

00594

**B. TECH. (CIVIL ENGINEERING)**

**BTCLEVI**

**Term-End Examination**

**June, 2013**

**BICE-015 : WATER RESOURCES ENGINEERING**

*Time : 3 hours*

*Maximum Marks : 70*

*Note : Answer any seven questions. All questions carry equal marks.*

1. Describe the use of hydrology in Irrigation Engineering. What do you mean by 'Hydrological cycle' ? 10
2. What do you understand by the term 'Flood Frequency' and 'Returns Period' ? Briefly explain any method of flood frequency analysis. 10
3. What is meant by 'duty' ? Enumerate the different terms by which duty can be expressed. What are the factors affecting duty ? 10
4. The gross command area (GCA) of an irrigation canal is 120,000 hectares. The culturable command area (CCA) is 75% of GCA and the intensities of irrigation for Kharif and Rabi crops are 40% and 55% respectively. If the duties of water at the canal are 800 and 1150 hectares for Kharif and Rabi crops respectively, determine the head discharge of the canal. 10

5. With the help of a neat diagram, explain the various parts of a diversion head-work. **10**
  6. Explain the method for the design of a vertical drop weir. **10**
  7. What are the different ways by which a concrete gravity dam may fail ? How will you ensure its safety against each type of failure ? **10**
  8. What do you mean by a 'spill way' and why it is necessary in dam construction ? With the help of neat sketches describe the various types of spillways. **10**
  9. What are the various types of falls ? Briefly describe with the help of a neat sketch. **10**
  10. Discuss the various types of cross - drainage works used in canal system. Illustrate by drawing neat sketch of each type of structure. **10**
-