C.U. SHAH UNIVERSITY
Summer Examination-2018

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

Semester: 5   Date: 03/04/2018   Time: 10:30 To 01:30   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)	If duty is (D) is 1428 hectares/cumec and base period (B) is 120 days, for an irrigated crop, then delta in meters is given by…………..	1
	b)	What are the different methods of irrigation?	1
	c)	What is the shape of lined canal as per IS recommendation?	1
	d)	What is duty?	1
	e)	Define permanent wilting point.	1
	f)	Define furrow irrigation.	1
	g)	Define inundation canal.	1
	h)	What do you understand by water logging?	1
	i)	Write the equation for finding velocity V from Kennedy's equation.	1
	j)	what are the techniques of water distribution in the farms?	1
	k)	what are the causes of water loss?	1
	l)	What is meant by canal escape?	1
	m)	State diff types of sprinkler system.	1
	n)	Define Groynes or spurs.	1

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

Q-2		**Attempt all questions**	**(14)**
	(a)	What are the benefits of irrigation?	**7**
	(b)	Explain the term 'Delta'. Derive the relation between them.	**5**
	(c)	What do you understand by gross commanded area (G.C.A) and culturable commanded area. (C.C.A)?	**2**
Q-3		**Attempt all questions**	**(14)**
	(a)	Explain the investigation process used for project preparation and which data is collected for investigation in irrigation project.	**7**
	(b)	Give assumption and limitation of Dupuit's theory.	**3**
	(c)	Which point should be considered for selection of site for tube well.	**4**

Q-4		**Attempt all questions**	**(14)**
	(a)	Explain the design consideration of guide bank system.	**7**
	(b)	Explain sprinkler irrigation method with its advantages & disadvantages.	**7**
Q-5		**Attempt all questions**	**(14)**
	(a)	Classify the drainage system and explain the drains used for preventing water logging.	**7**
	(b)	Design an irrigation channel by Kennedy's theory to carry a discharge of 15 cumecs. Assume N = 0.0225 and m =1. The channel has a bed slope of 1 in 5000.	**7**
Q-6		**Attempt all questions**	**(14)**
	(a)	Explain objectives of river training.	**2**
	(b)	State the types of river training works and explain any one.	**5**
	(c)	Write various advantages and disadvantages of well irrigation over canal irrigation.	**7**
Q-7		**Attempt all questions**	**(14)**
	(a)	What is lining of irrigation channels and why it is necessary and what are requirement of good lining materials?	**7**
	(b)	Write a short note on techniques of irrigation	**7**
Q-8		**Attempt all questions**	**(14)**
	(a)	Explain the classification of drains.	**7**
	(b)	Design a lined canal to carry $100 m^3/s$ on a slope of 1 in 2500. The maximum permissible velocity is 2 m/s, N=0.03 in mannings formula and the side slope is 1.25 H : 1.0 V.	**7**