

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE – SEMESTER V • EXAMINATION – WINTER - 2012****Subject code: 150602****Date: 12-01-2013****Subject Name: Hydrology & Water Resources Engineering****Time: 02:30 pm to 05:00 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)** What is unit hydrograph ? How it is constructed ? Write assumptions and limitations of the unit hydrograph. **07**

**(b)** What is difference between hyetograph and hydrograph. **07**

**Q.2 (a)** Describe various methods of computing average rainfall over a basin **07**

**(b)** Define evapotranspiration and explain how it is measured. **07**

**OR**

**(b)** Define ground water hydrology and explain occurrence of ground water. **07**

**Q.3 (a)** Write the empirical formulas for ground water velocity determination and explain Darcy's law for that velocity. **07**

**(b)** What are the direct practical tests to estimate the yield of the aquifer ? Explain each in brief. **07**

**OR**

**Q.3 (a)** Describe well losses and specific capacity of the well. **07**

**(b)** Explain the mass curve method that can be used for determining reservoir capacity. **07**

**Q.4 (a)** Explain reservoir sedimentation. How do you estimate the probable life of a reservoir. **07**

**(b)** Write a note on water harvesting. **07**

**OR**

**Q.4 (a)** Explain functional requirements of water resources projects. **07**

**(b)** What are the different methods of flood routing ? Describe the graphical method. **07**

**Q.5 (a)** Explain flood frequency analysis. **07**

**(b)** Write principal components of hydroelectrical scheme and explain each in brief. **07**

**OR**

**Q.5 (a)** Describe various types of hydel schemes. **07**

**(b)** What is flood management ? Explain flood damage analysis. **07**

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