BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: B.Tech **SEMESTER : V**
BRANCH: All **SESSION : MO/2025**

SUBJECT: BE320 BIOTREATMENT OF MUNICIPAL & INDUSTRIAL WASTE

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Describe components available in typical waste water from a municipal area.	[2]	3	2
Q.1(b)	Characterize the wastewater collected from BIT hostel by using physical methods.	[3]	1	4
Q.2(a)	Draw a labelled block diagram to show the process of wastewater treatment in a plant.	[2]	3	3
Q.2(b)	Sample collected from boys' hostel of a college have BOD_5 level at 300mg/L. If rate of reaction k is 0.25 per day, then calculate BOD after 3 days.	[3]	1	3
Q.3(a)	Differentiate between application of units used in preliminary and primary operations.	[2]	3	5
Q.3(b)	What do you mean by screening in wastewater treatment process? Draw a schematic diagram of mechanically cleaned chain driven screens and discuss its operation.	[3]	3	3
Q.4(a)	Design a unit for size reduction of coarse suspended particles that could be used in inline of wastewater influent stream of small scale wastewater treatment plant.	[2]	5	3
Q.4(b)	What do you mean by grit? Design a grit separation chamber. How do collected grit will be processed?	[3]	2	6
Q.5(a)	Draw a labelled block diagramme for collection of waste water from BIT campus and its preliminary treatment .	[2]	2	6
Q.5(b)	Determine COD of glucose ($C_6H_{12}O_6$) and biomass ($C_5H_7NO_2$) for secondary wastewater treatment process. You may take help of suitable COD mass balance expression.	[3]	1	3

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