Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(NEW) EXAMINATION – WINTER 2022

Subject Code:3144005 Date:15-12-2022

Subject Name:Water Resource Engineering & Hydrology

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)	What are the advantages of gravity dam?	03
	(b)	Describe the parameters considered for reservoir site.	04
	(c)	What is Unit Hydrograph? What are the assumptions of Unit Hydrograph?	07
Q.2	(a)	Explain the requirement of safety against Sliding for gravity dam.	03
	(b)	Describe one of rain-gauge with sketch which is being used to measure icefall also	04
	(c)	Explain causes of failures of earthen dams.	07
		OR	
	(c)	Describe physical factors governing selection of type of dam in details.	07
Q.3	(a)	Describe the advantages of Furrow Irrigation Method	03
	(b)	Describe Symon's Rain-gauge with figure	04
	(c)	What are the requisites of good sites for various types of dam.	07
		OR	
Q.3	(a)	What are the different methods of discharge measurement in a stream/river?	03
	(b)	Describe methods of estimation of missing rainfall data	04
	(c)	Design a channel by Lacey's theory for 50 cumecs capacity. The other data as follows: 1. Side slope 2:1 2. Average size of bed material=1.0 mm	07
Q.4	(a)	Define aquifer parameters (i) Porosity (ii) Specific Yield	03
	(b)	How the Lacey's Regime theory for design of canal in alluvial soil differs from Kennedy's theory?	04
	(c)	Why falls are required in canal? Enlist types of Canal Fall and explain any one in detail with sketch.	07
		OR	
Q.4	(a)	Enlist types of Cross Drainage works.	03
	(b)	Describe the steps required for canal design in alluvial soil.by Lacey's regime theory	04
	(c)	Derive Dupuit's Theory for steady radial flow to well.	07
Q.5	(a)	Enlist different materials used for lining of canal.	03

	(b)	What are factors affecting the Duty?	**04**
	(c)	Why spillways are important for dams? How many types of spillways? Explain any one in detail with sketch.	**07**
		OR	
Q.5	**(a)**	Explain Arithmetic Mean Method for missing rainfall data.	**03**
	(b)	Explain 'Uplift Pressure' acting at the foundation of gravity dam.	**04**
	(c)	Explain Analytical Method for stability analysis of gravity dam against modes of failures.	**07**

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