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

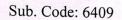
NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

- 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 α =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)