

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. Sem - IV Examination May- 2011

Subject code: 741201

Subject Name: Hydrological Modeling

Date: 16/05/2011

Time: 10.30 am – 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) Explain the role of modeling in water resources management. **07**
(b) Explain the process of hydrological modeling. **07**
- Q.2** (a) Discuss the calibration of hydrological model. **07**
(b) Write short note on Basic rules of modeling. **07**
- OR**
- (b) Discuss in details “Sensitivity analysis of hydrological model” **07**
- Q.3** (a) Discuss various types of surface water quantity management model. **07**
(b) Describe various types of mathematical models. **07**
- OR**
- Q.3** (a) What is HRU’s in SWAT? Explain formation of HRU’s and their role played in modeling. **07**
(b) Explain role of sub-watersheds in SWAT. Which hydrological processes could be modeled at sub-watershed level. **07**
- Q.4** (a) Write short note on (i) MODFLOW (ii) HEC-HMS **07**
(b) Discuss continuous system model of lake aquifer system. **07**
- OR**
- Q.4** (a) Demonstrate the role played by GIS in pre-processing and post processing of hydrological modeling. **07**
(b) Define and discuss the following process (i) Log- normal distribution **07**
(ii) Gumble’s distribution.
- Q.5** (a) Demonstrate the role played by Remote sensing in pre-processing and post processing of hydrological modeling. **07**
(b) Define the terms (i) Variance (ii) Covariance (iii) Central tendency **07**
(iv) Skewness coefficient
- OR**
- Q.5** (a) Write short note on (i) ARS-SWAT (ii) Statistical models **07**
(b) Discuss- Classification of hydrological simulation model. **07**
