Ajay Kumar Garg Engineering College, Ghaziabad

Department of MCA

Sessional Test-2

Course: MCA
Session: 2017-18
Subject: Simlulation & Modeling
Max Marks: 50

Semester: V
Section: MCA-1 & 2
Sub Code: NMCAE32
Time: 2 hour

Note: Answer **all** the sections.

Section-A

A. Attempt **all** the parts.   (5 X 2 = 10)

1. Define system simulation.
2. What do you mean by distributed lag model?
3. Name two system simulation techniques.
4. Differentiate between Monte-Carlo simulation and stochastic simulation.
5. Write the Equation for generating Linear Congruential Generators (LCG).

Section-B

B. Attempt **all** the parts.   (5 X 5 = 25)

6. Simulate water reservoir system.
7. Differentiate
   (i) Simulation & Analytical Methods   (ii) Analog Simulation & Digital Simulation
8. What are the different methods for test of randomness? Explain any one.
9. Discuss the simulation of servo System.
10. Draw a cobweb model for the following market:

$$D = 12.4 - 1.2P$$
$$S = 8.0 - 0.6P_{-1}$$
$$P_0 = 1.0$$

Section-C

C. Attempt **all** the parts.   (2 X 7.5 = 15)

11. Explain in brief:
    (i) Real Time Simulation   (ii) Hybrid simulation
    (iii) Event-to-event model

12. Compute following parameters for a single server queuing system. The Inter arrival time & Service time are given by the following table:

Customer	Inter arrival Time	Service time
1	0	20
2	10	15
3	15	10
4	35	5
5	30	15
6	10	15

(i) Average waiting time of customers. (ii) Average time customer spends in the system.

(iii) Average time between the arrivals. (iv) Probability of the server being busy.