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06CS82

Eighth Semester B.E. Degree Examination, December 2010
System Modeling and Simulation

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions, choosing atleast TWO questions from each part.*

PART – A

1. a. When is a simulation an appropriate tool? When is it not? (12 Marks)
   b. Explain the various components of simulation with an example. (08 Marks)

2. a. Explain the model of 'single channel queue' in detail. (12 Marks)
   b. What is list processing? Explain the basic operations of list processing. (08 Marks)

3. a. Briefly explain the various probability terminologies and concepts. (12 Marks)
   b. What is Poisson process? Mention the properties of Poisson process. (08 Marks)

4. a. Explain the various steady state parameters of M/G/1 queue. (08 Marks)
   b. Explain the service times and server mechanics used in queuing system with an example. (08 Marks)
   c. What is networks of queue? Mention the general assumptions for a stable system with infinite calling population. (04 Marks)

PART – B

5. a. Briefly explain the various techniques used to generate random numbers. (12 Marks)
   b. Explain any two inverse transform techniques. (08 Marks)

6. a. Mention the important points to be noted while collecting data. (08 Marks)
   b. Briefly explain the suggested estimators for distributions often used in simulation. (12 Marks)

7. a. Briefly explain the confidence – interval estimation method. (10 Marks)
   b. Explain the two methods to specify the initial conditions in steady state simulation. (10 Marks)

8. a. Differentiate the processes of verification and validation. (04 Marks)
   b. Explain the 3 steps involved in model building. (06 Marks)
   c. Explain the iterative process of calibrating a model. (10 Marks)

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