

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Sem-I Regular Examination January / February 2011

Subject code: 711202N

Subject Name: Hydrology & Watershed management

Date: 01 /02 /2011

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 Explain in detail Modified Pul's Method for Reservoir Routing 14
- Q.2 (a) Write short note on Gumbel's Method of probability 07
(b) A flood of a certain magnitude has a return period of 25 years; (a) What is its probability of exceedence? 07
(b) What is the probability that this flood may occur in the next 20 years?
- OR**
- (b) Define: 1) Prism storage. 2) Wedge storage 3) Standard project flood. 07
- Q.3 (a) How WSM is effective in reducing flood peaks 07
(b) Differentiate between Simulation and mathematical modeling 07
- OR**
- Q.3 From the analysis of available data of annual flood peaks of a small stream for a period of 35 years, 50 years and 100 years, flood have been estimated to be 660 cum/sec and 740 cum/sec. Using Gumbel's method estimate the 200 years flood for the stream. 14
- Q.4 (a) Define ϕ - Index and W-Index in detail 07
(b) Explain California method for flood frequency analysis 07
- OR**
- Q.4 (a) Explain in detail curve number method 07
(b) Compare stochastic and deterministic models 07
- Q.5 (a) Explain Channel Routing by Muskingum's method 07
(b) Discuss the factors affecting Infiltration capacity 07
- OR**
- Q.5 (a) Write in detail various watershed characteristics 07
(b) Give details of treatments for watershed improvements 07
