B.E. Eighth Semester (Civil Engineering) (CGS)

10233 : Professional Elective-II : Advanced Waste Water and Industrial Waste Treatment : 8 CE 04

P. Pages : 2 | **AU - 2971**

Time : Three Hours | Max. Marks : 80

Notes :
1. All question carry equal marks.
2. Answer **Three** question from Section A and **Three** question from Section B.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Diagrams and chemical equations should be given wherever necessary.
6. Illustrate your answer necessary with the help of neat sketches.
7. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1.	a)	What are the different physical operations and processes used in waste water treatment?	**7**
	b)	Explain the factors affecting the process of Adsorption? Also write its application?	**7**
		OR	
2.	a)	What is meant by Grit Chamber? Why is it necessary to provide a grit chamber? Explain the configuration with the help of neat sketches?	**7**
	b)	Design a bar screen chamber through which maximum, average and minimum rate of flow are 13 MLD, 11 MLD and 8 MLD respectively?	**7**
3.	a)	Explain with the help of neat sketch working of ASP?	**7**
	b)	What are the different biological treatment techniques used for waste water treatment?	**6**
		OR	
4.	a)	Explain the construction and operation of trickling filter with the help of neat sketch?	**7**
	b)	Design suitable dimensions of circular trickling filter units for treating 8 MLD of sewage. The BOD of sewage is 135 Mg/l. Also determine its efficiency?	**6**
5.	a)	What is neutralisation? And explain how it is utilized in waste water treatment?	**7**
	b)	Explain the design considerations for aerated lagoon?	**6**
		OR	
6.	a)	What are the advantages and disadvantages of oxidation pond?	**6**
	b)	Differentiate between continuous flow type oxidation ditch and intermittent flow type oxidation ditch?	**7**

SECTION – B

7.	a)	State and explain representative sampling, Grab sampling and composite sampling?	7
	b)	Write down the standards for disposal of any six characteristics on land and into streams?	6

OR

8.	a)	What are the various problems associated with the wastewater treatment?	6
	b)	What is the effect of discharge of industrial waste water on land and into streams?	7
9.	a)	State general approaches while planning Industrial waste water treatment?	7
	b)	What is equalisation? Explain how and why it is used while treating industrial waste water treatment?	7

OR

10.	a)	What are the advantages and disadvantages of treating different effluent streams separately?	7
	b)	Explain in detail variation in quantity and quality of Industrial waste water?	7
11.	a)	Write down the characteristics of raw waste water from distillery industry.	6
	b)	Draw the process flow diagram for the treatment of textile industry waste water and explain it briefly?	7

OR

12.	a)	Write down the characteristics of dairy industry waste water.	6
	b)	Draw the process flow diagram for the treatment of pulp and paper industry waste water and explain it briefly?	7

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