

CBCS SCHEME

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15CS834

Eighth Semester B.E. Degree Examination, July/August 2021 System Modeling and Simulation

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions.

- 1 a. Define Simulation. Write the advantages and disadvantages of simulation. (08 Marks)
b. What is system and system Environment? Explain the components of a system with examples. (08 Marks)
- 2 a. Explain event scheduling algorithm, with example. (08 Marks)
b. Explain the flow diagram the execution of the arrival and departure event. (08 Marks)
- 3 a. Explain the characteristic of queuing system. (08 Marks)
b. Explain uniform distribution and exponential distribution with example. (08 Marks)
- 4 a. Discuss in detail about networks of queue. (08 Marks)
b. Explain Long-run measures of performance of queuing systems. (08 Marks)
- 5 a. Explain the different techniques used for generating random numbers with example. (08 Marks)
b. Use Komogorov Smirnov test to find out whether the random numbers generated are uniformly distributed on the interval $[0, 1]$ can be rejected. Assume $\alpha = 0.05$ and $D_\alpha = 0.565$ and the random numbers are 0.54, 0.73, 0.98, 0.11, 0.68. (08 Marks)
- 6 a. Explain acceptance rejection technique with example. (08 Marks)
b. Generate 3 poisson variable with mean 0.2 consider random numbers 0.4357, 0.4146, 0.8353, 0.9952, 0.8004. (08 Marks)
- 7 a. List the steps involved in the development of a useful model of input data. (08 Marks)
b. Explain four methods of selecting input models without data. (08 Marks)
- 8 a. Discuss Quantite-Quantile plots with example. (08 Marks)
b. Explain Chi-square goodness of fit test for exponential distribution with example. (08 Marks)
- 9 a. Explain with a neat diagram model building, verification and validation process. (08 Marks)
b. Explain calibration and validation model with neat diagram. (08 Marks)
- 10 a. Discuss output analysis for terminating simulation in detail. (08 Marks)
b. Explain optimization versus simulates. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.