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: (i) Variance (ii) Covariance (iii) Central tendency and (iv) Skewness coefficient	**07**
		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: (i) Log-normal distribution (ii) Gumble's distribution	**07**
	(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**

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