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CBCS SCHEME

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BCV602

Sixth Semester B.E./B.Tech. Degree Examination, June/July 2026
Irrigation Engineering and Hydraulic Structures

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.	Define the terms duty, delta and base period. Derive the relationship among them.	08	L3	CO2
	b.	With a neat sketch, explain Bandhara Irrigation. List its advantages and disadvantages.	08	L2	CO2
	c.	Write a note on Flow Irrigation.	04	L2	CO2
		OR			
Q.2	a.	Define Irrigation. List and explain the benefits and ill-effects of irrigation.	10	L2	CO2
	b.	A stream of 130 litres per second was diverted from a canal and 100 litres per second were delivered to the field. An area of 1.6 hectares was irrigated in 8 hours. The effective depth of root zone was 1.7 m. The runoff loss in the field was 420 arm. The depth of water penetration varied linearly from 1.7 m at the head end of the field to 1.1 m at the tail end. Available moisture holding capacity of the soil is 20 cm per metre depth of soil. Determine the water conveyance efficiency, water application efficiency and water storage efficiency. Irrigation was started at a moisture extraction level of 50% of the available moisture.	10	L3	CO2
		Module – 2			
Q.3	a.	Define the following : Gross Command Area, Cultured Command Area, Crop Factor, Time Factor.	04	L1	CO3
	b.	Write difference between Lacey's and Kennedy's Theory.	08	L2	CO2
	c.	A channel section has to be designed for the following data: Discharge Q = 30 Cumecs ; Silt factor f = 1.00, Side slope = ½ : 1 . Also find the longitudinal slope.	08	L3	CO2
		OR			
Q.4	a.	With a neat sketch, explain zones of storage in a reservoir.	10	L2	CO2
	b.	Explain the investigations conducted for reservoir planning. List the points to be considered for selection of site for a reservoir.	10	L2	CO2

		Module – 3			
Q.5	**a.**	Discuss briefly forces acting on a gravity dam with help of a neat sketch.	**10**	**L2**	**CO1**
	b.	Explain the various modes of failure of gravity dams.	**10**	**L2**	**CO1**
		OR			
Q.6	**a.**	Derive an expression for the limiting height of a low gravity dam.	**10**	**L2**	**CO1**
	b.	Explain step by step the analytical procedure to be adopted for analyzing the stability of gravity dams.	**10**	**L2**	**CO1**
		Module – 4			
Q.7	**a.**	Enumerate the different types of earthen dams and explain with neat sketches showing each type.	**10**	**L2**	**CO1**
	b.	Explain the design criteria for safe design of earthen dams.	**10**	**L2**	**CO1**
		OR			
Q.8	**a.**	Describe the design principles that are involved in the design of Ogee Spillway.	**10**	**L2**	**CO1**
	b.	What is the necessity of energy dissipater for a spillway? Explain stilling basin type of energy dissipater with a neat sketch.	**10**	**L2**	**CO1**
		Module – 5			
Q.9	**a.**	Draw a neat layout of diversion head works and indicate its various components. Briefly indicate the function of each component.	**10**	**L2**	**CO1**
	b.	Differentiate between a silt extractor and a silt excluder. Draw a neat sketch and discuss the principles involved in designing the different components of a silt extractor.	**10**	**L2**	**CO1**
		OR			
Q.10	**a.**	What are the main causes of failure of weirs on permeable foundations and what are the remedies suggested to prevent them?	**10**	**L2**	**CO1**
	b.	Differentiate between Khosla's Theory from Bligh's Theory with regard to the design of weir on permeable foundation?	**10**	**L2**	**CO1**

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