(3 Hours) [Total Marks : 100

N.B. (1) Question No. 1 is compulsory
(2)Attempt any four questions out of remaining six questions.

Q-1 a) Define System state, Event notice, Activity, Event list, Delay and Clock. (10)

b) Explain different steps in simulation study. (10)

Q-2 a) Describe the Event Scheduling Time Advanced Algorithm. (10)

b) How would you select simulation software? Mention the features of any one simulation software. (10)

Q-3 a) State the properties of random numbers. How are random numbers generated? (10)

b) What do you understand by "Goodness of Fit Test"? Write the procedure for the same. (10)

Q-4 a) Perform the simulation of the Inventory System. Daily demand is represented by the random numbers 4, 1,8,5,2 and demand probability is given by (10)

Demand	Probability
0	0.2
1	0.5
2	0.3

If the initial inventory is 4 units, determine on which day the shortage condition occurs.

b) Explain Poisson Process along with its properties. (10)

Q-5 a) Explain the following with example (10)

I. Terminating Simulation
II. Non-terminating Simulation

b) Define Correlation and Covariance.Explain Time series Model. (10)

Q-6 a) Give the equation for steady state parameters of M/G/1 queue and Derive M/M/1 from M/G/1. (10)

b) Explain in detail verification of simulation model. (10)

Q-7 Write Short note on (any two) (20)

a) Inverse Transform Technique.
b) Issues in the simulation of manufacturing system.
c) Cobweb Model.