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GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2170609   Date:25/01/2021
Subject Name:Irrigation Engineering
Time:10:30 AM TO 12:30 PM   Total Marks: 56

Instructions:
1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

			MARKS
Q.1	**(a)**	What are the benefits and ill effects of irrigation?	**03**
	(b)	Explain the terms (i) Duty and (ii) Delta.	**04**
	(c)	Explain with neat sketch classification of soil-water.	**07**
Q.2	**(a)**	Write a short note on Irrigation development in India.	**03**
	(b)	What is irrigation efficiency? Explain any two efficiencies in detail.	**04**
	(c)	What do you understand by Scope of irrigation project?	**07**
Q.3	**(a)**	Explain the different stages of river.	**03**
	(b)	Write short note on spillway crest gates.	**04**
	(c)	Describe Bligh's creep theory for the design of weir over pervious foundation.	**07**
Q.4	**(a)**	Differentiate between alluvial and non-alluvial canal.	**03**
	(b)	Describe with neat sketches various methods adopted for controlling seepage through the body of an embankment dam	**04**
	(c)	Discuss the various forces acting on gravity dam with sketches.	**07**
Q.5	**(a)**	Why is it necessary to provide a fall in a canal?	**03**
	(b)	What is function of Canal escape? Discuss any two types of it.	**04**
	(c)	Discuss use of hydraulic jump, as an energy dissipation device in design of hydraulic structure.	**07**
Q.6	**(a)**	Give the functions of cross regulator and head regulator.	**03**
	(b)	Write a short note on the canal escape.	**04**
	(c)	A field channel has a culturable commanded area of 3000 he. The intensity of irrigation for gram is 30% & for wheat is 50%. For gram kor period is 16 days and kor depth is 10 cm. For wheat kor period is 12 days and kor depth is 12 cm. Calculate the discharge of the field channel required.	**07**
Q.7	**(a)**	Write a note on land reclamation	**03**
	(b)	Define water logging? Discuss causes of water logging.	**04**
	(c)	Explain procedure for designing an irrigation channel using Lacey's theory.	**07**
Q.8	**(a)**	Give classification of irrigation canals in detail.	**03**
	(b)	Explain different layout of tile drains with sketch.	**04**
	(c)	Design an irrigation canal to carry discharge of 5 Cumecs. Take m =1.0, N = 0.0225 and B/D ratio = 4.40.	**07**

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