

CBCS SCHEME

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15CV/CT551

Fifth Semester B.E. Degree Examination, June/July 2018 Air Pollution and Control

Time: 3 hrs,

Max. Marks: 80

Note: 1. Answer any FIVE full questions, choosing one full question from each module.
2. Assume the required data if necessary.

Module-1

- 1 a. Explain the classification of air pollutants. Give examples. (08 Marks)
b. Explain effects of air pollutants on plants. (08 Marks)

OR

- 2 a. With a neat sketch, explain inversion occurs due to high pressure system. (06 Marks)
b. Define : (i) Fog, (ii) Mists (iii) Smoke (iv) Soot (04 Marks)
c. Explain the effects of carbon monoxide on human beings. (06 Marks)

Module-2

- 3 a. Define DALR and ELR. (02 Marks)
b. Calculate the minimum stack height required for a thermal power plant which burns 100 tonnes of coal with 5.5% Sulphur content. The particulate concentration in flue gases is 8000 mg/m³ and gas flow rate is 20 m³/s. (08 Marks)
c. Explain the application of wind rose diagram. (06 Marks)

OR

- 4 a. A thermal plant burns 5.45 tonnes with 4.2% sulphur per hour and discharge through a stack of effective height 75 m. The average wind speed at top of stack is 6 m/s. Atmosphere is slightly to moderately stable. Find Ground Level Concentration (GLC) at 3 km downwind and 0.4 km crosswind distance. Take $\sigma_z = 170$ and $\sigma_y = 280$. (08 Marks)
b. With neat sketches, explain different types of plume behavior. (08 Marks)

Module-3

- 5 a. With neat sketches, explain the components of sampling train. (10 Marks)
b. Explain the gravitational method for estimating particulate matter. (06 Marks)

OR

- 6 a. Explain the factors influencing indoor air quality. (06 Marks)
b. With a neat sketch, explain Pollution Standard Index (PSI). (06 Marks)
c. What is meant by super Isokinetic sampling? (04 Marks)

Module-4

- 7 a. With a neat sketch, explain the working of cyclones in particulate removal. (08 Marks)
b. Calculate the settling velocity of fog with a particle size of 1 μm . (08 Marks)

OR

- 8 a. With a neat sketch, explain working principle of electrostatic precipitator. (10 Marks)
b. A fabric filter is to be constructed using bags of 0.3 m in diameter and 6 m long. The bag house is to receive 800 m³/min of air. Determine the number of bags required for cleaned operation. (06 Marks)

Module-5

- 9 a. Explain the types of emissions due to automobiles. (09 Marks)
b. How noise can be reduced at source? Explain. (07 Marks)

OR

- 10 a. Define acid rain. Explain the sources and effects of acid rain. (08 Marks)
b. List Air Pollution Control Acts. (04 Marks)
c. Explain the reason for Bhopal gas tragedy. (04 Marks)

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