

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII EXAMINATION – SUMMER 2025****Subject Code:2170609****Date:23-05-2025****Subject Name:Irrigation Engineering****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) Describe necessity and scope of Irrigation Engineering	03
	(b) Describe the following terms (i) Field capacity (ii) Wilting point	04
	(c) A Reservoir is proposed to be constructed to command an area of 97000 hectares. It is anticipated that sugar and paddy would both be irrigated equal to 25 % of the command area and rabi equal to 40 % of the command . Making the total annual irrigation equal to 95 % of the command area . Workout the storage capacity required of reservoir Assume canal losses 20% and evaporation and other losses 15 % . Consider delta for sugar 90 cm, Paddy 120 cm, Rabi 40 cm .	07
Q.2	(a) What is seepage or phreatic line in earthen dam	03
	(b) Enlist different forces acting on gravity dam and explain water pressure in detail	04
	(c) Explain Bligh's creep theory of design of weir .	07
	OR	
	(c) Explain Kennedy's method of canal design	07
Q.3	(a) Enlist principal Indian crops in Rabi and Kharif season	03
	(b) Describe (i) Water Conveyance efficiency (ii) Water application efficiency	04
	(c) Explain with layout sprinkler irrigation system. also give function of each component	07
	OR	
Q.3	(a) Draw section of canal in full embankment with showing all components .	03
	(b) Explain exit gradient concept used in design of weirs and barrages.	04
	(c) Enlist different types of spillway and explain ogee spillway in detail .	07
Q.4	(a) Explain balancing depth of canal .	03
	(b) Which are different types of canals ? on what bases they are classified .	04
	(c) Give difference between Lacey's and Kennedy's method of design of canal	07
	OR	
Q.4	(a) Explain silt ejector	03
	(b) Enlist different type of cross drainage work and explain Aqueduct in detail with sketch	04
	(c) Explain head regulator and Cross regulator . with sketch	07
Q.5	(a) Explain importance of lining of canal . Which are the different lining material ?	03
	(b) Describe (i) capacity factor (ii) Time factor	04
	(c) Explain (i) glacis type of fall and (ii) Sarda type of fall	07

OR

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| Q.5 | (a) | Explain (i) Gross command area and (ii) Culturable command area | 03 |
| | (b) | Describe canal outlets . what is its function ? | 04 |
| | (c) | Explain causes of water logging . describe reclamation method | 07 |
