SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular Examinations August-2023
IRRIGATION & DRAINAGE ENGINEERING
(Agricultural Engineering)

Time: 3 Hours   **Max. Marks: 60**

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

UNIT-I

1	a	Define the following: (i) Base and crop period (ii) Gross command area and culturable command area (iii) Irrigation interval.	CO1	L1	6M
	b	Find the duty of water if a crop requires a total depth of 920 mm of water for a base period of 120 days.	CO1	L2	6M

OR

2	a	What are the factors effecting duty?	CO1	L2	6M
	b	A canal was designed to supply irrigation needs of 1200 ha of land growing rice of 140 days base period and having a delta of 134 cm. IF the canal waters are used to irrigate wheat of base period 120 days and having a delta of 52 cm the area that can be irrigated is?	CO1	L2	6M

UNIT-II

3	a	Write a short note on sprinkler layout and draw the system design.	CO2	L3	6M
	b	A sprinkler system 18m spacing along the main and 12m along the laterals is used to irrigate crop grown on coarse sandy soil over compact soil land slope of 3%. Twenty sprinklers are used to irrigate field. Optimum application rate 3.75cm/hr. Determine the total system capacity.	CO2	L2	6M

OR

4	a	What are the inventory resource and parameters required for design of sprinkler.	CO2	L1	6M
	b	Define Net depth of water application, Irrigation frequency, and Gross depth of water application.	CO2	L3	6M

UNIT-III

5		Explain the need of filters in MIS and types of filters used with its working.	CO3	L5	12M

OR

6	a	Briefly explain the pressure differential fertigation method.	CO3	L5	6M
	b	Explain fertilizer solubility and their compatibility.	CO3	L3	6M

UNIT-IV

7	a	Define subsurface drainage and write the specific benefits of sub surface drainage.	CO4	L2	6M
	b	Explain leaching requirement.	CO4	L3	6M

OR

8	a	Define water logging, List and explain the causes and impact of water logging.	CO4	L3	6M
	b	Write a short note on Drainage porosity and drain Envelopes in tile drainage system.	CO4	L2	6M

UNIT-V

9	a	Explain manning's equation and its application.	CO5	L3	6M
	b	Briefly explain about indices used in economic evaluation of drainage system.	CO6	L4	6M

OR

10	a	Briefly explain about the Glover-Dumm Equation.	CO5	L2	6M
	b	Explain the Investigation of drain design parameters through drain testing.	CO6	L3	6M

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