Enrollment No: _____ Exam Seat No:_____

C. U. SHAH UNIVERSITY

Summer Examination-2022

Subject Name : Irrigation Engineering

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

Semester: 5 **Date: 28/04/2022** **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) What factor creates temporary and continuous water logging? 1
a) Submergence due to Floods b) Flat Topography c) Impervious Obstruction d) Excessive Rains

c) 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

d) A tube well is suitable when the subsoil formation is made up of 1
_____
a) cracked and faulted rock b) alluvium
c) alluvium and various layers of sandy soil,clayey soil, and gravel d) clayey soil

e) What type of roads is provided for inspection purposes? 1
a) Side Road b) Dirt Road c) Service Roads d) Toll road

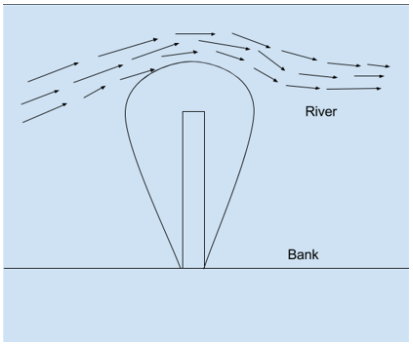
f) In which of the following types of irrigation systems hydroelectric power can be generated? 1
a) Storage Irrigation b) Perennial Irrigation c) Flood Irrigation d) Lift Irrigation

g) What is the measure of the fineness of an aquifer? 1
a) Average grain size b) Effective diameter c) Mean particle size d) Uniformity coefficient

h) Into how many categories the river training works are classified? 1
a) 2 b) 4 c) 3 d) 5

i) Garret's diagram gives the graphical method of designing a channel based on 1
(a) Lacey's theory (b) Gibb's theory (c) Kennedy's theory (d) Khosla's theory

j) What type of groyne does the diagram represent? 1



a) Sedimenting Groyne b) Attracting Groyne c) Repelling Groyne d) eflecting Groyne

k) What is total depth of water, for complete growth of crop called? 1
a) Triangle b) Delta c) Duty of Water d) Rotation Period

l) Which canal is not provided with any headworks for diversion of river water? 1
a) Permanent canal b) Feeder canal c) Perennial canals d) Inundation canals

m) The relation between duty (D) in hectares/cumec, delta in metres and base period (B) in days is 1
(a) Delta =8.64B/D (b) Delta =86.4B/D (c) Delta =864B/D (d) Delta=8640B/D

n) Which type of canal does not need cross drainage structures? 1
a) Side Slope Canal b) Contour Canal c) Watershed Canal d) Field Channel

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

Q-2		**Attempt all questions**	**(14)**
	A	Write a short note on irrigation project.	**7**
	B	Write short note on: i) Approach embankment ii) Afflux embankment	**7**
Q-3		**Attempt all questions**	**(14)**
	A	Explain river training work with neat sketch.	**7**
	B	Define the term: Aquifer, porosity, uniformity coefficient, specific yield specific retention, coefficients of permeability, transmissibility.	**7**
Q-4		**Attempt all questions**	**(14)**
	A	Write a brief note on history of irrigation development in India.	**7**
	B	Explain the procedure for designing an irrigation channel using Kennedy's theory. When Q, N, m and S are given.	**7**
Q-5		**Attempt all questions**	**(14)**
	A	Enumerate various types of lining. Explain any two method of lining	**7**
	B	Define the terms: Duty, Delta, Intensity of irrigation, Crop ratio, Kor period, Paleo, capacity factor.	**7**
Q-6		**Attempt all questions**	**(14)**
	A	Sketch a typical cross-section of a canal which is partly in cutting and partly in filling.	**7**
	B	Write a short note on surface drain and sub surface drain.	**7**
Q-7		**Attempt all questions**	**(14)**
	A	Compare Kennedy's and Lacey's theories for the design of irrigation canal in	**7**

alluvial soil.

B	What are the ill- effects of water logging? How would you prevent water logging?	**7**

Q-8	**Attempt all questions**	**(14)**
A	What is consumptive use of water? Describe any one method of determining the consumptive use of water.	**7**
B	What is meant by canal lining? What are the advantages and disadvantages of lining of canal?	**7**