

Model question paper

Seventh semester B Tech. Degree Examination

13.704.7 AIR QUALITY MANAGEMENT (Elective-I)

Time-3hours

Max.Marks-100

Part A

(Answer all questions. Each question carries 4 marks)

1. Discuss atmospheric inversion and its significance in air pollution.
2. Write a short note on effect of air pollution on vegetation.
3. Explain a sampling train for ambient air sampling.
4. What are the factors affecting selection of a suitable particulate matter control equipment?
5. Enumerate ambient air quality standards adopted in India.

(4x5=20)

Module 1

(Answer any one full question from each module.Each full question carries 20 marks)

6. a. Discuss the effects of air pollutants on human health and atmosphere.
b.Explain The Air (Prevention and Control of Pollution) Act, 1981 of the Government of India.

(10+10)

Or

7. a.Write a short note on air quality emission standards.
b.Discuss various industrial processes causing air pollution.

(10+10)

Module 11

8. a. Discuss Box model for model for pollutant dispersion in atmosphere. What are its assumptions?

b. Derive the relation between temperature and altitude and explain its relation with atmospheric stability.

10+10

Or

9. (a). Bring out the assumptions made in the gaussian dispersion model of air pollutants.

(b). .A factory is emitting sulphur dioxide from a stack of effective height 250m at a rate of

500 g/s on a sunny day with moderate wind speed , 6 m/s at stack altitude. Estimate the total sulphur dioxide concentration at a point 1km downwind ,50m away from the centre line and 20m above the ground. Assume $\sigma_y = 151$ and $\sigma_z = 108$.

b.Discuss plume behavior and meteorological parameters which affects its pattern in detail. (8+12)

Module 3

10. a. What is indoor air pollution? How can you improve indoor air quality?

b.Discuss different analytical methods for the analysis of atmospheric samples.

(10+10)

Or

11. a.What is stack sampling? Explain its significance.

b.Discuss importance of Air Quality Index and its evaluation. (10+10)

Module 4

12. a.Discuss the various biological air pollution control techniques

b.List out common methods of control of gaseous pollutants from stack gases and explain. (10+10)

Or

13. a.Explain working of an electrostatic precipitator as an air pollution control device.

b.A cement plant has a 12 channel electrostatic precipitator to handle 20,000m³/hr of flue gas. The velocity of the particle is 0.1m/s and plate height 2m with a spacing 0.18m. Determine the plate length required or an efficiency of 90%. (10 + 10)
