



R18 Regulation

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code: 2P6AD

B.Tech VI Semester Regular /Supplementary Examinations, June 2022

HYDROLOGY & WATER RESOURCE ENGINEERING
(Civil Engineering)

Maximum Marks: 70

Date: 21.06.2022 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 which carries 10M.
 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)

- 1 List the types of rain gauges.
- 2 Define Evapotranspiration.
- 3 Define Unit Hydrograph.
- 4 What is S curve hydrograph?
- 5 List the different types of wells.
- 6 Define Darcy's Law.
- 7 Compare duty and delta.
- 8 Define Irrigation.
- 9 List anyone of the canals in India and describe its applications.
- 10 List the classification of canals.

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 A. Explain Hydrological Cycle with neat sketch. (5)
B. Explain all the methods for finding avg. depth of Rainfall. (5)
OR
- 12 A. Explain the process of evapotranspiration and its measurement. (5)
B. Explain the process of infiltration and its measurement. (5)
- 13 A. Define hydrograph and explain the factors affecting it. (4)
B. Describe the methods of base flow separation. (6)
OR
- 14 A. Explain S-Hydrograph and construction of it. (5)
B. The ordinates of 3-hour unit hydrograph are given below: (5)
Find the ordinates of 6-hour unit hydrograph for same.

Time	0	3	6	9	12	15	18	21	24	27	30
Ordinates	0	10	25	20	16	12	9	7	5	3	0

- 15 A. Explain Darcy's law with figure. What are its limitations? How will you measure the coefficient of permeability of soil? (5)
B. Distinguish between: Confined and Unconfined Aquifer, Aquiclude and Aquitard, Specific yield and storage. (5)

OR

- 16 A. Describe a method of determining the yield from an open well. (5)
B. Discuss in detail about the types of wells. (5)
- 17 A. Discuss the various types of irrigation with the help of flow chart. (5)
B. Discuss the need for Irrigation measures in India. (5)

OR

- 18 A stream of 130 litres per second was diverted from a canal and 100 litres per second were delivered to the field. An area of 1.6 hectares was irrigated in 8 hours. The effective depth of the root zone was 1.7 m. The runoff loss in the field was 420 m³. The depth of water penetration varied linearly from 1.7 m at the head end of the field to 1.1 m at the tail end. Available moisture holding capacity of the soil is 20cm per meter depth of soil. Determine the various irrigation efficiencies. Irrigation was started at a moisture extraction level of 50% of the available moisture. (10)

- 19 A. Discuss in detail about the classification of Canals (5)
B. Explain the parts of a Canal Irrigation system in detail. (5)

OR

- 20 A. Design an irrigation channel by Kennedy's theory to carry a discharge of 15cumecs. Take $m = 1.0$, $N = 0.0225$ and $S = 1$ in 5000. (5)
B. Compare Kennedy's and Lacey's theory. (5)