Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME- SEMESTER II– EXAMINATION – SUMMER 2015

Subject Code: 2723306 **Date: 01/06/2015**

Subject Name: Hydrological modeling

Time: 2:30 PM – 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)	Discuss classification of hydrological simulation models.	07
	(b)	Explain the application of modeling in water resources management.	07
Q.2	(a)	Describe the process of hydrological modeling with a flow chart.	07
	(b)	Define the following terms: (i) Variance, (ii) Covariance, (iii) Central tendency and (iv) Skewness coefficient.	07
		OR	
	(b)	Define and discuss the following process: (i) Log-normal distribution and (ii) Gumble's distribution	07
Q.3	(a)	Discuss the sensitivity analysis of hydrological models.	07
	(b)	Describe 'Calibration' and 'Validation' of hydrological models.	07
		OR	
Q.3	(a)	Write the objective function which should be optimized to make the model efficient. How is the model efficiency measured?	07
	(b)	Demonstrate the role played by GIS technologies in pre-processing and post processing of hydrological data.	07
Q.4	(a)	Discuss various types of surface water quantity management models.	07
	(b)	Classify the ground water analog models and describe MODFLOW.	07
		OR	
Q.4	(a)	Describe USGS regression models for urban watershed.	07
	(b)	Explain MUSLE theory for soil erosion.	07
Q.5	(a)	Write short note on "water quality models"	07
	(b)	Write short note on "watershed models"	07
		OR	
Q.5	(a)	Write short note on "NRCS CN method".	07
	(b)	Write short note on " multiple-component models"	07

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