

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

June, 2017

00804

**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 slope and approach of water systems engineering in detail. 10
2. What do you understand by water system dynamics ? Explain in detail. 10
3. What are the various constraints and criteria in water systems engineering ? 10
4. What do you understand by hydrologic input analysis and demand analysis ? Discuss in detail. 10

5. Discuss the dynamic programming models commonly used in water resources systems. 10
6. How is the analysis of a large scale system carried out ? Explain with the help of an example. 10
7. What do you understand by conjunctive surface and ground water development ? Provide a relevant case study. 10
8. What is the necessity of regional planning ? 10
9. Explain the various policy issues in ground water systems planning and development. 10
10. Write short notes on any **four** of the following : $4 \times 2 \frac{1}{2} = 10$

- (a) Stochastic Planning
 - (b) Multi-objective Planning
 - (c) Linear Programming
 - (d) Econometric Principles
 - (e) Optimisation Methods
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