

Question Paper Code : 91202

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B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Seventh Semester

Civil Engineering

CE 2038/CE 713 — AIR POLLUTION MANAGEMENT

(Regulation 2008/2010)

(Common to PTCE 2038 — Air Pollution Management for B.E.
(Part-Time) Sixth Semester — Civil Engineering — Regulation 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Name any two effects on plants and also pollutant responsible.
2. List out air pollutants responsible for ozone layer depletion.
3. What are wind roses? State uses.
4. What do you mean by inversion?
5. Define "drift velocity".
6. What are particulates removal mechanisms in filters?
7. What are the advantages of scrubbers?
8. What are industrial exposure standards? State the recommendation for SO₂.
9. What are grab samples? When are they used?
10. Identify the primary sources of environmental noise.

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PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the effects of CO, SO₂ and heavy metals on human being. (10)
(ii) List out the methods for quantitative analysing of air pollutants. (6)

Or

- (b) (i) Discuss the global warming-pollutants responsible, their sources and impacts. (10)
(ii) Briefly explain the methods of sampling for gaseous pollutants. (6)
12. (a) Explain the factors influencing the atmospheric dispersion of air pollutants.

Or

- (b) (i) Explain the Guassian plume model, assumptions made and its limitations. (10)
(ii) A boiler with stack height of 190 m and 0.4 m diameter is releasing flue gas a velocity of 16 m/s at a temperature of 160°C. The wind speed at the stack height is 6 m/s and ambient temperature is 35°C. Estimate the plume rise when the environmental lapse rate is + 2°C/100 m. (6)
13. (a) (i) Draw the cyclone showing the design proportions and explain its working principle, advantages and limitations. (10)
(ii) Briefly describe the collection mechanism take place in a scrubber. (6)

Or

- (b) (i) With a neat sketch, explain the principle, construction and working of an electrostatic precipitator. (10)
(ii) Make a note on air pollution control by process change and raw material change. (6)
14. (a) (i) Explain the air pollution control efforts made in our country. (10)
(ii) Make a note on air quality standard for ambient air and for industrial exposure. (6)

Or

- (b) Explain how will you do evaluation of existing ambient air quality conditions and also carrying out impact assessment in an area where EIA is conducted.

15. (a) (i) Explain how does the noise exposure cause ill effects on human. (10)
(ii) List out the air pollutant sources and control measures carried out in petroleum refining unit. (6)

Or

- (b) (i) Explain the noise control methodologies. (10)
(ii) Make a note on pollution control measures in a thermal power plant. (6)