Enrollment No: _____   Exam Seat No:_____

C. U. SHAH UNIVERSITY
Winter Examination-2021

Subject Name : Irrigation Engineering

Subject Code : 4TE05IRE1   **Branch: B.Tech (Civil)**

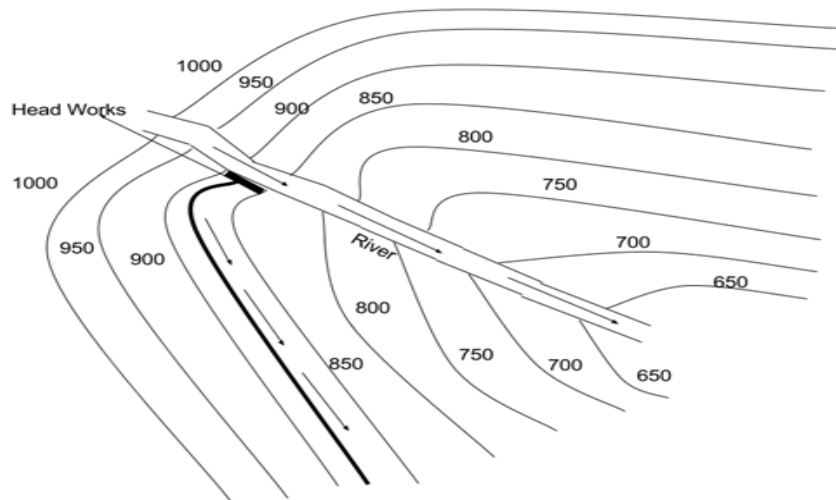**Semester : 5**   **Date : 15/12/2021**   **Time : 11:00 To 02:00**   **Marks : 70**

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   **Attempt the following questions:**   **(14)**
   a) Canal irrigation is generally preferred in _____   1
          a) alluvial canal b) non-alluvial canal c) non-perennial canal   d) feeder canal
   b) The relation between duty (D) in hectares/cumec, delta in metres and base   1
          period (B) in days is
          (a) Delta =8.64B/D   (b) Delta =86.4B/D (c) Delta =864B/D (d) Delta
          =8640B/D
   c)   What is called as the percentage of C.C.A irrigated at a time in one crop   1
          season?
          a) Gross Command Area   b) Culturable cultivated area
          c) Culturable uncultivated area   d) Intensity of irrigation
   d) Loss of canal discharge occurs mainly due to?   1
          a) Seepage and Percolation   b) Percolation and Absorption
          c) Seepage and Evaporation   d) Seepage and Absorption
   e)   What is the other name for Flood Irrigation?   1
          a) Flow Irrigation b) Lift Irrigation c) Surface Irrigation d) Uncontrolled
          irrigation
   f) The efficiency of the centrifugal pumps commonly used for lifting water from   1
          wells may be of the order of _____
          a) 30% b) 65% c) 90% d) 95%
   g) The useful soil moisture for plant growth is _____   1
          a) capillary water b) gravitational water c) hydroscopic water d) permanent
          wilting point
   h) At which point in the entire canal system the duty of water will be more?   1
          a) Head of the Water-course   b) Head of the Minor
          c) Head of the Distributary   d) Head of the Branch
   i) The most widely used type of a deep state tube well in India is _____   1
          a) cavity well   b) strainer tube well
          c) slotted pipe gravel packed tube well   d) both cavity and strainer tube well
   j) Into how many categories the river training works are classified?   1
          a) 2 b) 4 c) 3 d) 5

k) The general average yield from standard tube wells is of order of_____   1
a) 5 L/sec b) 50 L/sec c) 500 L/sec d) 5000 L/sec

l) Which type of alignment does the given figure represent?   1

a) Alignment of Side Slope Canal   b) Alignment of Contour Canal
c) Alignment of Watershed Canal   d) Alignment of Field Channel

m) Which category of river training work deals with flood control?   1
a) Training for Sediment b) Low Water Training c) Training for Depth d)
Training for Discharge

n) Which of the following is not a top Cotton growing state in India?   1
a) Gujarat b) Maharashtra c) Andhra Pradesh d) Bihar

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

Q-2		**Attempt all questions**	**(14)**
	A	Explain the objective and classification of river training works.	7
	B	After how many days the irrigation water should be applied to the land to ensure efficient irrigation For the following condition.	7

1) Field capacity of soil = 30%
2) Permanent wilting point = 12%
3) Dry density of soil = 1.5 g / cm3
4) Effective depth of root zone = 0.80 m
5) Daily consumptive use of water = 12mm
6) Readily available moisture = 80% of the available moisture

Q-3		**Attempt all questions**	**(14)**
	A	Explain the terms: Duty, Delta, Intensity of irrigation, Crop ratio, Kor period, Paleo, capacity factor.	7
	B	What do you understand by water logging? What are the main causes of water logging?	7

Q-4		**Attempt all questions**	**(14)**
	A	Write a note on tube well irrigation.	7
	B	What are benefits and ill effect of irrigation?	7

Q-5		**Attempt all questions**	**(14)**
	A	What is consumptive use of water? Describe any one method of determining the consumptive use of water.	**7**
	B	Explain the salient features of the drip irrigation system. What are the advantages and disadvantages of the drip irrigation system?	**7**

Q-6		**Attempt all questions**	**(14)**
	A	Explain the procedure for designing an irrigation channel using Lacey's theory.	**7**
	B	Write a short note on irrigation project.	**7**

Q-7		**Attempt all questions**	**(14)**
	A	Enumerate various types of lining. Explain any two method of lining	**7**
	B	Explain the procedure for designing an irrigation channel using Kennedy's theory, When Q, N, m and S are given.	**7**

Q-8		**Attempt all questions**	**(14)**
	A	Explain the terms for canal cross-section with neat sketch.	**7**
		(1) Borrow pit	
		(2) Spoil banks	
		(3) Berm	
		(4) Dowla	
		(5) Inspection road	
	B	Explain the classification of drains.	**7**