Model Question Paper with effect from 2022-23 (CBCS Scheme)

Sixth Semester B.E. Degree Examination

Water Conservation and Rain Water Harvesting

TIME: 03 Hours **Max. Marks: 100**

Note:01. Answer any FIVE full questions, choosing at least ONE question from each MODULE.

			Bloom's Taxonomy Level	Marks
Module 1				
Q.01	a	What is monsoon low, Describe how does it influence monsoon?	L2	6
	b	Discuss the consequences of reduced surface water flow on aquatic ecosystems and biodiversity?	L2	8
	c	Brief the effect of urbanization on natural water cycle?	L2	6
or				
Q.02	a	What is the hydrological cycle, and why is it important for maintaining life on Earth?	L2	6
	b	Explain the key factors contributing to the uneven distribution of water resources in Karnataka?	L2	7
	c	Brief the key indicators used to identify the withdrawal of monsoon rains?	L2	7
Module II				
Q.03	a	How does Aquifer function in storing and supplying groundwater?	L2	7
	b	Explain the different classes of rainwater harvesting techniques?	L2	6
	c	Explain the feasibility of implementing rooftop rainwater harvesting in rural households?	L2	7
or				
Q.04	a	Discuss the major sources of water pollution in rural and urban areas?	L2	7
	b	Explain the advantages of contour trenching towards water conservation in hilly regions?	L2	7
	c	Describe the environmental and economic benefits of rainwater harvesting?	L2	6
Module III				
Q.05	a	Explain the effect of soil type and permeability on groundwater recharge rates?	L2	6
	b	How the traditional knowledge be integrated with modern technology for sustainable water management?	L2	6
	c	A community building with a roof area of 300 m^2 receives an average annual rainfall of 600 mm. The runoff coefficient is 0.9. Calculate the total annual rainwater harvested.	L3	8
or				
Q.06	a	Explain the procedure to determine the size and capacity of storage tanks for rainwater harvesting?	L2	5
	b	How the traditional systems like stepwells, tanks, and johads help in water conservation?	L2	5

	c	Design a rainwater harvesting system for a small residential house with the following details: Roof Area: 150 m², Average Annual Rainfall: 1000 mm Runoff Coefficient: 0.8 Storage Tank Capacity: The tank should store rainwater to meet the household's needs for 3 months. The daily water requirement for the household is 500 liters. Design total volume of rainwater harvested per year, Size of the storage tank, Overflow and filtration system.	L4	10
Module IV				
Q.07	a	Explain the role of water conservation in reducing the energy footprint of water treatment and distribution?	L2	6
	b	What are the major sources of water pollution, and how can they be controlled to ensure clean water for consumption?	L2	6
	c	Discuss some effective measures to limit water consumption in residential, agricultural, and industrial sectors?	L2	8
or				
Q.08	a	Explain the benefits of water reuse in households, agriculture, and industries?	L2	7
	b	What are the impacts of water losses due to leaks in pipelines, and how can they be minimized?	L2	6
	c	Describe the environmental impacts of industries that fail to adopt water conservation practices?	L2	7
Module V				
Q.09	a	Describe the significance of geophysical methods help in locating groundwater aquifers and assessing water availability?	L3	7
	b	Explain the role of environmental regulations play in preventing water pollution and conserving water resources?	L2	8
	c	How the sustainability assessments guide policy development and water management strategies?	L2	5
or				
Q.10	a	Explain, how the grey water footprint relates to wastewater management and industrial discharge practices?	L2	8
	b	Describe the role of sustainability assessments in achieving global water sustainability.	L2	7
	c	Compare blue water foot print with other types of water footprints?	L3	5