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BICEE-015

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

June, 2019

00525

BICEE-015 : WATER RESOURCES SYSTEM PLANNING AND DESIGN

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. How do you define systems ? Explain the objectives of water systems planning. *10*

2. Explain in detail about the water resource development alternatives. Give examples. *10*

3. What are Linear Programming and Dynamic Programming models ? Explain in detail. *10*

4. Discuss Economic and Econometric principles in water systems planning. *10*

5. What do you understand by optimization methods in water resources systems ? Write their applications. *10*

6. How is the analysis of a large scale system carried out ? Explain with the help of a case study. *10*

7. Write short notes on any ***four*** of the following : $4 \times 2\frac{1}{2} = 10$

   (a) Economic Life of a Water Resource Project

   (b) Reservoir Capacity Determination

   (c) Flood Control

   (d) Hierarchical Approach in Groundwater Development

   (e) Simplex Algorithm

8. The cost of raising crop one is 6 units/ha, while for crop two is 2 units/ha. These two are grown on a land of 200 ha. The benefit from crop one is 10 units/ha and from crop two is 4 units/ha. A total of 600 units of money is available for raising both the crops. What should be the cropping pattern in order to maximize the total net benefits ? *10*

9. What do you understand by demand analysis ? Explain hydrologic input analysis. *10*