

Exam.Code:0918
Sub. Code: 6409

2023
B.E. (Computer Science and Engineering)
Sixth Semester
CS-603: Modeling and Simulation

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following:-

- a) Define the term model and system.
- b) What is the importance of random nos. in simulation?
- c) Explain the term entity, attributes, event.
- d) Explain the uniform distribution.
- e) What are the various network simulation available?
- f) Briefly explain the continuous probability function, Discrete probability function.
- g) Briefly explain the difference between arithmetic and floating point variables of GPSS.
- h) Briefly explain the nargchk function in MATLAB.
- i) Customers arrive at random to a license bureau at a rate of 50 customer/hrs. presently there are 20 clerks, each serving 5 customer/hour on average. Calculate the average utilization of a server.
- j) Briefly explain the SIM mode of transfer block in GPSS. (10x1)

UNIT - I

- II. a) Explain the steps in simulation study with the help of a flowchart.
b) List any five circumstances when the simulating is the appropriate tool and when it is not. (2x5)
- III. a) Explain components and organization of a discrete event simulation model.
b) Monte Carlo simulation is a special case of stochastic simulation. Comment. (2x5)

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- IV. a) Explain the event graph for inventory control.
b) What are the various components of a single server queuing system? (2x5)

UNIT - II

- V. a) Generate three random variables with mean $\alpha=0.2$ in Poisson distribution
[Random No. 0.4357, 0.4146, 0.8353, 0.9952, 0.8004]
b) Generate the random nos. using mid-square method with seed no. 3567 formation
of cycle as stopping condition. (2x5)
- VI. a) A machinery centre is producing parts at the rate of 10 ± 2 minutes. The parts
move to a quality control inspector, who spends 9 ± 4 minutes on inspection of a
part. At inspection 10% of the parts are rejected. The statistics about the time spent
by the parts in the inspection, the queue length etc. are to be gathered. Draw a
GPSS block diagram for the production system.
b) Write a program in MATLAB for Binomial distribution. (2x5)
- VII. a) Briefly explain the concepts of any network simulation.
b) Explain any five block in GPSS. (2x5)