



R20 Regulation

Subject code:3P6AD

**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**

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

**B.Tech VI Semester Supplementary Examinations, May 2025**

**WATER RESOURCE ENGINEERING-I**

(CE)

Maximum Marks: 70

Date: 23.06.2025

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	Construct a neat sketch of hydrological cycle.	2M	1	L1
2	What are the types of precipitation?	2M	1	L1
3	Write hydrograph analysis?	2M	2	L1
4	Define S- hydrograph.	2M	2	L1
5	Define transmissibility.	2M	3	L1
6	What are the types of wells?	2M	3	L1
7	Define water logging.	2M	4	L1
8	What standards required for Irrigation water?	2M	4	L1
9	What do you mean by initial and final regime of channels?	2M	5	L1
10	What is meant by detention storage?	2M	5	L1

**Part-B**

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL																												
11	Explain the methods of estimating missing rainfall data at a station in a basin.	10M	1	L2																												
OR																																
12	Explain energy budget method of computing lake evaporation. What are its limitations.	10M	1	L2																												
13	Explain the different factors that affect the shape of the hydrograph.	10M	2	L2																												
OR																																
14	The ordinates of a 4-hour unit hydrograph are given below. Derive the ordinates of a 8-hour unit hydrograph by the S-curve method.	10M	2	L2																												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Time (hr)</th> <th>4-hr UGO (cumec)</th> <th>Time (hr)</th> <th>4-hr UGO (cumec)</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>24</td> <td>103</td> </tr> <tr> <td>4</td> <td>24</td> <td>28</td> <td>64</td> </tr> <tr> <td>8</td> <td>82</td> <td>32</td> <td>36</td> </tr> <tr> <td>12</td> <td>159</td> <td>36</td> <td>17</td> </tr> <tr> <td>16</td> <td>184</td> <td>40</td> <td>6</td> </tr> <tr> <td>20</td> <td>151</td> <td>44</td> <td>0</td> </tr> </tbody> </table>					Time (hr)	4-hr UGO (cumec)	Time (hr)	4-hr UGO (cumec)	0	0	24	103	4	24	28	64	8	82	32	36	12	159	36	17	16	184	40	6	20	151	44	0
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15	a. Elaborate an expression for the steady state discharge of a well fully penetrating into a confined aquifer. b. List out the assumptions made in the analysis of steady radial flow into well.	5M 5M	3	L2
OR				
16	Construct a neat sketch of types of aquifers. Explain it.	10M	3	L2
17	a. Define Irrigation. What is the necessity of irrigation? b. Write about methods of irrigation.	5M 5M	4	L2
OR				
18	a. The base period of Paddy is 120 days. If the duty for this is 900 hectares/cumecs. find the value of delta. b. Write about soil condition for agriculture in India.	5M 5M	4	L2
19	a. Distinguish between: i. Overland flow and interflow ii. Influent and effluent streams b. Write about canal lining and factors effecting canal lining.	5M 5M	5	L2
OR				
20	Design a trapezoidal shaped concrete lined channel to carry a discharge of 100 cumecs at a slope of 25 cm/ km. The side slopes of the channel are 1.5:1. The value of N may be taken as 0.016. Assume the limiting velocity as 1.5 m/sec	10M	5	L2