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Question Paper Code: 59111

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Elective

Civil Engineering

15UCE911- AIR POLLUTION MANAGEMENT

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The conditions for formation of Photochemical Smog are CO1- R
(a) Air Stagnation (b) Abundant sunlight
(c) High concentration of hydrocarbon (d) All of the above
2. The minimum size of smoke particle is CO1- R
(a) 0.2 μ m (b) 1 μ m (c) 0.8 μ m (d) 0.5 μ m
3. The permissible concentration of PM 10 in the air is CO2- R
(a) 60 μ g/m³ (b) 40 μ g/m³ (c) 50 μ g/m³ (d) 20 μ g/m³
4. Phenomenon in which pollutant that are emitted into atmosphere are brought rapidly to ground level when air destabilizes is called CO2- R
(a) Fumigation (b) Lofting (c) Trapping (d) Coning
5. Identify the correct statement regarding Electrostatic precipitator. CO3- R
(a) Minimum particle size removal is <0.5 μ m
(b) They can be operated at high temperature
(c) It has low maintenance cost
(d) It does not cause any freezing problem

6. When environmental Lapse Rate (ELR) is less than Adiabatic Lapse Rate (ALR), then which of the following occurs? CO3- R
- (a) Sub adiabatic lapse rate (b) Super adiabatic lapse rate
(c) Neutral lapse rate (d) Adiabatic lapse rate
7. Which of the following catalyst is used for removing hydrocarbon from gaseous pollutant in combustion unit? CO4- R
- (a) Platinum (b) Activated alumina
(c) Vanadium (d) Potassium permanganate
8. The effectiveness of catalytic combustion reduces by particulate matter present in the Gases and fumes, this is due to----- CO4- R
- (a) Coating (b) Scouring (c) eroding (d) Corrugation
9. Non-Dispersive Ultraviolet (NDUV) analysers are primarily used to detect which of the following two gases? CO5- R
- (a) Oxygen and Carbon Dioxide (b) Oxygen and Nitrogen Dioxide
(c) Nitrogen Dioxide and Sulphur Dioxide (d) Sulphur Dioxide and Oxygen
10. At what decibel does a healthy human ear responds as painful CO5- R
- (a) ZerodB (b) 100-110dB (c) 130-140dB (d) 50dB

PART – B (5 x 2= 10 Marks)

11. Define air pollution. CO1- R
12. What is Wind rose diagram? CO2- R
13. Explain the principle of filtration method used for particulate sampling? CO3- R
14. Define Zoning. CO4- R
15. How can we prevent noise pollution? CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) Explain Global Warming and acid rain with neat diagram CO1-U (16)
- Or
- (b) (i) Write the ambient air quality standards as per CPCB? CO1-U (8)
- (ii) What is isokinetic sampling? What all are the conditions for isokinetic sampling? CO1-U (8)
17. (a) List and explain the important meteorological parameters that influences air pollution. CO2-U (16)

Or

- (b) What is a Plume? Depending on the environmental lapse rate, explain the behaviour and dispersion of a plume. CO2-U (16)
18. (a) How is the particulate emission control obtained? Explain the working of Electrostatic precipitator in detail. CO3-U (16)
- Or
- (b) Explain with the help of neat sketch the working principle of Electrostatic precipitator. What are factors influencing its performance. CO3-U (16)
19. (a) Explain ambient air quality standards and emission standards. CO4-U (16)
- Or
- (b) Illustrate the Town planning regulations of new industries CO4-U (16)
20. (a) Explain the sources and their harmful effects of Noise pollution CO5-U (16)
- Or
- (b) List and explain the various noise pollution control methods. CO5-U (16)

