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BICEE-015

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

00606

June, 2016

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.*

1. What do you understand by Water Systems Engineering ? Discuss its scope and approach. *10*

2. Describe, in detail, the objectives of water systems planning. *10*

3. Explain, in detail, the water resources development alternatives. *10*

4. What do you understand by system elements and sub-system planning ? Discuss in detail. *10*

5. What are the various design and management issues faced by water systems engineers ? *10*

6. Using linear programming, determine the area of land to be cultivated with crops 'A' and 'B' for maximum benefits. Use the following data :

Crop	*Net Income (₹/ha)*	*Water Requirement (m^3/ha)*
A	750	5000
B	1250	10000

Total water available = 20×10^6 m^3.

Total cultivable area available = 3000 ha. *10*

7. What do you understand by multi-objective planning ? Provide a case study to support your answer. *10*

8. What is the hierarchical approach in ground water development ? What are its advantages and disadvantages ? *10*

9. Explain in detail the necessity of ground water systems planning. *10*

10. What are the various policy issues faced by water systems engineers and planners ? Discuss in detail. *10*