

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2021****Subject Code:3144005****Date:06/09/2021****Subject Name:Water Resource Engineering & Hydrology****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) Give classification of dams (i) according to use (ii) by Hydraulic design (iii) by materials.	03
	(b) Describe Syphon Aqueduct type cross drainage work	04
	(c) Describe investigations required for reservoir planning	07
Q.2	(a) Explain different types of Run-off in brief.	03
	(b) Describe meteorological factors affecting hydrology of place.	04
	(c) Describe modes of failure of a gravity dam.	07
OR		
	(c) How the safe yield from a reservoir for a given capacity can be determined graphically?	07
Q.3	(a) What is Current meter? How it works?	03
	(b) Describe Tipping Bucket type Rain-gauge	04
	(c) Design a channel by Lacey's theory for 40 cumecs capacity. The side slopes may be assumed to be 1:1. The average size of bed material be taken as 0.8 mm	07
OR		
Q.3	(a) Describe Border Strip Flooding Method of irrigation.	03
	(b) Explain methods of computation of average rainfall over a basin	04
	(c) Describe remedial measures for water logging	07
Q.4	(a) What are the assumptions considered for steady radial flow to a well in a confined aquifer?	03
	(b) What is Lacey's Regime theory for design of canal in in alluvial soil?	04
	(c) Draw the cross section of lined canal in banking with all details.	07
OR		
Q.4	(a) Enlist the causes of waterlogging.	03
	(b) How Kennedy had derived the theory for canal design on alluvial soil based on observations of Upper Bari Doab Canal System.	04
	(c) Draw the cross section of lined canal in full cutting with all details.	07
Q.5	(a) Enlist the Subsurface Irrigation methods. Describe briefly any one.	03
	(b) Describe the 'Water Pressure' acting on a gravity dam	04
	(c) What is Unit Hydrograph? What are the assumptions of Unit Hydrograph?	07
OR		
Q.5	(a) Enlist types of spillways	03
	(b) What are the necessities of lining of canal?	04
	(c) Explain causes of failures of earthen dams.	07