the general methods of control of sulphur oxides.
(b) Explain the dry methods of removal of gaseous pollutants.

OR

9 (a) Explain the in-plant control measures of nitrogen oxides.
(b) Explain the wet methods of recycling of gaseous pollutants.

UNIT – V

10 (a) In which year was the air pollution act introduced? Explain the main objectives of this act.
(b) Explain the sampling technique and analysis of sulphur dioxide with neat sketch.

OR

11 (a) Explain the mechanism of high volume air sampler with neat sketch and what air pollutants that are collected by high volume sampler.
(b) Explain what do you mean by air quality standards.