

Roll No.....

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BSc. Hons. Chemistry (FYUP), Chemistry
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Paper code: BCH-SEC 201

Title: DETAILED STUDY OF WASTE WATER TREATMENT SYSTEM
 (Write your Roll No. at the top immediately on receipt of this question paper)

Time: 2 hours

Maximum Marks: 45

Note: Attempt all the questions marks of each question given in parenthesis. All parts of a question must be attempted in continuation. Start answer of a fresh question on a new page. Cite examples and draw labelled diagrams wherever necessary.

Q. No.		BTL	CLO	PLO
SECTION A				
Q1. Attempt any ten of the following:		(1x10=10 marks)		
A1	_____ sewage originates from households and contains organic waste, food particles, and detergents.	1/2	1/2	1/2
A2	2. Storm sewage is also known as _____ and consists of rainwater mixed with pollutants from urban areas.	1/2	1/2	1/2
A3	Yellow water primarily consists of _____, which can be processed for nutrient recovery.	1/2	1/2	1/2
A4	Industrial effluents from the _____ industry contain high levels of oil, grease, and heavy metals.	1/2	1/2	1/2
A5	The presence of _____ and _____ in agricultural effluent can lead to eutrophication of water bodies.	1/2	1/2	1/2
A6	Municipal wastewater consists of _____, _____, and _____ waste from households, industries, and commercial establishments.	1/2	1/2	1/2
A7	7. The main microorganisms present in sewage include _____, _____, and _____, which play a role in its decomposition.	1/2	1/2	1/2
A8	The primary purpose of sewage treatment is to remove _____, _____, and _____ to ensure safe disposal or reuse.	1/2	1/2	1/2
A9	_____ and _____ are two key nutrients that must be removed from wastewater to prevent eutrophication.	1/2	1/2	1/2
A10	The _____ process involves passing sewage through layers of sand, gravel, or other media to remove suspended solids.	1/2	1/2	1/2
SECTION B				
Long Type Questions (Attempt any two out of four):		(10x2=20 marks)		
B1	What are the types of industrial wastewater and their characteristics? Give examples.	5/6	5/6	5/6/7
B2	Describe the activated sludge process and its modifications used in biological wastewater treatment.	5/6	5/6	5/6/7
B3	Explain the chemical and physical methods of water quality examination.	5/6	5/6	5/6/7
B4	Write a note on coagulation theory and explain how to determine the optimum coagulant dose.	5/6	5/6	5/6/7

SECTION C				
Short Type Questions (Attempt all Questions):		(5x3=15 marks)		
C1	Explain the Composition of Sewage and the Importance of Sewage Treatment. OR Describe the Different Methods of Sewage Treatment with Their Significance.	5/6	5/6	5-7
C2	Explain the Removal of Phosphorus and Nitrogen from Wastewater. Why is It Necessary? OR Discuss the Self-Purification of Natural Water and the Cycle of Decomposition in Sewage Treatment.	4-6	4-6	4-6
C3	Describe the Different Methods of Sludge Disposal and Their Environmental Impact. OR Explain the different types of sewage and their sources.	5-7	4-6	4-6