

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VIII EXAMINATION – SUMMER 2020

Subject Code: 2170609

Date: 27/10/2020

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.

		MARKS
Q.1	(a) Define Gross command area, Intensity of irrigation and Time factor.	03
	(b) List Various Irrigation Efficiencies and explain any three.	04
	(c) Describe irrigation and write history of irrigation development in India.	07
Q.2	(a) What are the factors considered for ideal site for diversion head works.	03
	(b) Write a note on moisture distribution pattern and uniformity coverage for sprinkler irrigation system.	04
	(c) Describe causes of failure of weirs and their remedies.	07
	OR	
	(c) What is the consumptive Irrigation Requirement (CIR)? State the different factors affecting it. Determine the Consumptive use and Field Irrigation requirement (FIR) for a rabi crop from the following data: (i) Consumptive Use Coefficient (K) = 0.76 (ii) Total Pan Evaporation during the season (Ep) = 58.5 cm (iii) Total Effective Rainfall (Re) = 5.5 cm Take water application efficiency $\eta_a = 85\%$. Assume other losses like leaching etc. are absent.	07
Q.3	(a) What are the limitations of Bligh's creep theory?	03
	(b) Write a short note on: Exit Gradient and its importance.	04
	(c) Discuss in brief the causes and failures of earthen dam.	07
	OR	
Q.3	(a) Explain in brief impervious membrane type of rock fill dam.	03
	(b) Discuss in brief the factors governing selection of type of dam.	04
	(c) Describe Bligh's Creep Theory for the design of weirs over pervious foundation	07
Q.4	(a) What are draw backs of Lacey's Silt theory.	03
	(b) Write a note on Losses in canals.	04
	(c) Design an irrigation channel by Kennedy's theory to carry a discharge of 45 cumec. Take $N = 0.0225$ and $m = 1.05$. Bed slope is 0.2m per kilometer.	07
	OR	
Q.4	(a) Explain : Berm, free board, Dowla.	03
	(b) Write procedure for design of non-alluvial channel.	04

(c) Give difference between Kennedy's and Lacey's theory. **07**
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- Q.5** (a) Draw a neat sketch of Distributary head regulator. **03**
(b) Discuss the effects of water logging. **04**
(c) Describe with the help of neat sketches the various types of cross drainage works. **07**

OR

- Q.5** (a) What are canal escapes? What is the need of it? **03**
(b) Explain : Ogee, Notch fall. **04**
(c) Write a note on land reclamation. **07**

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