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B.E. / B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2014

CIVIL ENGINEERING BRANCH

SEVENTH SEMESTER

CE 9050 AIR POLLUTION CONTROL

(REGULATIONS - 2008)

Time: 3 hours **Answer All Questions** **Max.Marks: 100**

Instructions

(i) Part A carries a maximum of 20 marks and Part B carries a maximum of 80 marks
(ii) All questions in Part A carries 2 marks each and all question in Part B carries 16 marks each
(iii) Make suitable assumptions wherever necessary and state them clearly.

PART A (10X2 = 20 Marks)

1. Distinguish between primary and secondary air pollutants.
2. What are emission standards?
3. What is dry adiabatic lapse rate?
4. Name any two meteorological factors, which have great effect on air pollutant transportation?
5. Differentiate between physical and chemical adsorption.
6. Name the four key factors affecting the efficiency of combustion as a pollution control device.
7. What are the two broad approaches to control air pollution emissions?
8. What are wet scrubbers?
9. List out the contaminants present in tail pipe emissions of automobiles.
10. What are the properties of noise?

PART B (5X16 = 80 Marks)

11. Explain the various types of stack plume behaviour with respect to stability of atmosphere.

12.a) What are the major sources of air pollution and discuss the major type of pollutants produced by each source.

(OR)

b) Explain in detail the adverse effects of air pollution on vegetation and human health.

13.a) What are the principal gases of concern in air pollution control? Explain the four primary types of treatment processes available for control of gaseous contaminant?

(OR)

b) i) Calculate the minimum size of the particle that will be removed with 100% efficiency from a settling chamber under the following conditions.

Air: Horizontal flow velocity is 0.3 m/s, Temperature is 77°C
Particle: Specific gravity is 1.9
Chamber: length is 7.5m, height is 1.5m
Viscosity of air at 77° C is $2.1X10^{-5}$ kg/m.s (6)

ii)Explain the working principle of biofiltration technique for VOC control with the help of a near sketch. (10)

14.a) With the help of a neat sketch, explain the working principle of an electrostatic precipitator.

(OR)

b) i). Briefly explain the working of high efficiency particulate air filter. (6)

(ii). Discuss the major techniques adopted to control emissions from automobiles. (10)

15. a)i) Discuss the various sources of indoor air pollution and explain the control measures. (10)

ii) Briefly describe the adverse effects of noise pollution (6)

(OR)

b) Enumerate with examples the major sources of noise pollution. What measures can be taken to prevent noise pollution?

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