

R13

Code No: 117AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, April/May - 2018

AIR POLLUTION AND CONTROL

(Common to CE, CEE)

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A

(25 Marks)

- 1.a) Define air pollution.
- b) Write about scope of air pollution.
- c) List out the metrological factors influencing air pollution.
- d) What are the causes of inversion of atmosphere?
- e) What are the merits and demerits of scrubbers?
- f) What is the principle of cyclone separator?
- g) Define adsorption and absorption.
- h) What is combustion?
- i) Define air quality standards.
- j) What are single and multiple standards?

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PART-B

(50 Marks)

- 2.a) What are the types and sources of particulate matter causing air pollution? Briefly explain them.
- b) Classify air pollutants into different categories, indicating their sources.

[5+5]

- OR**
- 3.a) Distinguish between primary and secondary air pollutants.
 - b) Explain the effects of air pollutants on vegetation and material.

[5+5]

- 4.a) Explain the role of meteorological elements in the dispersion of air pollutants in the atmosphere.
- b) Distinguish between adiabatic lapse rate and environmental lapse rate.

[5+5]

- OR**
5. Write explanatory notes on:
 - a) Estimation of plume-rise
 - b) Calculation of stack height.

[5+5]

- 6.a) Write a note on electrostatic precipitators.
b) Explain the terms: dry and wet scrubbers with a neat diagram. [5+5]

OR

- 7.a) List the various types of collection equipments for particulates.
b) What are the advantages and disadvantages of settling chambers? Give their applications. [5+5]

- 8.a) Mention the common methods of control of gaseous contaminants and give any one of them in detail.
b) Write a note on the importance of activated carbon as an adsorbent. [5+5]

OR

- 9.a) What are the factors to be considered in the design of incinerators? Write limitations of this process.
b) Distinguish between packed tower and plate tower. [5+5]

- 10.a) Explain what do you understand by air quality standards.
b) Give the Indian air quality standards for residential and industrial areas. [5+5]

OR

- 11.a) What are the guidelines prescribed by the central board for minimum stack height in polluting industries? Discuss.
b) What are the standards for monitoring of SO_x , NO_x and CO ? Explain. [5+5]

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