Enrollment No: _____ Exam Seat No:_____

C. U. SHAH UNIVERSITY

Summer Examination-2022

Subject Name: Irrigation Water Management

Subject Code: 4TE08IWM1 **Branch: B.Tech (Civil)**

Semester: 8 **Date: 05/05/2022** **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) Define irrigation.
b) Define available water.
c) What is the field capacity of soil?

d) Unit of irrigation frequency.
e) Full form of GIS.
f) Write at least three names of Kharif crop.
g) Give the name of three crop seasons observed in India.
h) Define water storage efficiency.
i) Write an equation of project irrigation efficiency.
j) Define Saline soils.
k) Define Alkali soils
l) What is leaching process?
m) Define osmatic pressure.
n) Define conjunctive use of water.

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

Q-2 **Attempt all questions**

(a) Discuss various water management issues. **(7)**
(b) Narrate application of remote sensing in irrigation. **(7)**

Q-3 **Attempt all questions**

(a) Describe types of irrigation systems with a neat sketch. **(7)**
(b) Explain various factors affecting the choice of the irrigation method. **(7)**

Q-4 **Attempt all questions**

(a) Define surface irrigation method. Write design aspect of the Border strip method along with its advantages & disadvantages. **(7)**
(b) Write a short note on the Furrow irrigation method. **(7)**

Q-5 **Attempt all questions**

(a) Draw a layout of the sprinkler irrigation system. Discuss various components of the sprinkler irrigation system. **(7)**

(b) Give a comparison of Sprinkler irrigation and Drip irrigation method. **(7)**

Q-6 **Attempt all questions**

(a) Determine the required capacity of a sprinkler system to apply water at the rate of 1.5 cm/hr. Two sprinkler lines of 225m are required. Fifteen sprinklers are spaced at 15 m intervals on each line. The spacing between lines is 25m. **(3)**

(b) Determine the capacity of a sprinkler irrigation system to irrigate 16 hectares of maize crop, when the depth of each irrigation=5cm, Time allowed for one irrigation=8-day, Operating hours of pump=20hrs per day, Irrigation efficiency=70%. **(4)**

(c) Draw a layout of the Drip irrigation system and discuss the components of the drip irrigation system. **(7)**

Q-7 **Attempt all questions**

(a) Define water conveyance efficiency. How it can be improved. **(3)**

(b) Determine water distribution efficiency in a 120m long border strip when soil sampling after irrigation at 20m intervals along the water run showed that the effective depth of water penetration in the 80cm root zone was 76,78,80,82,70,76 cm. **(4)**

(C) What is irrigation scheduling? How the amount of water to apply per irrigation and frequency of irrigation can be calculated. **(7)**

Q-8 **Attempt all questions**

(a) Write briefly about "Water User Organization" **(3)**

(b) What is meant by waterlogging? Discuss the causes of waterlogging. **(4)**

(c) Discuss the role of community participation in irrigation water management. **(7)**