

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME – SEMESTER– I – EXAMINATION – WINTER • 2014**

**Subject Code: 712106N****Date: 05-12-2014****Subject Name: Modeling Simulation and Computer Application****Time: 10:30 am - 01:00 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 different types of models **07**  
(b) Explain discrete random variables for probability as used in simulation **07**

- Q.2** (a) Explain generation and properties of random numbers **07**  
(b) Explain fluid flow modeling for continuous system simulation **07**

**OR**

- (b) Explain shock wave modeling for continuous system simulation **07**

- Q.3** (a) Explain Random number testing using Kolmogrov - Smirnov test using appropriate example **07**  
(b) Explain cumulative distribution function **07**

**OR**

- Q.3** (a) Explain Random number testing using chi-square test **07**  
(b) Explain uniform distribution function **07**

- Q.4** (a) What is continuous system simulation? Explain in detail **07**  
(b) What are the assumptions for stochastic model? **07**

**OR**

- Q.4** (a) Explain acceptance rejection method **07**  
(b) Explain various numerical computational techniques used for simulation **07**

- Q.5** (a) Write a short note on simulation tool for fluid flow. List the simulation procedure for fluid flow. **07**  
(b) Explain Binomial distribution function **07**

**OR**

- Q.5** (a) Write a short note on MatLab as a simulation tool. List the various tools for MatLab **07**  
(b) Explain Poisson's distribution **07**

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