

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – I • EXAMINATION – WINTER 2012****Subject code: 711202N****Date: 09-01-2013****Subject Name: Hydrology and Watershed Management****Time: 02.30 pm – 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) Explain: Gumbel's Method of Probability. **07**
 (b) What is Cyclonic and Orographic precipitation? Explain with neat sketch and Explain how you would estimate missing precipitation data? **07**

- Q.2** (a) What is watershed management? Explain in detail. **07**
 (b) Differentiate between Simulation and Mathematical Modeling. **07**

OR

- (b) Differentiate between Stochastic Model and Deterministic Model. **07**

- Q.3** (a) Discuss the different types of treatments applied to watersheds and their role and impact on watershed. **07**
 (b) Explain the California method of flood frequency analysis. **07**

OR

- Q.3** (a) Discuss the factors affecting run-off from basin area. **07**
 (b) Explain the different methods for evaporation control from reservoir. **07**

- Q.4** (a) How the design flood is estimated? Explain in detail. **07**
 (b) A flood of a certain magnitude has a return period of 25 years (a) What is its probability of exceedance? (b) What is the probability that this flood may occur in the next 15 years. **07**

OR

- Q.4** (a) Explain with neat sketch the construction and use of a Float-type of a recording gauge. **07**
 (b) Determine Mean, Standard deviation and co-efficient of variation for the following data(in MM) **07**

321	862	545	412	527	653	482
730	590	990	683	430	600	633
410						

- Q.5** (a) Explain: Model Calibration. **07**
 (b) Explain: Nash Model. **07**

OR

- Q.5** (a) Explain Snyder's method for Synthetic unit hydrograph. **07**
 (b) Explain the channel routing by Muskingum method **07**
