

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(First Semester)

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 force which deflect the wind to its right in Northern Hemisphere is known as a) Pressure Gradient Force b) Coriolis Force c) Gravitational Force d) Buoyant Force	K1	CO1
	2	Plume behavior during unstable atmosphere is a) Looping Plume b) Coning Plume c) Fumigation d) Fanning Plume	K2	CO1
2	3	Which one of the following is a non-criteria pollutant? a) SO ₂ b) CO c) Benzene d) PM ₁₀	K1	CO2
	4	Which one of the following is not a primary pollutant? a) Carbon monoxide b) Nitrogen dioxide c) Sulfur dioxide d) Hydrogen sulfide	K2	CO2
3	5	Respirable particulate matter are the particulates whose size is less than a) 10 μm b) 20 μm c) 25 μm d) 100 μm	K1	CO2
	6	L _{eq} refers to a) Equal Noise Level b) Equivalent Noise Level c) Equity Noise Level d) Equational Noise Level	K2	CO3
4	7	Which of the sequence is right in the descending order in terms of efficiency of controlling particulates? a) Gravitational Settling chamber, Cyclone, Fabric filter b) Cyclone, Fabric Filter, Gravitational Settling Chamber c) Fabric Filter, Gravitational Settling Chamber, Cyclone d) Fabric Filter, Cyclone, Gravitational Settling Chamber	K1	CO4
	8	Venturi Scrubbers in control of gaseous contaminants function under the principle of a) Adsorption b) Absorption c) Condensation d) Combustion	K2	CO4
5	9	Vehicles combining two or more distinct power source for propulsion are known as a) Internal Combustion Engine Vehicles b) External Combustion Engine Vehicles c) Electronic Vehicles d) Hybrid Vehicles	K1	CO5
	10	Plume rise is represented as a) Δh b) h c) r d) p	K2	CO5

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Explain the plume behavior under inversion with diagram.	K5	CO1
	(OR)			
	11.b.	Relate the mixing depth and air pollution potential.		

Cont...

2	12.a.	Distinguish between criteria and non-criteria air pollutants with examples.	K4	CO2
	(OR)			
	12.b.	List the sources and types of indoor air pollutants.		
3	13.a.	Compare and comment on EPA Standards with Indian NAAQS – 2019 .	K5	CO2
	(OR)			
	13.b.	Explain the prescribed procedure for sampling and measuring PM ₁₀ in the ambient atmosphere.		
4	14.a.	List the types of fabric material used in a baghouse depending on the characteristics of emissions.	K4	CO4
	(OR)			
	14.b.	Compare adsorption and condensation techniques in control of gaseous contaminants.		
5	15.a.	Classify the types of hybrid vehicles.	K4	CO5
	(OR)			
	15.b.	Examine the beneficial aspects alternate fuels for internal combustion engines.		

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 the steps involved in preparation of wind rose and its significance in air pollution studies.	K5	CO1
2	17	Explain the mechanism involved in formation of photochemical oxidants in the atmosphere.	K5	CO2
3	18	Explain in detail the prescribed noise monitoring procedure, presentation of data and inference of the results.	K5	CO3
4	19	Compare working principles of a scrubber and an ESP and recommend a suitable device for control of particulates in a petroleum refinery.	K5	CO4
5	20	Explain in detail the control strategies and methods of vehicular emissions.	K5	CO5

Z-Z-Z

END