

**B.Tech. CIVIL ENGINEERING (BTCLEVI)**

00085

**Term-End Examination**

**December, 2014**

**BICE-015 : WATER RESOURCES ENGINEERING**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.

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1. (a) Define hydrology. Discuss its importance. 5
- (b) Explain with the help of a neat sketch, the working of non-recording rain gauge. 5
2. (a) An artesian (confined) tube well has a diameter of 18 cm. The aquifer thickness is 28 m, permeability 36 m/day. Find the yield of tube well under a drawn of 3.8 m. Radius of influence is 250 m. 5
- (b) Explain the different types of tube wells with neat sketches. 5
3. (a) What are the factors affecting irrigation water requirement of crop ? 5
- (b) What is duty of a crop ? How can duty be improved ? 5

4. (a) Explain the Kennedy silt theory in brief. 5  
(b) Describe in detail sprinkler irrigation method and enumerate its advantages and disadvantages. 5
5. (a) What is it necessary to control silt entry in the canal ? What methods are adopted for the purpose ? 5  
(b) Explain the causes of failure of weirs on permeable foundation. 5
6. (a) What are the differences between Bligh's and Khosla's seepage theory ? 5  
(b) What are the different types of dams ? Explain with neat sketches. 5
7. (a) Explain the different steps of design of a gravity dam. 5  
(b) Explain the different components of Barrage. 5
8. (a) What are the different types of intake structures ? Explain with neat sketches. 5  
(b) Discuss the various types of canal falls with sketches. 5
9. (a) Explain the design features of the cross-drainage works. 5  
(b) Explain the different types of spillway with sketches. 5

10. Write short notes on any **four** of the following :

$$4 \times 2 \frac{1}{2} = 10$$

- (a) Precipitation
  - (b) Aquifers
  - (c) Ground Water
  - (d) Canal Escapes
  - (e) Forces on Gravity Dam
  - (f) Delta in Water Resources Engineering
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