

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2024
(Second Semester)

Branch – ENVIRONMENTAL SCIENCE

WATER 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	Which factor primarily contributes to the contamination of surface water in India? a) Strict regulations on industrial waste disposal b) Limited agricultural runoff due to sustainable farming practices c) Inadequate sanitation facilities and untreated sewage discharge d) Effective management of chemical pollutants from urban areas	K1	CO1
	2	What role does groundwater play in sustaining ecosystems during dry periods? a) It facilitates erosion and sedimentation processes b) It ensures water availability for plant root systems c) It provides a constant source of water for irrigation d) It accelerates the process of nutrient leaching	K2	CO1
2	3	What is the significance of measuring the presence of coliform bacteria in water samples? a) Potential contamination by faecal matter b) Reflective of low nutrient levels c) Presence of heavy metals d) High levels of dissolved oxygen	K2	CO2
	4	What biological mechanism contributes to the self-purification of water bodies by consuming organic pollutants? a) Photosynthesis b) Decomposition by bacteria c) Sedimentation of particulate matter d) Oxidation of metals	K2	CO2
3	5	Which of the following is a typical method used for tertiary treatment of wastewater? a) Screening b) Sedimentation c) Filtration d) Disinfection	K1	CO3
	6	Which of the following is a characteristic of untreated sewage? a) High clarity b) Low microbial content c) Foul odour d) Neutral pH	K2	CO3
4	7	Choose the primary function of ion exchange in water treatment. a) Removing dissolved ions from water b) Removing suspended solids c) Adding minerals to water d) Increasing the water's pH	K2	CO4
	8	Find one common method employed for sewage sludge treatment from the following. a) Pumping b) Anaerobic digestion c) Venting d) Parsing	K1	CO4

Cont...

5	9	Extend CETP. a) Controlled Effluent Treatment Plant b) Composite Effluent Treatment Plant c) Common Effective Treatment Plant d) Common Effluent Treatment Plant	K2	CO5
	10	Who benefits from water reuse and recycling practices? a) Only industrial corporations b) Only environmental organizations c) Both industries and communities d) Only governmental agencies	K1	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.	List the uses of water for various purposes.	K4	CO2
	(OR)			
	11.b.	Compare the characteristics of surface water and sea water.		
2	12.a.	Analyze the impact of point source and non-point source pollutants to environment.	K4	CO3
	(OR)			
	12.b.	Classify the factors affecting natural purification in rivers.		
3	13.a.	Compare and contrast the drinking water quality standards outlined in IS 10500.	K5	CO4
	(OR)			
	13.b.	Evaluate the water softening process in drinking water purification.		
4	14.a.	Compare and contrast the effectiveness of chemical precipitation, and filtration.	K3	CO4
	(OR)			
	14.b.	Identify a sludge disposal technique based on environmental and economic implications.		
5	15.a.	Assess the efficiency and effectiveness of common effluent treatment plants (CETPs) in mitigating pollution from industrial wastewater.	K5	CO5
	(OR)			
	15.b.	Explain the steps involved in water audit.		

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 various strategies for rainwater harvesting.	K5	CO3
2	17	Discuss the source and impacts of eutrophication. How to overcome it?	K6	CO3
3	18	Illustrate the importance of drinking water standards in the urban and rural context.	K6	CO3
4	19	Compare and contrast the filtration technologies used for advanced wastewater treatment.	K5	CO4
5	20	Explain the mechanism of membrane bioreactor in effluent treatment and their advantages and disadvantages.	K5	CO4