

M-190149

B.Tech. EXAMINATION, 2019

Semester VI (CBS)

MODELING AND SIMULATION

CS-606

Time : 3 Hours

Maximum 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 Five questions in all. Q. No. 9 is compulsory. Select one question from each Section.

Section A

1. What do you mean by simple deterministic systems ?
Explain the rates and system dynamics. **10**
2. Explain the reasons for simulation. Differentiate the time-oriented and event systems. **10**

Section B

3. Define stochastic variables. Differentiate the Stochastic Simulation and Monte Carlo Simulations. **10**
4. Explain the Monte Carlo Simulation methods in detail. **10**

Section C

5. Explain the Chi-square test for random number with an example. **10**
6. Explain the linear congruential method and combined linear congruential random number generation methods. **10**

Section D

7. Explain the concepts of discrete event simulation. **10**
8. Design a flowchart of typical arrival event and departure event in a single channel queueing system. **10**

Section E

9. (a) What kind of problems are with simulations ? 2
- (b) What is state of a system ? 2
- (c) Explain the discrete and continuous system. 2
- (d) What are the three measures of the system performance in a single queueing system ? 2
- (e) What is the cost analysis ? 2
- (f) Define feedback system and its applications. 2
- (g) What do you mean by a system modeling ? 2
- (h) Name any *five* blocks in GPSS. 2
- (i) Monte Carlo Simulation is a special case of stochastic simulation. Comment. 2
- (j) What are the measures of effectiveness ? 2