

SOLUTION
MAY 2022 - ENDSEM EXAM
T. Y. B. TECH. (CIVIL) (SEMESTER - II)
COURSE NAME: Irrigation & Drainage
COURSE CODE: CVUA32182A
(PATTERN 2018)

Question No.	Question Description	Marks
Q.1 a	List advantages and limitations of sprinkler irrigation system.	4
Q.1 b	Explain design principles of sprinkler irrigation system.	6
	OR	
Q.1 b	$I = 1.25 \text{ cm/h}$ $S_i = 12 \text{ m}; S_m = 20 \text{ m}$ Discharge in each sprinkler, $q = (12 \times 20 \times 1.25)/100 = 3 \text{ m}^3/\text{h}$ System capacity, $Q = 3 \times (16+16) = 96 \text{ m}^3/\text{h}$	6
Q2 a	What is meant by "saline" and "alkaline" soils?	4
Q2 b	Discuss critically the statement: "intensive irrigation leads to reduced crop yields".	6
	OR	
Q.2 b	The Leaching Requirement (LR) = $D_d/D_i = EC_{(i)}/EC_{(d)} = EC_{(i)}/EC_{(e)}$ where $EC_{(d)}$ is the E.C. value of leaching water; $EC_{(e)} = 2 \times 10 \text{ m mho/cm} = 20 \text{ milli mho/cm}$ L.R. = $1.2/20 \times 100\% = 6\%$	6
Q.3 a	What are the different materials which are commonly used for the drains, and what are their comparative merits and demerits	4
Q.3 b	Write short notes with sketch on the following: (i) Envelope filters; (ii) Gravity outlets; (iii) Pump outlets.	6
	OR	
Q.3 b	1 cm D.C. means that 1 cm of water from an area of 6 hectares is entering the tiles per day. Volume of water passing the drain in 1 day = $(1/100) \times (6 \times 10^4) = 600 \text{ m}^3/\text{day}$ Volume of water passing the drain in 1 second = $600/(24 \times 3600) = 1/144 \text{ m}^3/\text{s}$ For a circular drain of diameter D , we have Therefore $D = 13.2 \text{ cm}$. Use 15 cm diameter pipe	6