

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2021

Subject Code:3144005

Date:03/01/2022

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) Explain side channel spillway in detail.	03
	(b) Give causes of water logging.	04
	(c) Enlist different type of forces acting on gravity dam & explain any one in detail.	07
Q.2	(a) Write short note on surcharge storage.	03
	(b) Explain relationship of soil & moisture.	04
	(c) Write short note on direct run-off hydrograph and explain factors affecting it.	07
<b>OR</b>		
Q.3	(c) Enlist different methods for estimation of average rainfall. Explain Thiessen polygon method.	07
	(a) Define: 1) Full Reservoir Level 2) Dead Storage Level 3) Highest Flood Level.	03
	(b) Short note on 1) Radius of influence 2) Validity of Darcy's law.	04
	(c) Design an irrigation channel for following data using Lacey's theory. $Q = 25$ cumecs & Silt factor = 1.1	07
<b>OR</b>		
Q.3	(a) Explain type of reservoir based on purpose of it.	03
	(b) Explain base flow separation in detail.	04
	(c) Design an irrigation channel to carry a discharge of 30 cumecs by Kennedy theory. Take B/D ratio as 8.0 , $N=0.025$ & $m=1$	07
Q.4	(a) Explain various methods of flood forecasting.	03
	(b) Give necessity of irrigation in India.	04
	(c) Describe cross drainage works. Describe briefly the type of cross drainage works with sketch.	07
<b>OR</b>		
Q.4	(a) Explain causes of reservoir sedimentation.	03
	(b) Enlist various techniques of irrigation water & explain anyone.	04
	(c) Explain Lacey's theory for design of unlined channel.	07
Q.5	(a) Explain remedial measures for saline water logging.	03
	(b) Explain various modes of failure for gravity dams.	04
	(c) Give factors for site selection of reservoir.	07
<b>OR</b>		
Q.5	(a) Explain chute spillway in detail.	03
	(b) Explain reclamation of saline land.	04
	(c) Discuss: Determination of storage capacity and yield.	07

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