

GUJARAT TECHNOLOGICAL UNIVERSITY**ME - SEMESTER- 2 • EXAMINATION – WINTER - 2023****Subject Code:3723303****Date: 16 Jan 2024****Subject Name:Water resources planning****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Identify and discuss in brief various steps involved in planning of water resources development projects. **07**
- (b)** Enlist and explain various feasibility surveys required to be performed for water resource planning **07**
- Q.2 (a)** Explain the role of Applied Hydrology and Hydraulics in water resources planning with suitable example **07**
- (b)** Discuss about economics of water resources and its effective planning for the development of India. **07**
- OR**
- (b)** Explain the following terms with respect to engineering economy (i) economic life and physical life (ii) Sunk cost and opportunity cost. **07**
- Q.3 (a)** Discuss the steps involved in estimating the reservoir capacity. **07**
- (b)** Write a note on allocation of cost in a water resource project. **07**
- OR**
- Q.3 (a)** Write a note on optimization in reservoir operation **07**
- (b)** Write a note on benefit cost analysis and its significance in planning of a water resource project. **07**
- Q.4 (a)** Identify the importance of discounting techniques in planning of water resource projects. Also classify the commonly used discounting techniques with a brief description. **07**
- (b)** Discuss in brief the investigations for planning of a reservoir **07**
- OR**
- Q.4 (a)** Discuss the barriers and constraints involved in effective and sustainable water resource planning. **07**
- (b)** How will you carry out water resource planning with consideration of catastrophic disasters of flood? Support your answer with suitable example **07**
- Q.5 (a)** Enlist and discuss various water laws and policies **07**
- (b)** Discuss the use of simulation techniques and software for water resources planning. **07**
- OR**
- Q.5 (a)** Identify and discuss various social and environmental impacts of water resources project **07**
- (b)** Discuss the controversy of Sardar Sarovar dam of Gujarat and comment on the same with respect to water resource planning. **07**
