Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E -IVth SEMESTER–EXAMINATION – MAY- 2012

Subject code: 741201 **Date: 12/05/2012**

Subject Name: Hydrological Modeling

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)**	Discuss- Classification of hydrological simulation model	**07**
	(b)	Discuss the calibration of hydrological model.	**07**
Q.2	**(a)**	Write in details Basic rules of modeling.	**07**
	(b)	Discuss in details "Sensitivity analysis of hydrological model"	**07**
		OR	
	(b)	Demonstrate the role played by GIS in pre-processing and post processing of hydrological modeling.	**07**
Q.3	**(a)**	How hydrological modeling can be put to use in mitigation of floods?	**07**
	(b)	What is HUR's in SWAT? Explain procedure of formation of HUR's.	**07**
		OR	
Q.3	**(a)**	What is a pre-processor to simulation Model? Write all preprocessing capabilities of MWSWAT.	**07**
	(b)	Demonstrate the role played by Remote sensing in pre-processing and post processing of hydrological modeling.	**07**
Q.4	**(a)**	Explain the role of 'Time step' in hydrological modeling. Give the 'Time steps' used in MODFLOW.	**07**
	(b)	Classify ground water analoge models.	**07**
		OR	
Q.4	**(a)**	Define and discuss the following process: (i) Gumble's distribution. (ii)Log- normal distribution.	**07**
	(b)	Compare the capabilities of HEC-HMS and ARS-SWAT.	**07**
Q.5	**(a)**	Write key modules, governing equations and algorithms of MODFLOW.	**07**
	(b)	Write short note on: (i) Statistical models (ii) ARS-SWAT	**07**
		OR	
Q.5	**(a)**	Explain the role of modeling in water resources management	**07**
	(b)	Explain the process of hydrological modeling.	**07**

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