

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2170609****Date: 04/05/2017****Subject Name: Irrigation Engineering****Time: 02.30 PM to 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) What do you understand by total planning concept (scope) of irrigation project? **07**  
 (b) Explain the terms (i) Duty (ii) Delta and (iii) Base period. Derive the relation between Duty, Delta and Base period. **07**
- Q.2** (a) Discuss the causes and remedial measures of water logging **07**  
 (b) Write short note on 1). Silt Ejector 2). Divide wall **07**
- OR**
- (b) Explain the salient features of the drip irrigation system. What are the advantages and disadvantages of the drip irrigation? **07**
- Q.3** (a) Describe Bligh's Creep Theory for the design of weirs over pervious foundation. **07**  
 (b) Enlist various forces acting on gravity dam as per IS: 6512 and discuss in detail uplift and wave pressure. **07**
- OR**
- Q.3** (a) What is consumptive use of water? Describe any one method of determining the consumptive use of water. **07**  
 (b) The depth of the downstream sheet pile of a concrete slope weir is 8m. If the safe exit gradient is  $1/6$ , what should be the minimum length (b) of the impervious concrete floor required for the seepage head of 6m. **07**
- Q.4** (a) Describe Kennedy's theory for the design of irrigation channel in alluvial soil. **07**  
 (b) Write short note on spillway crest gates. **07**
- OR**
- Q.4** (a) Give classification of irrigation canals in detail. **07**  
 (b) What is canal fall? Why is it necessary to provide a fall in a canal? Explain with sketch Ogee fall. **07**
- Q.5** (a) Design a channel by Lacey's theory for 40 cumecs capacity. The side slopes may be 1:1. The average size of the bed material may be taken as 0.8mm. **07**  
 (b) Describe briefly 'ogee spillway'. **07**
- OR**
- Q.5** (a) Discuss various methods of assessment of irrigation water. **07**  
 (b) Write a short note on the canal escape. **07**

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