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Question Paper Code: U9174

B.E. / B.Tech. DEGREE EXAMINATION, APRIL / MAY 2025

Open Elective

Civil Engineering

21UCE974 – AIR POLLUTION AND CONTROL ENGINEERING

(Regulations 2021)

(Common to All Engineering branches)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Photochemical smog comes under which scales of air pollution? CO1- U
(a) Micro scale (b) Meso scale (c) Macro Scale (d) Global Scale
2. Which of the following is a secondary pollutant CO1- U
(a) Ozone (b) carbon monoxide
(c) nitrogen dioxide (d) Nitrogen
3. The stability of air is measuring the _____ of the atmosphere at various heights CO1- U
(a) Temperature (b) Atmospheric layers (c) Unstable air (d) Stable air
4. Plume is an emission and dispersion of CO1-U
(a) smoke (b) . Vapor
(c) smoke or vapor (d) None of these
5. Which of the following is not natural source of PM emission? CO1-U
(a) Volcano (b) Wind storm (c) Automobiles (d) Forest fires
6. When the particulate is combustible or flammable, which type of control devices is used? CO1-U
(a) ESP (b) Cyclone separator (c) Wet Scrubber (d) Filtration

7. The transfer of gaseous component from the gas phase to liquid phase is known as ____ CO1-U
 (a) Absorbption (b) Condensation
 (c) Adsorption (d) biofiltration
8. When the particulate is combustible or flammable, which type of control devices is used? CO1-U
 (a) ESP (b) Cyclone separator (c) Wet Scrubber (d) Filtration
9. Exposure to noise pollution can cause CO1-U
 (a) Weakening if immune system (b) Speech interference
 (c) Respiratory problems (d) Skin Infections
10. Noise pollution is created if the noise is in excess of ____ CO1-U
 (a) 80 – 100 dB (b) 50-60 dB (c) 70- 75 dB (d) 40- 65 dB

PART – B (5 x 2= 10 Marks)

11. A smelting factory is located nearer to the city in Chennai. Give their effects on humans. CO1- U
12. List out the meteorological factors of air pollution. CO1- U
13. What is the main objective using air pollution control device? CO1- U
14. Differentiate Thermal oxidation and catalytic oxidation. CO1- U
15. What are the factors influencing the intensity of traffic noise? CO1- U

PART – C (5 x 16= 80Marks)

16. (a) Justify the impacts of air pollution on visibility during the lockdown period in India.. CO1- U (16)
- Or
- (b) i) Explain the different AQI Coding system. (10) CO1- U (16)
 ii) Write about the different National Ambient Air Quality Standards for pollutants. (6)
17. (a) Discuss in detail about the concept of Temperature Inversion along with its types. . CO1- U (16)

Or

- (b) Briefly discuss about the various instruments to measure the meteorological parameters. CO1- U (16)
18. (a) A cement factory emits the particulate matter and hot gases which originate from its stack, and size of the particles exceeding $5\mu\text{m}$. This industry contains the waste water treatment plant also. Suggest the suitable control device is used for this industry, and explain its reason. CO4- Ana (16)
- Or
- (b) A flour mill has highly skilled labor for the functioning of industry. It emits lots of dried particulate matter and there are no very hot gases. Suggest the suitable control devices for this emission. CO4- Ana (16)
19. (a) Explain in detail about the principle, process, working, types and applications of absorption. CO1- U (16)
- Or
- (b) Explain about the operation and management plan to be adopted for bio scrubber process. CO1- U (16)
20. (a) (i) Write the sources of Indoor air pollution. CO1- U (16)
(ii) What are the symptoms of sick building syndrome?
- Or
- (b) (i) Explain the methods to control noise pollution in an industrial area. CO1- U (16)
(ii) Write the effects of noise pollution.

