

USN

Course Code 2 2 C V 6 1

Sixth Semester B.E. Degree Examinations, May/June 2026

WATER SUPPLY AND WASTE WATER ENGINEERING

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions choosing ONE full Question from each Module
 2. Missing data, if any, may be suitably assumed

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO: PI)</u>												
<u>Module-1</u>															
1.	a. Explain the types of water demands. Discuss the factors affecting per capita water demand with suitable examples.	10	(2 : 1 : 1.1.1)												
	b. Forecast the population data after one, and two decades beyond the last known decade by Arithmetic increase method & Geometric increase method for the Allipur village.	10	(2 : 1 : 1.1.2)												
<table border="1"><tr><td>Census</td><td>1970</td><td>1980</td><td>1990</td><td>2000</td><td>2100</td></tr><tr><td>Population</td><td>25300</td><td>28500</td><td>34600</td><td>42700</td><td>47700</td></tr></table>				Census	1970	1980	1990	2000	2100	Population	25300	28500	34600	42700	47700
Census	1970	1980	1990	2000	2100										
Population	25300	28500	34600	42700	47700										
(OR)															
2.	a. Define design period. Illustrate the factors governing the design period of water supply components.	10	(2 : 1 : 1.3.1)												
	b. Describe the components of water supply scheme. What are the various purposes for which water is required?	10	(3 : 1 : 3.3.1)												
<u>Module-2</u>															
3.	a. Explain disinfection methods and breakpoint chlorination with graph.	10	(2 : 2 : 1.1.2)												
	b. Explain the operation of slow sand filters with figure.	10	(2 : 2 : 1.3.2)												
(OR)															
4.	a. Explain zones of sedimentation tank and factors affecting sedimentation.	10	(2 : 2 : 1.2.2)												
	b. Draw flow diagram of conventional water treatment plant and explain each unit.	10	(2 : 2 : 1.1.2)												
<u>Module-3</u>															
5.	a. Explain types of sewerage systems and their suitability.	10	(2 : 3 : 1.3.2)												
	b. A 20 mL sample of wastewater is diluted to 300 mL total volume using dilution water. The initial DO is measured as 10.0 mg/L. After 5 days of incubation at 20°C, the final DO is found to be 7.0 mg/L. Calculate the BOD _s of the sample. Give the interpretation of the result.	10	(2 : 3 : 1.2.2)												
(OR)															
6.	a. Explain wastewater sampling importance and differentiate grab and composite sampling.	10	(2 : 3 : 3.3.1)												

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI- Performance Indicator)

- b. Explain need for sanitation in communities and importance of wastewater sampling. 10 (3 : 3 : 1.1.2)

Module-4

7. a. Draw flow diagram of municipal Waste Water Treatment Plant (WWTP) and explain units. 10 (2 : 4 : 1.1.2)
- b. Explain in detail the principle of activated sludge process. 10 (2 : 4 : 1.2.2)

(OR)

8. a. Explain working of grit chamber and its types. 10 (2 : 4 : 2.3.3)
- b. Describe screen types and disposal methods in waste water treatment plant. 10 (2 : 4 : 1.1.2)

Module-5

9. a. Explain principle of trickling filter with working process and components 10 (2 : 5 : 1.1.1)
- b. Explain stabilization ponds and sludge thickening. 10 (2 : 5 : 1.1.2)

(OR)

10. a. Explain aerobic and anaerobic sludge digestion. 10 (2 : 5 : 1.1.2)
- b. Discuss environmental benefits of sludge management. 10 (2 : 5 : 2.3.3)

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