Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular Examinations August-2022
HYDROLOGY & WATER RESOURCES ENGINEERING
(Civil Engineering)

Time: 3 hours　　　　　　　　　　　　　　　　　　　　　　Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Explain with the help of a diagram the hydrological cycle with components.	L2	6M
	b	Compute the weekly evaporation from a reservoir using the water-budget method from the following data recorded during the week. Average inflow into the reservoir is 32.5 m³/s, average out flow from the reservoir is 0.2 m³/s, average water spread area is 15.8km², storage at the beginning of the week is 9180 ha-m and storage at the end of the week is 8360 ha-m.	L3	6M

OR

2	a	Explain the construction and limitations of unit hydrograph.	L3	6M
	b	With the help of a neat sketch explain the single tube infiltrometer.	L2	6M

UNIT-II

3	a	Explain in detail about the different types of aquifers with neat sketch.	L1	6M
	b	An undisturbed rock sample has an over dry weight of 1305gm. When it is completely saturated with kerosene it weighed 1436 gm. The saturated sample, when immersed in kerosene displaced 605gm of kerosene. What is the porosity of the sample.	L2	6M

OR

4	a	Briefly discuss in detail with flow chart about the types of irrigation.	L1	6M
	b	The left branch canal carrying a discharge of 20cumecs has a culturable commanded area of 20000 hectares? The intensity of rabi crop is 80% and base period is 120 days. The right branch canal carrying a discharge of 8 cumec has a culturable commanded area of 12000 hectares, intensity of irrigation of rabi crop is 50% and base period is 120 days. Compare the efficiencies of the two canal systems.	L3	6M

UNIT-III

5	a	Explain with neat sketch about the types of fall in dam irrigation.	L2	6M
	b	A field of 4 hectares has an average root zone depth of 1.0 m, a field capacity of 18% (both by weight). Assume that it's desirable to irrigation when 60% of available moisture has been extracted. The field is irrigated by a sprinkler system which delivers 300m³/hour over a period of 12 hours. What is water application efficiency? Density of soil is 1400kg/m³.	L3	6M

OR

6	a	Write the function of cross regulators and distributor head regulators.	L1	6M
	b	Demonstrate about consumptive use of water? Write in detail about factors affecting consumptive use of water.	L2	6M

UNIT-IV

7	a	Describe in detail various investigation to be carried for reservoir planning.	L3	6M
	b	Explain the different types of zones of storages in the reservoir with the help of neat sketch.	L1	6M

OR

8	a	What is flood routing and explain about method of flood routing by graphical method.	L1	6M
	b	Write the calculation of determination of safe yield from reservoir	L2	6M

UNIT-V

9	a	Classify all the various classifications of dams according to use in detail with sketches.	L2	6M
	b	Write briefly on various forces that act on a gravity dam.	L2	6M

OR

10	a	A masonry dam 6 m high and 1.5 m wide at the top and 4.5 m wide at the bottom, with vertical face. Determine the normal stresses at the toe and heel for reservoir empty and reservoir full conditions. Take ρ=2.4 and c=1.	L3	6M
	b	Explain the stability analysis for dam carried out by analytical method.	L3	6M

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