BICE-015

B.Tech. CIVIL ENGINEERING (BTCLEVI)
Term-End Examination
June, 2016

00516

BICE-015 : WATER RESOURCES ENGINEERING

Time : 3 hours	Maximum Marks : 70

Note : *Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted. Assume missing data, if any.*

1. (a) With the help of a neat sketch, explain the various elements of hydrologic cycle. **5**

   (b) Give an account of India's water budget. **5**

2. Describe the empirical and rational methods of flood prediction. Also state the limitations of these methods. **10**

3. Calculate the discharge from a fully penetrating confined well of 300 mm diameter, if the thickness of aquifer is 20 m, drawdown is 5 m, permeability of aquifer is 20 mm/min and the radius of influence is 450 metres. **10**

4. **(a)** What is the necessity of irrigation ? What are the advantages and disadvantages of irrigation ? *5*

(b) What do you mean by effective rainfall ? How is it estimated ? *5*

5. Describe the various zones of storage in a reservoir. What factors should be considered while selecting a site for a reservoir ? *10*

6. With the help of neat sketches, discuss the various components of weir and barrage. *10*

7. Describe Bligh's Creep theory for the design of weirs on permeable foundation. What are its limitations ? *10*

8. What are the causes of failure of gravity dams ? Provide neat sketches to support your answer. *10*

9. Describe the various cross-drainage works and their selection criteria. *10*

10. Write short notes on any *two* of the following : *5+5*

(a) Different types of Spillways

(b) Intake Structures