

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

00832 December, 2017

**BICEE-015 : WATER RESOURCES SYSTEM
PLANNING AND DESIGN**

Time : 3 hours

Maximum Marks : 70

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

1. Describe the systems planning approach in water systems engineering. 10
2. Explain in detail, the water resource development alternatives. 10
3. Describe the various economic and econometric principles used in water systems engineering. 10
4. What is the role of stochastic planning and management in water systems engineering ? 10

5. Explain with the help of an example, the problem formulation in a water resources system. 10
6. What do you understand by multi-objective planning ? Explain with the help of a relevant case study. 10
7. What are the various design and management issues faced by water resources engineers ? 10
8. Discuss the hierarchical approach of ground water systems planning. 10
9. What is the necessity of ground water system planning ? 10
10. Write short notes on any *four* of the following : $4 \times 2 \frac{1}{2} = 10$
- (a) Demand Analysis
 - (b) Subsystems Planning
 - (c) Optimization Methods
 - (d) Conjunctive Development
 - (e) Water Quality Management Planning