M.E. Second Semester (Civil (Environmental Engg.)) (P.T.) (CGS)

13390 : Advanced Water Treatment : 2 SCEE 2

P. Pages : 2 | AU - 3214

Time : Three Hours | Max. Marks : 80

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Notes :
1. All questions carry marks as indicated.
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. Retain the construction lines.
7. Illustrate your answer necessary with the help of neat sketches.
8. Use of slide rule logarithmic tables, Steam tables, Moller's Chart, Drawing instrument, Thermodynamic table for moist air, Psychrometric Charts and Refrigeration charts is permitted.
9. I.S.I. Hand book for structural Steel section, I.S. Code 800/1962 or 1964, I.S. 456 (Revised) I.S. 875 may be consulted.
10. Discuss the reaction, mechanism wherever necessary.
11. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1.	a)	Write and Explain Physical, Chemical and biological Examination of water.	7
	b)	Explain i) Limnology ii) Water Ecology.	6
2.	a)	What are different categories of unit operations in water treatment plant? Explain any 2.	7
	b)	Explain thermal stratification in brief.	7
3.	a)	What is meant by design period? Discuss the factors governing the design period.	6
	b)	Discuss the theory of idealized settling basin and bring out importance of overflow rate.	7
4.	a)	What is meant by coagulation? What are the common coagulants used? Describe chemical reaction involved.	7
	b)	Explain the construction of mechanical flocculator with design criteria.	6
5.	a)	Explain the mechanism of floc formation.	7
	b)	Design circular settling tank for a flow of 8 MLD Assume suitable data.	7

SECTION – B

6.	a)	Design Rapid sand filter for total filtered water requirement of 5 MLD Assume suitable data required.	**8**
	b)	Discuss the working of filtration for upflow & dual media filter.	**5**
7.	a)	Explain various methods of disinfection. What are the factors affecting disinfection?	**7**
	b)	Explain the theory of adsorption with Freundlich equation.	**7**
8.	a)	What is meant by softening? Why it is necessary? What are the different methods of softening.	**8**
	b)	Explain various types of aerators.	**5**
9.	a)	Write Details about reuse of water and conservation of water in Industry.	**8**
	b)	Explain. i) Defluoridation ii) Break point chlorination iii) Removal of taste and Odour	**6**
10.	a)	Explain Ion Exchange method of Iron and Manganese. Why is their removal necessary.	**7**
	b)	What do you understand by the Corrosion in pipe? Discuss the hypothesis have been advanced to Explain Corrosion.	**6**

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