

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023****Subject Code:3170609****Date:08-12-2023****Subject Name: Irrigation Engineering****Time: 10:30 AM TO 01:00 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) Distinguish between temporary and permanent diversion headworks.	03
	(b) What are the advantages and disadvantages of lining of canals?	04
	(c) Discuss scope of irrigation engineering.	07
Q.2	(a) Discuss the various considerations according to which the location of fall is decided.	03
	(b) What are the benefits and ill-effects of irrigation?	04
	(c) Describe Bligh's creep theory for the design of weir over pervious foundation.	07
	OR	
	(c) Design an irrigation canal to carry discharge 5 cumecs. Take $m=1.0$, $N= 0.0225$, and B/D ratio = 4.40.	07
Q.3	(a) Define following terms: (1) Ultimate wilting point (2) Base period (3) Intensity of irrigation	03
	(b) Show forces acting on gravity dam with neat sketch.	04
	(c) Describe Khosla's theory elaborating its salient features clearly with flow net.	07
	OR	
Q.3	(a) Define canal outlet. Write brief note on any one type of canal outlet.	03
	(b) Discuss various factors to be considered while selecting suitable site for a dam.	04
	(c) Define duty and delta. Derive a relationship between duty and delta for a given base period. Also briefly discuss factors affecting duty.	07
Q.4	(a) Explain following terms for canal cross-section. (1) Side slopes (2) Borrow pit	03
	(b) Write a short note on contraction joints in a dam.	04
	(c) Discuss in brief the causes and failure of earthen dams.	07
	OR	
Q.4	(a) Differentiate between non-modular and semi-modular outlet.	03
	(b) Differentiate between sprinkler irrigation and drip irrigation	04
	(c) Explain stepwise procedure for designing an alluvial channel using Kennedy's theory.	07
Q.5	(a) Write functions of cross regulator.	03
	(b) What do you mean by water logging of soil? How would you prevent it?	04
	(c) Write a note on land reclamation.	07
	OR	
Q.5	(a) Discuss classification of canal based on alignment.	03
	(b) Explain various irrigation efficiencies.	04
	(c) What is an escape? What are different types of escapes? Explain the working of each type.	07
