

PRN No. PAPER CODE 

(AY:2024-25) May 2025 (ENDSEM) EXAM

TY B.TECH (SEMESTER - II)

COURSE NAME: Irrigation and Drainage Branch: Civil Engg COURSE CODE: CVUA32204A

T.Y. (PATTERN 2020R1)

Time: [1 HR 30 Min]

[Max. Marks: 40]

(\*) Instructions to candidates:

- 1) Figures to the right indicate full marks. Use of scientific calculator is allowed
- 2) Use suitable data wherever required
- 3) All questions are compulsory. Solve any two sub questions each from Questions 1 ,2, 3 and 4

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) List different benefits of Irrigation.	[5]	1	Understand
	b) A rectangular channel having a bed slope of 0.01% and Manning's roughness coefficient of 0.01 carries a discharge of 10 cumec. If the channel is designed as the most economical section, compute the width of the channel (meter).	[5]	1	Apply
	c) List different types of irrigation efficiencies and explain any one in detail.	[5]	1	Understand
Q2	a) A water course has C.C. A. of 2600 ha, out of which the intensities of irrigation for perennial sugar-cane and rice crops are 20% and 40% respectively. the duty for these crops at the head of water course are 750 ha/cumec and 1800 ha/cumec respectively. Compute the discharge required at the head of water course (in cumec)	[5]	2	Apply
	b) The field capacity of a soil is 25%, its permanent wilting point is 15% and specific dry unity weight is 1.5. If the depth of root zone of a crop, is 80 cm, compute the storage capacity of the soil.	[5]	2	Apply
	c) Explain three different types of soil water.	[5]	2	Understand
Q3.	a) List different advantages of drip irrigation.	[5]	3	Understand
	b) Draw a typical layout of drip irrigation and list its components.	[5]	3	Apply

	c) Determine the required capacity (in lps) of an individual sprinkler spaced at 12 m on a lateral line to apply water at a rate of 0.0125 m/h. The spacing between lateral lines is 18 m.	[5]	3	Apply
Q.4	a) A tile drainage system draining 8 ha flows at a design capacity for two days in response to a storm. If the system is designed using a drainage coefficient of 0.75 cm/day, the amount of water removed from the drainage area during two days is (in m <sup>3</sup> ).	[5]	4	Apply
	b) Surface drainage should be planned for a new agricultural farm to drain out irrigation tail-water and seasonal rainfall runoff. The maximum rainfall intensity at the site in 20 years record is 35 mm/h. The tertiary drain would have to carry runoff from 4 ha land. The secondary drain would have to carry thrice of tertiary, and the main drain to carry discharge of four secondary drains (of similar flow). Determine the design discharge capacity of the (a) tertiary, (b) secondary, and (c) main drain. Assume runoff coefficient as 0.6.	[5]	4	Apply
	c) List advantages of agricultural drainage.	[5]	4	Understand