

320874(20)

**B. E. (Eighth Semester) Examination,
Nov.-Dec. 2018**

(Old Scheme)

(Civil Engineering Branch)

AIR POLLUTION and CONTROL MEASURES

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : All units are compulsory. Question no. (a) of each unit is compulsory. Attempt any two question from (b), (c) and (d) of each unit.

Unit-I

- 1. (a) The list of industrial sources of air pollution and their emissions are given. Match the following : 2

- A. Ammonia
- B. Plating
- C. Fertilizers
- 1. Carbon monoxide
- 2. Particulars
- 3. Metal fumes

The correct order is :

- (a) A-1, B-2, C-3
- (b) A-3, B-2, C-1
- (a) A-1, B-3, C-2
- (a) A-3, B-1, C-2
- (b) Define air pollution. Give classification of it. What are the major sources of air pollution discuss it with suitable examples? 7
- (c) Define stack gases. What are the major component present in it? Explain the sampling techniques for measurement of stack gases. 7
- (d) Write short notes (n) : (any two) 7
 - (i) Difficulties found during sampling
 - (ii) Sampling of SPM
 - (iii) Characteristics of air pollutants

Unit-II

2. (a) The effective height of stack is given by : 2
- (i) Plume height / Actual height of the stack
 - (ii) Plume height * Actual height of the stack
 - (iii) Plume height - Actual height of the stack
 - (iv) Plume height + Actual height of the stack
- (b) What is meant by Plum behaviour? Define lapse rate. Draw sketch and explain any four types of plume behaviour and relate each to with atmospheric conditions. <http://www.csvtuonline.com> 7
- (c) Name the mathematical model which is used to estimate the concentration of pollutants at a point at some distance from the source of emission. What are the basic features of this models? Explain it with neat sketch and appropriate formula. 7
- (d) Write short notes on : (any two) 2
- (i) Problems on GPM
 - (ii) Topographical effects on pollution
 - (iii) Wind roses

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Unit-III

3. (a) X-ray films are a source of which of the following gas? 2
- (i) SO₂
 - (ii) CO₂
 - (iii) NO₂
 - (iv) SO₃
- (b) How SO_x is formed? What are the major sources of SO_x? Discuss effective techniques to control it. Write its effect with reference to the human health. 7
- (c) What do you meant by the distribution of particulate size? Write their collection and removal mechanics in detail. 7
- (d) Write short notes on : 7
- (i) Effect of NO_x in Living organism
 - (ii) NO_x Emission sources

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Unit-IV

4. (a) Which of following is produced when electrical discharges pass through oxygen in air? 2

- (i) CFC_s
- (ii) Methane
- (iii) Ozone
- (iv) Lead compounds

- (b) How air pollution is dangerous for human life? Write a complete essay on major air pollution disaster episodes and its effects. 7
- (c) Give reason, Why Taj Mahal is facing problem in India because of Mathura Refinery? Write the mechanism of deterioration of Taj Mahal and mention the steps taken by Government of India to prevent it? 7
- (d) Write short notes on : 7
- (i) Diseases caused by air pollution
 - (ii) Symptoms of chronic effect of air pollution

Unit-V

5. (a) Which gas is mainly produced due to incomplete burning of wood? 2
- (i) CO
 - (ii) SO₂

- (iii) NO₂
- (iv) NO_x

- (b) Define acid rain? How acid rain is formed and how many types of it? Write complete information of it along with its effects on living organisms. 7
- (c) What is Green House Effect? What are the major gases responsible for it? Explain its mechanism? Discuss its adverse effect of green house effect on plant and animal life. 7
- (d) Write short notes on : (any two) 7
- (i) Air quality criteria and emission standars
 - (ii) Ozone depletion
 - (iii) Indian air Quality standard for Residential, Industrial and Sensitive area

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