18231(M)

B. Tech 6th Semester Examination

Modeling and Simulation (CBS)

CS-606

Time : 3 Hours   Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt total five questions, Question no. 9 is compulsory. Select one question from each section.

SECTION - A

1. (a) Define simulation. Differentiate the continuous and discrete systems.   (5)

   (b) How to formulate the model for a dynamic system?   (5)

2. Explain the modeling in simple deterministic system.   (10)

SECTION - B

3. What do you mean by distributed random numbers? Explain the properties of random numbers and its consequences.
                                                             (10)

4. Explain the Monte Carlo Simulation methods in detail.   (10)

SECTION - C

5. Explain the steady state behavior of finite and infinite population and also discuss Markovian Models.   (10)

6. Explain the Chi-Square test for random number with an example.   (10)

SECTION - D

7. Explain manual simulation using event scheduling with the help of a suitable example.   (10)

8. (a) What are the major industries where simulation is used? Name any two simulations software.   (6)

   (b) Write short note on statistical output analysis.   (4)

SECTION - E

9. (a) What do you mean by Simulation clock?

   (b) Name the two approaches for the simulation clock advancing.

   (c) What are the events in a single server model?

   (d) Define state of the system.

   (e) Which model uses random number? How random number is used in the model? Explain.

   (f) What is the difference between analytical methods and simulation?

   (g) What are discrete probability functions?

   (h) How simulation helps in time- to-market industry?

   (i) Monte Carlo Simulation is a special case of Stochastic Simulation. Comment.

   (j) What is cost analysis?   (10×2=20)