

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER II– EXAMINATION – WINTER - 2016

Subject Code: 2723306

Date: 21/11/ 2016

Subject Name: Hydrological Modeling

Time: 2:30 pm to 5:00 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) Briefly discuss the various types of models for surface and groundwater systems. 07
(b) Define model. Discuss basic rules of modeling. 07
- Q.2 (a) Explain the process of hydrological modeling with a flow chart. 07
(b) Discuss in detail the selection process of models. 07
- OR**
- (b) Explain various types of mathematical models. 07
- Q.3 (a) Discuss 'calibration' & 'validation' of hydrological models. 07
(b) Define the following terms: 07
(i) Variance
(ii) Covariance
(iii) Central tendency and
(iv) Skewness coefficient
- OR**
- Q.3 (a) Explain data preparation for hydrological modeling. 07
(b) Discuss the sensitivity analysis of hydrological models. 07
- Q.4 (a) Define and discuss the following distribution: 07
(i) Log-normal distribution
(ii) Gumble's distribution
(b) Compare the analog simulation and digital simulation. 07
- OR**
- Q.4 (a) Write key modules, governing equation and algorithm of MODFLOW. 07
(b) Compare the capabilities of ARS-SWAT and HEC-HMS. 07
- Q.5 (a) Write short note on "visualization" of models. 07
(b) Write short note on "Goodness -of- Fit" of models. 07
- OR**
- Q.5 (a) Write short note on "Output analysis" of models. 07
(b) Write short note on "measures of performance" of models. 07
