R18 Regulation *Subject code:2P6AD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, April 2026

HYDROLOGY AND WATER RESOURCES ENGINEERING

(CE)

Maximum Marks: 70 Date: 21.04.2026 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	BTL
1	What is hydrologic cycle? Draw it's neat sketch.	2M	1	L1
2	What are the different types of rain gauges?	2M	1	L1
3	What is runoff? Write 4 types of factors affecting runoff.	2M	2	L1
4	What is S-curve method?	2M	2	L1
5	Write about any two aquifer parameters.	2M	3	L1
6	What are the different methods of development of well.	2M	3	L1
7	Write the types of irrigation.	2M	4	L1
8	Determine the delta for a crop if the duty for a base period 120 days is 1500 hect/cumec.	2M	4	L1
9	What is canal? what are the typical cross sections of canals.	2M	5	L1
10	Write the Kutter's formula for determining the mean velocity of flow in a channel.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	What are the different methods used for the computation of average rainfall over basin? Explain any two.	10M	1	L2
	OR			
12	What are the different analytical methods used for the determination of lake evaporation? Explain any two.	10M	1	L2
13	The peak discharge and time to peak in a 3hr unit hydrograph derived for a basin of area 250 km² with L=30 km and Lc= 14 km are 50m³/s and 9 hr respectively. Assuming that synder's synthetic unit hydrograph applies determine the coefficient Ct and Cp. Determine the 2 hr unit hydrograph for the upper 180 km² of the same watershed which has L=20 km and Lc = 11.8 km.	10M	2	L2
	OR			
14	What do you understand by synthetic unit hydrograph? Write in brief.	10M	2	L2
15	Differentiate between unconfined and confined aquifer. Describe the zones of underground water.	10M	3	L2

	OR			
16	What is well? Write the types of wells with neat sketch.	10M	3	L2
17	Define duty and write factors affecting duty. Also write how do you improve the duty.	10M	4	L2
	OR			
18	Describe with the help of sketch various forms of soil moisture. Which of these soil moistures are mainly available for utilization by the plants?	10M	4	L2
19	What is canal? Explain in brief the classification of canals.	10M	5	L2
	OR			
20	What are the types of canal linings.	10M	5	L2