



**B.E DEGREE EXAMINATIONS: APRIL/MAY 2016**

(Regulation 2013)

Sixth Semester

**CIVIL ENGINEERING**

U13CETE13: Air Pollution Management

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. The primary air pollutant which is formed due to incomplete combustion of organic matter is
  - a) methane
  - b) Sulphur di oxide
  - c) ozone
  - d) Carbon monoxide
2. Chemical that killed more than 3000 people of Bhopal is -----
3. During temperature inversion in atmosphere air pollutants tends to
  - a) Accumulate above inversion layer
  - b) Accumulate below inversion layer
  - c) Disperse laterally
  - d) Disperse vertically
4. Isobar means lines of constant -----
5. The device used to control both gaseous and particulate pollutants in industrial emissions is known as
  - a) cyclone
  - b) Spray tower
  - c) Dynamic precipitator
  - d) Fabric filter
6. Gravitation settling chambers cannot remove particles smaller than ---- microns
7. The temperature gradient of ambient air is called
  - a) Adiabatic lapse rate
  - b) Super adiabatic lapse rate
  - c) Environmental lapse rate
  - d) Dry adiabatic lapse rate
8. Every year the concentration of carbon dioxide is increasing in the troposphere at the rate of ---- to ----- ppm
9. The sound pressure level for a jet plane on the ground with sound pressure of 2000 m bar should be
  - a) 60 decibel
  - b) 100 decibel
  - c) 140 decibel
  - d) 180 decibel
10. Ambient air quality of SPM in residential zone is -----

**PART B (10 x 2 = 20 Marks)**  
**(Answer not more than 40 words)**

11. Mention the causes of air pollution?
12. What are the principles of sampling?
13. How wind speed is measured and represented?
14. Write various formulae for determination of plume rise.
15. Distinguish between combustion and condensation
16. Name the methods for particulate control
17. Give the definition of Air Quality Index.
18. What is the significance of Environment Act 1986?
19. List out the methods of noise pollution
20. Suggest the preventive measures for noise pollution in textile industry

**PART C (5 x 14 = 70 Marks)**  
**(Answer not more than 400 words)**

**Q.No. 21 is Compulsory**

21. (i) Calculate effective stack height of a plume which is coming from a 200m height stack of 1m diameter. The average wind velocity is 3 m/s. Ambient air temperature is 15°C and barometric pressure is 1050 millibars. The temperature and exit velocity of stock gas are 150°C and 9 m/s respectively. Use Holland formula for plume rise calculation (7)
  - (ii) Discuss the principle behind the analysis of SO<sub>2</sub> and write the procedure for its quantification (7)
  22. (a) Explain the following with neat sketches  
(i) Dry adiabatic lapse rate , inversion and subsidence inversion (7)  
(ii) Types of plume behaviour (7)
- (OR)**
- (b) (i) Discuss the principle, assumptions and evolution of Gaussian dispersion model. (7)
  - (ii) What is the significance of effective stack height and plume rise. (7)
23. With neat sketch explain following pollutant control methods:-  
(a) (i) Electro static precipitation. (7)  
(ii) Adsorption. (7)

**(OR)**

(b) Explain the causes of air pollution and control measures for following industry

(i) Automobile industry (7)

(ii) Cement industry (7)

24. (a) Discuss in detail about air pollution legislation and regulations

**(OR)**

(b) Give the air quality standards for various pollutants for ambient air and for industrial exposure (7)

Give a brief measure about the need for air pollution control (7)

25. (a) Explain the following:

(i) Sources and effects of noise pollution (10)

(ii) Standards of noise pollution (4)

**(OR)**

(b) Discuss the control methods and preventive measures of noise pollution for any two industries

\*\*\*\*\*