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CBCS SCHEME

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BCV304

Third Semester B.E./B.Tech. Degree Examination, June/July 2024
Water Supply and Waste Water Engineering

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Discuss the need of protected Water Supply.	10	L1	CO1
	b.	List the various types of Water demand. Explain any three only.	10	L1	CO1
		OR			
Q.2	a.	What are the factors affecting per capita demand? Explain in detail.	10	L1	CO1
	b.	Calculate probable population in the year 1980 , 1990 and 2000 by using arithmetical increase method. 1940 | 1950 | 1960 | 1970 8000 | 12000 | 17000 | 22500	10	L3	CO1
		Module – 2			
Q.3	a.	Draw unit flow diagram of water treatment plant, explain each unit in brief.	10	L2	CO2
	b.	Explain the theory of Sedimentation tank. What are the types of Sedimentation tank? Explain any one.	10	L1	CO2
		OR			
Q.4	a.	Draw the neat sketches of Rapid sand filters. Explain working and cleaning of filters.	10	L2	CO2
	b.	Design the approximate dimensions of a set of rapid gravity filters for treating water required for a population of 50,000. The rate of water supply being 180/Liters/day/person. The filters are rated to work 5000 Lit/hr/Sqm.	10	L3	CO2
		Module – 3			
Q.5	a.	What is Disinfection? What are the minor methods of disinfection? Explain any two methods.	10	L1	CO3
	b.	What is Chlorination? What are the types of chlorination? Explain any two methods.	10	L1	CO3
		OR			
Q.6	a.	What are the types of Sewerage System? Explain their suitability in detail.	10	L1	CO3
	b.	Explain any two Waste water physical , chemical and biological characteristics in detail.	10	L1	CO3

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		Module – 4			
Q.7	**a.**	Draw flow diagram of Municipal waste water treatment unit operations and explain each units.	**10**	**L2**	**CO4**
	b.	Explain the importance of screens and types of screens in the sewage treatment process.	**10**	**L1**	**CO4**
		OR			
Q.8	**a.**	Explain the working of conventional Activated Sludge Process (ASP) with flow diagram.	**10**	**L2**	**CO5**
	b.	What is Suspended growth process? What are the examples of suspended growth process units? Explain any one.	**10**	**L1**	**CO5**
		Module – 5			
Q.9	**a.**	Explain the constructional details of a conventional trickling filters , with a neat sketch.	**10**	**L1**	**CO5**
	b.	The sewage flows from a primary settling tank to a standard rate trickling filter at a rate of 5 million liter per day having a 5 – day BOD of 150mg/lit. Determine the depth and the volume of the filter, adopting a surface loading of 2500ℓ/m^2/day and an urgent loading of 165/g/m^3/day. Also determine the efficiency of the filter unit, using NRC formula.	**10**	**L3**	**CO5**
		OR			
Q.10	**a.**	Explain the Rotating biological contactors, with neat sketch.	**10**	**L2**	**CO5**
	b.	Write a short note on : i) Oxidation ditch ii) Stabilization Ponds.	**10**	**L1**	**CO5**

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