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**BICE-015**

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

**Term-End Examination**

**December, 2015**

**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) How would you estimate the run-off from the infiltration capacity curve ? What are its limitations ? 5
- (b) Describe various types of precipitation. Give a brief description of each. 5
2. (a) Explain the unit hydrograph method for estimation of run-off and maximum flood. 5
- (b) Find the delta of a crop, if the duty is 1800 ha/cumec and the base period is 130 days. What would be the duty, if the delta is increased by 20% and the base period is reduced by 10 days ? 5

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) Compare the relative advantages and disadvantages of a silt excluder and silt extractor. 5
- (b) Explain Khosla's seepage theory. 5
5. What do you understand by Siphon spillway ? Draw a neat sketch of a Saddle siphon spillway and explain the functions of its various components. 10
6. (a) Enumerate the various forces acting on a gravity dam. How would you determine the self-weight of a gravity dam ? 5
- (b) Discuss the uses of various devices used for sediment control in the off-taking canal. 5
7. What are the various types of falls ? Briefly describe them with the help of a neat diagram. 10
8. Explain the various parts of a diversion head work, with the help of a neat sketch. 10

9. One distributary is to be designed for irrigating 4500 hectares in Rabi crops and 2500 hectares in Kharif crops. The water requirements of Rabi and Kharif crops are 15 cm and 20 cm depths respectively. If the kor-period for the above two crops are 4 weeks and 2.5 weeks respectively, determine the discharge of the distributary. 10

10. Write short notes on any *two* of the following :  $2 \times 5 = 10$

- (a) Types of Wells
  - (b) Flood Frequency and Return Period
  - (c) Hydrologic Cycle
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