

JAMIA HAMDARD
Department of Chemistry
School of Chemical and Life Sciences (SCLS)
BSc Chemistry, Ist Semester (FYUP)
End term Examination 2025

Paper Name: Water treatment and Management

Paper Code: BCH-SEC-101

Time: 2.0 hours

Maximum Marks: 45

Note: This paper has 3 sections A, B, and C, Attempt all the three sections

Abbreviations Used: CLO- Course Learning Outcome, PLO- Program learning Outcome, BTL- Bloom Taxonomy Level: BT level 1-Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create

		BTL	CLO	PLO
PART A				
Short Answer type Question (10 x 1 = 10 marks)				
1	Define E-waste.	2	2-3	3
2	A solution has a hydrogen ion concentration of $[H^+] = 1 \times 10^{-5}$ mol/L. Calculate the pH of the solution.	3	2-3	3
3	A water sample weighing 500 mL was filtered and evaporated. The residue obtained after evaporation weighed 0.35 g . Calculate the Total Dissolved Solids (TDS) in the water sample in ppm .	3-4	3-4	3
4	Write the Structure of EDTA and justify its denticity	4	3-5	5
5	Write the Structure of 8-hydroxyquinoline and Dithizone	4	3-5	5
6	What is Acid rain?	2	2-3	3
7	Define Desalination.	3	2-3	3
8	What is the primary by-product of anaerobic digestion?	3	3-4	4
9	Arrange the following in order of their TDS: i. rain water, ii. Sea water, iii) River water and Glacier water	2	1-3	1-2
10	What is Brackish water.	2	1-3	2
PART B				
Long Answer type Question (Attempt Any 2) (2 x 10 = 20 marks)				
1	Discuss the main quality characteristics of water, including its physical parameters (color, turbidity, taste, odor, temperature) and chemical parameters (acidity, alkalinity, DO, BOD, COD). How are these characteristics measured, and why are they important?	3	4-5	3-5
2	a) Define DO, COD, and BOD and explain their significance in water quality assessment. b) What is potability of water, and why is it important to ensure water is potable?	2-5	2-6	2-6
3	Explain the detection of following elements in water sample: a) Hg b) Cd c) Fe d) Cl	2-5	2-5	3-6
4	Write Short note on: a) Colligative Properties b) Type of Titration Techniques c) Osmosis d) Reverse Osmosis	2-5	2-6	2-6
PART C				
Short Answer type Question (attempt all the questions) (3 x 5 = 15 marks)				
1	Explain the Gutzeit method for detecting arsenic in water, including the principle, reactions involved, procedure, and its importance in environmental monitoring. Or What is a lagoon, and how is it formed? What are the environmental and ecological roles of lagoons?	3-5 2-5	4 5	2-5 4
2	Differentiate between renewable and non-renewable environmental resources with examples. Or Write Short note: a) Nitrogen Fixation b) Hydrological Cycle	3-6 2-5	4 5	4 4
3	Define Hardness of water. Explain two methods for the determination of hardness of a give sample of water. Or Explain the different types of water based on their sources and composition, highlighting their key features and uses. Include examples for each type.	2-4 2-5	3-5 3-5	3-4 2-5