

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)**

III - B.Tech II-Semester Regular Examinations (BR23), MAY - 2026

**WATER SUPPLY SYSTEMS
(CSE)**

Time: 3 hours

Max. Marks: 70

*Question Paper consists of Part-A and Part-B
Answer ALL the question in Part-A and Part-B*

PART-A (10X2 = 20M)

	Marks	CO	BL
1. a) Define per capita water demand and state its typical unit.	(2M)	CO1	L1
b) List any four components of water demand in urban areas.	(2M)	CO1	L1
c) Distinguish between surface water and groundwater (any two points).	(2M)	CO2	L2
d) Define aquifer and mention one method of its recharge.	(2M)	CO2	L1
e) What is meant by potable water? State one essential quality requirement.	(2M)	CO3	L2
f) Differentiate between grey water and black water.	(2M)	CO3	L1
g) Define continuous water supply and intermittent water supply.	(2M)	CO4	L1
h) What is a service reservoir? State its primary function.	(2M)	CO4	L2
i) Define industrial wastewater and mention one of its characteristics.	(2M)	CO5	L1
j) What are water-borne diseases? Give any two examples.	(2M)	CO5	L2

PART-B (5X10 = 50M)

Unit I

2a) Apply demand factors to estimate water requirement for a medium-sized town.	[5 M]	CO1	L3
2b) Analyse the impact of population growth on water demand.	[5 M]	CO1	L4
(OR)			
3a) Evaluate the role of water in sanitation and public health improvement.	[5 M]	CO1	L5
3b) Design a basic framework for sustainable water demand management in cities.	[5 M]	CO1	L6

Unit II

4a) Compare groundwater and surface water based on quality and availability.	[5 M]	CO2	L3
4b) Analyse the process of aquifer recharge and its importance.	[5 M]	CO2	L4
(OR)			
5a) Evaluate desalination as an alternative water source in India.	[5 M]	CO2	L5
5b) Propose a sustainable water sourcing strategy for a coastal city.	[5 M]	CO2	L6

Unit III

6a) Illustrate the classification of wastewater (grey water, black water).	[5 M]	CO3	L3
6b) Analyse the role of dual supply in reducing freshwater demand.	[5 M]	CO3	L4
(OR)			
7a) Explain the transmission pathways of water-borne diseases.	[5 M]	CO3	L3
7b) Evaluate the effectiveness of sewage irrigation practices.	[5 M]	CO3	L5

Unit IV

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| 8a | Compare continuous and intermittent water supply systems. | [5 M] | CO4 | L3 |
| 8b | Analyse the importance of network design in distribution efficiency. | [5 M] | CO4 | L4 |

(OR)

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| 9a | Evaluate the role of valves, hydrants, and meters in distribution systems. | [5 M] | CO4 | L5 |
| 9b | Design a basic distribution layout for a small residential area. | [5 M] | CO4 | L6 |

Unit V

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| 10a | Explain factors influencing the location of industries with respect to water sources. | [5 M] | CO5 | L2 |
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| 10b | Classify industrial wastewater based on characteristics. | [5 M] | CO5 | L3 |
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(OR)

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| 11a | Assess environmental implications of untreated industrial discharge. | [5 M] | CO5 | L4 |
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| 11b | Evaluate standards for discharge of industrial wastewater. | [5 M] | CO5 | L5 |
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