

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – SUMMER • 2014****Subject Code: 170602****Date: 03-06-2014****Subject Name: Irrigation Engineering****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Enumerate different methods of irrigation and discuss the merits and demerits of each method. **07**

(b) Draw neat sketch of diversion headwork and explain salient features of each. Discuss the need of fish ladder. **07**

Q.2 (a) Derive relation between Duty and Delta and find out the duty of water if crop requires total depth of 90 cm of water for base period of 120 days. **07**

(b) Define exit gradient and give its permissible values for different soil. Discuss the procedure for finding pressure at different key points **07**

OR

(b) List out limitations of Bligh's creep theory and Determine thickness of floor at 10m and 15m from u/s end if $b=28m$, $d_1=5m$, $d_2=6m$ and $H=4m$. **07**

Q.3 (a) Compare the Bligh's creep theory and Khosla's theory. Describe corrections for (i) thickness of floor (ii) sloping floor as per Khosla's theory **07**

(b) Describe different cross drainage work and list out different design features of the cross drainage work. **07**

OR

Q.3 (a) Differentiate between the following (i) Sprinkler Irrigation and Drip Irrigation (ii) Weir and Barrage **07**

(b) Calculate the discharge of water course having CCA=1400 hectare for following data **07**

Crop type	Intensity of Irrigation	Kor period	Kor depth
A	45 %	20 days	10 cm
B	35 %	15 days	12 cm

Q.4 (a) Why canal falls are provided? Schematically describe any two types of falls commonly used in irrigation. **07**

(b) What is canal lining? Why is it necessary? Give the advantages of it? **07**

OR

Q.4 (a) State the causes of failure of weirs founded on permeable soils and explain their remedies **07**

(b) What do you mean by water logging of soil? Discuss its effect and give the measures to prevent it. **07**

Q.5 (a) Describe the factors affecting the selection of a suitable type of aqueduct and schematically show the different forces likely to act on different aqueducts. **07**

(b) Explain functions of cross regulator and head regulator **07**

OR

Q.5 (a) Compare Lacey's and Kennedy's silt theory and design a channel in alluvial soil using Lacey's theory for $Q=15m^3/sec$, $f=1.0$ and slope 0.5:1. **07**

(b) What is function of Canal escape? Discuss different types of Canal escapes **07**

