

T.E Civil - VI C - scheme

10.3.23

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Duration: 3 hours

Total marks: 80

- NB: 1) Q.1 is COMPULSORY
2) Attempt any THREE out of remaining questions
3) Assume suitable data wherever required.

Q.1 Attempt any FOUR of the following (20)

- A. Define irrigation and discuss in brief disadvantages of over irrigation.
B. What are the forms of precipitation?
C. Define the following: aquifer, aquifuge, aquiclude, aquitard, perched aquifer
D. Write a short note on zones of reservoir?
E. Compare the Kennedy's and Lacey's theories.
F. Enlist types of Canal lining.

Q.2. A. i. Explain with the help of a diagram the hydrologic cycle. (05)

A. ii. Define Precipitation. Explain different types of Precipitation (05)

B. The ordinates of 4-h unit hydrograph for a drainage basin are given below.
Obtain 12-hr UH by S-curve method (10)

Time (hours)	0	4	8	12	16	20	24	28	32	36	40	44
Ordinates of 4-h UH	0	20	80	130	150	130	90	52	27	15	5	0

Q.3. A. i Explain types of spillways based on utility. (05)

A. ii. Define Duty, delta & base period. Derive the relation between them. (05)

B. The gross command area for a distributary is 10,000 hectares out of which 75% can be irrigated. The intensity of irrigation for gram (Rabi) is 60% and for rice (Kharif) is 30%. If average duty at the head of distributary, is 2500 hectares per cumec for Rabi season & 1000 hectares per cumec for Kharif season, calculate the discharge required at the head of distributary. (10)

Q.4. A. i. Draw a neat sketch of confined aquifer & name the components. (5)

A. ii. Enumerate various causes of Water logging. (5)

Q4.B. During a recuperation test, the water in an open well was depressed by pumping, by 2.1m and it recuperated 1.6m in 90min. Find the diameter of well to yield 10litres/sec under a depression head of 2m. (10)

Q5. A. i. Differentiate between elementary & practical profile of gravity dam (05)

A. ii. Describe in brief the types of earth dams. (05)

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Q5.B. Design the practical profile of a gravity dam from the following data:

Reduced Level of base of Dam is 1450 m

Reduced Level of F. R. L. = 1480.5 m,

Specific Gravity of masonry = 2.4.

Safe compressive stress for masonry = 1200 kN/m^2

Height of waves = 1m.

Assume any suitable data if required and state the same clearly.

(10)

Q.6. A. Design an irrigation channel to carry a discharge of 100 cumecs in a soil having silt factor 1.1, using Lacey's theory. Assume side slopes of 0.5H to 1.0V (10)

B. Describe with the help of sketches various types of Cross Drainage Work. (10)
