

Branch – ENVIRONMENTAL SCIENCE

AIR POLLUTION AND MANAGEMENT

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The third most abundant gas in earth's atmosphere is a) CO ₂ b) Argon c) Neon d) O ₃	K1	CO1
	2	Atmospheric stability is associated with a) Humidity b) Density of air c) Pressure at the earth's surface d) Rate of temperature change with altitude	K1	CO1
2	3	The most potent greenhouse gas is a) CO ₂ b) O ₃ c) N ₂ O d) SF ₆	K2	CO2
	4	Paris Agreement aims to a) To reduce CO ₂ emissions by 40% b) Control methane emissions by 50% c) control CFC emissions d) to limit global average temperature rise to below 2°C above pre-industrial levels Agenda 21	K2	CO2
3	5	The Griess-Saltzman method is used to estimate _____ a) NO ₂ b) PM 2.5 c) CO d) SO ₂	K1	CO3
	6	Which one of the following gas is not a key component of AQI? a) NO ₂ b) NH ₃ c) CO ₂ d) SO ₂	K2	CO3
4	7	The most effective air pollution control technique for the cement industry is a) Fabric filter b) Cyclone filter c) Electrostatic precipitator d) Scrubber	K1	CO4
	8	Flue gas desulfurization involves a) Zeolite b) Sandstone c) Clay d) Limestone	K1	CO4
5	9	Identify the PAH a) Pyrene b) Gasoline c) Dibenzofuran d) Diethyl phthalate	K2	CO5
	10	Which one of the following is not a key factor in line source model? a) Emission Rate b) Wind c) Terrain features d) Turbulence	K2	CO5

Cont...

Module No.	Question No.	Question	K Level	CO
1	11.a.	Analyze the concept of atmospheric stability and its implications for pollutant dispersion with clear diagrammatic representation.	K4	CO1
		(OR)		
	11.b.	What is temperature inversion? Classify its types and effects on atmospheric pollution dispersion.		
2	12.a.	Why POPs is global environmental issue?	K4	CO2
		(OR)		
	12.b.	Demonstrate the conditions and formation of photochemical smog.		
3	13.a.	Discuss the principle and the instrumentation for stack emission monitoring. What are the key parameters measured?	K5	CO3
		(OR)		
	13.b.	Elucidate the WHO guidelines for Air Quality.		
4	14.a.	Explain the working principles of gravitational settling chambers and cyclone separators. Compare their efficiencies.	K5	CO4
		(OR)		
	14.b.	Justify the competitive edge using biofiltration, bioscrubbers and biofilters over other methods.		
5	15.a.	Compile the functioning of internal combustion engines and the concept of stoichiometric air-fuel ratio in relation to emissions.	K6	CO5
		(OR)		
	15.b.	What are limitations in switching over to electric vehicles?		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain in detail natural purification mechanisms of the atmosphere. How do environmental and adiabatic lapse rates affect pollutant dilution?	K4	CO1
2	17	How dioxin can be more harmful to health and list out the sources for dioxin in the atmosphere with emphasis to India.	K4	CO2
3	18	Enumerate the impact of noise and vibrations on human health. How can noise pollution be controlled using active and passive methods?	K5	CO3
4	19	Discuss the working principle of Electrostatic precipitator and its limitations.	K5	CO4
5	20	Elaborate the green belt development guidelines by CPCB.	K6	CO5

Z-Z-Z END