Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– III • EXAMINATION – SUMMER 2015

Subject Code: 735001 **Date: 30/04/2015**

Subject Name: SIMULATION MODELING OF MANUFACTURING SYSTEM

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)**	Explain Discrete event simulation with a suitable example.	**07**
	(b	Explain simulation of a single server queuing system with a suitable example.	**07**
Q.2	**(a)**	Explain different types of hypothesis and show various steps for hypothesis	**07**
	(b	Explain type I and II errors with a suitable example.	**07**
		OR	
	(b	Explain different steps for simulation and also mention advantages and disadvantages of simulation.	**07**
Q.3	**(a)**	Explain the model-building process with need for verification and validation.	**07**
	(b	Enlist the advantages and disadvantages of using a simulation packages over general purpose programming languages.	**07**
		OR	
Q.3	**(a)**	Explain Inverse transform Method for random variate generation with suitable example.	**07**
	(b	Define ñRandom Variableò. Also explain Discrete random variable, Continuous random variable, Uniform random variable and Exponential random variable.	**07**
Q.4	**(a)**	Explain Normal and Weibull distribution functions with a suitable example.	**07**
	(b	Generate three random variates from a normal distribution with mean 20 and standard deviation 5.Take n=12 for each observation.	**07**
		OR	
Q.4	**(a)**	Explain Poisson distribution with a suitable example.	**07**
	(b	There are 10 equally reliable semiautomatic machines in a screw manufacturing unit. Their breakdown per day follow the Binomial distribution with probability of failure 0.15.Generate the number of breakdowns for the next seven days. Determine the mean and variance of the generated observations.	**07**
Q.5	**(a)**	Explain desirable features of simulation software.	**07**
	(b	Explain time advance mechanism with a suitable example.	**07**
		OR	
Q.5	**(a)**	Explain simulation of an inventory system.	**07**
	(b	Explain different modeling approaches.	**07**

****