

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MSc DEGREE EXAMINATION MAY 2025
(Fourth Semester)

Branch - **CHEMISTRY**
ENVIRONMENTAL CHEMISTRY

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	Which layer of atmosphere consists of ozone naturally in large amounts? a) Troposphere b) Stratosphere c) Mesosphere d) Thermosphere	K1	CO1
	2	Name the abiotic component of ecosystem. a) Plants b) Animals c) Air d) Microorganisms	K1	CO1
2	3	Pick out the reagent that turns historical monuments yellow. a) Water vapour b) Methane c) Carbon dioxide d) Sulphur dioxide	K1	CO2
	4	Choose the particulate pollutant from the following. a) Fly ash b) Ozone c) Radon d) Carbon monoxide	K1	CO2
3	5	Which salt produces temporary hardness of water? a) Calcium bicarbonate b) Calcium sulphate c) Magnesium chloride d) Magnesium sulphate	K1	CO3
	6	What is the health effect of excess of fluoride in drinking water? a) Tooth ache b) Fluorosis c) Intestinal disease d) Lung disorder	K1	CO3
4	7	Identify the substance used most commonly as a coagulant for water treatment. a) Ferric sulphate b) Ferrous sulphate c) Ferric chloride d) Ferric alum	K1	CO4
	8	How many days should a water sample be incubated for BOD determination at 20° C? a) 9 b) 10 c) 5 d) 15	K1	CO4
5	9	Select the biodegradable waste from the following. a) Rotten fruits b) Bakelite c) PET bottles d) Polythene bags	K1	CO3
	10	Name the type of land pollution which makes land unsuitable for farming due to high salt content. a) Desertification b) Carbonization c) Oxygenation d) Salinization	K1	CO3

Cont...

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.	i. Outline the objectives and components of environmental management. (5) ii. Define Pollutant. Classify them based on nature and source. (2)	K2	CO1
	(OR)			
	11.b.	i. Illustrate the functioning of nitrogen cycle in ecosystem by a schematic diagram with reactions.(4) ii. Summarise environmental education programmes. (3)		
2	12.a.	i. CFC is not recommended to use in refrigerators. Justify the statement. (4) ii. Analyse how excessive greenhouse effect harm the atmosphere. (3)	K4	CO2
	(OR)			
	12.b.	i. List out the harmful effects of automobile pollution and control measures. (4) ii. Write the photolytic cycle of NO ₂ . (3)		
3	13.a.	i. Evaluate the problems created by disease causing agents in water. (4) ii. Explain the sources and effects of river water pollution.(3)	K5	CO3
	(OR)			
	13.b.	Estimate the extent of thermal pollution caused by power plants. Explain the preventive measures and measurement of thermal pollution.		
4	14.a.	Distinguish between clark's and ion exchange water treatment processes.	K5	CO4
	(OR)			
	14.b.	i. Prove that activated sludge process treat sewage water effectively. (5) ii. Analyse the role of water flocculants. (2)		
5	15.a.	i. Explain how agricultural activities introduce metallic and chemical pollutants to soil. ii. Assess how urban wastes pollute soil.	K5	CO3
	(OR)			
	15.b.	Compare somatic and genetic effects of pesticide pollution. How can those effects be controlled?		

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	Discuss various segments of environment in detail.	K6	CO1
2	17	i. Predict how photochemical smog is formed. Write about London smog. (5) ii. Elaborate the formation of acid rain and its effects. (5)	K6	CO2
3	18	Estimate the extent of water pollution due to eutrophication. What are the types, effects and how is it controlled?	K6	CO3
4	19	How will you improve the quality of sewage water by reverse osmosis and electro dialysis methods?	K6	CO4
5	20	Discuss the sources and types of solid wastes. Explain various disposal methods in detail	K6	CO3