C.U.SHAH UNIVERSITY Summer Examination-2020

Subject Name : Irrigation Engineering Subject Code : 4TE05IRE1 Semester: 5 Date: 06/03/2020

Branch: B.Tech (Civil) Time: 10:30 To 01:30

Marks:70

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Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q-1	a)	Attempt the following questions: Define field capacity.
	b)	Write the relationship between available water and readily available water.
	c)	Enlist the types of irrigation efficiency.
	d)	What is meant by hygroscopic water?
	e)	Define crop ratio.
	f)	The state of the soil when plants fail to extract sufficient water for their requirements, is known as
	g)	Sub-irrigation is used in which type of areas?
	h)	The top soil of a water logged field becomes more alkaline and infertile if its pH value is
	i)	Define paleo irrigation.
	j)	List out the classification of Groynes.
	k)	What is meant by consumptive use of water?
	l)	When a canal is carried over a natural drainage, the structure provided, is known

m) Define fallow land.

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n) Write the necessity of canal lining.

Attempt any four questions from Q-2 to Q-8s

Q-2 Attempt all questions

(a) A soil has field capacity of 28% and permanent wilting point of 9%. Dry weight of soil is 16 kN/m^3 . i) Determine the water storage capacity of the soil if the



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depth of root zone 0.75m. ii) Irrigation water is applied when the moisture content drops to 11%. Determine the water depth required to be applied if the water application efficiency is 83%.

	(b)	Explain the soil-water relationship with neat sketch.	07
Q-3	(a)	Attempt all questions An earthen channel with a base 3 m wide and side slope 1:1 carries water with a depth of 1 m. the bed slope is 1: 1800. Estimate the discharge. Take value of N in manning's formula N= 0.04.	(14) 07
	(b)	Discuss briefly the factors affecting the consumptive use of water.	07
Q-4	(a)	Attempt all questions An irrigation canal has gross commanded area of 75000 hectares out of which 83% cultivable area. The intensity of irrigation for kharif season and rabi season are 68% and 35% respectively. Find the discharge required at the head of the canal if the duty at its head is 820 hectare/cumec for kharif season and 1900 hectare/ cumec for rabi season.	(14) 07
	(b)	Explain the different layouts of tile drains with sketches.	07
Q-5	(a)	Attempt all questions Enumerate various aspect of Multipurpose river valley project.	(14) 07
	(b)	Derive the relationship between Delta, Duty and Base period.	07
Q-6	(a)	Attempt all questions Explain river training work with neat sketch.	(14) 08
	(b)	What are the ill- effects of water logging? How would you prevent water logging?	06
Q-7	(a)	Attempt all questions What are the factors that affect the alignment of a canal?	(14) 05
	(b)	Write short note on Weep hole.	03
	(c)	Compare Kennedy's and Lacey's theories for the design of irrigation canal in alluvial soil.	06
Q-8	(a)	Attempt all questions Enumerate various types of lining. Explain any two method of lining	(14) 07
	(b)	Differentiate between a permanent and an inundation canal.	03
	(c)	Write short note on: Approach embankment	04

