

**BTCLEVI**

**Term-End Examination**

**June, 2012**

01325

**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. Assume missing data if any.*

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1. (a) Describe various types of precipitation. 5  
Give a brief description of each.
- (b) What is transpiration ? What are the various 5  
factors that affect the transpiration ?
  
2. (a) Explain the unit hydrograph method for 5  
estimation of runoff and maximum flood.
- (b) A well penetrates in the centre of an 5  
unconfined aquifer bounded externally by a  
circle of radius 600 m along the height of  
water table is 8 m. If at a distance of 10 m  
from the centre of well, the height of water  
table is 7.5 m. when steady conditions are  
established, determine the discharge of the  
well. Take  $K=10^{-4}$  m/s.

3. (a) What are the different types of irrigation schemes ? Discuss the salient features of each. 5
- (b) What are the different factors that affect the water requirement of the crops ? 5
4. (a) What are the various types of losses in reservoir ? How would you minimise them ? 5
- (b) What are the different investigations required for reservoir planning ? 5
5. (a) Compare the relative advantages and disadvantages of a silt excluder and silt extractor. 5
- (b) Discuss Bligh's Creep theory. What are its limitations ? 5
6. (a) Explain the methods of regulation of a weir or a barrages. 5
- (b) Discuss the effects of earthquake accelerations on the stability of gravity dam. 5
7. (a) What are the different modes of failure of gravity dam ? 5
- (b) Explain the Khosla's seepage theories. 5

8. (a) What are the essential requirements of a spillway ? How would you select a suitable site for the spillway ? 5
- (b) What are the functions of the Canal outlet ? What are the requirements of a good outlet ? 5
9. (a) Explain the different types of aqueducts based on the canal cross section at the crossing. 5
- (b) Explain the different types of canal falls. 5
10. Write short note on *any two* of the followings : 2x5=10
- (a) Design Floods
- (b) Consumptive use of water
- (c) Types of Dams
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