MEDC-202

M.E./M.Tech., II Semester

Examination, May 2019

Modelling and Simulation of Computer

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Explain need of system modeling and discuss various types of models. 7
   b) Define discrete event simulation and discuss its advantages and disadvantages with suitable example. 7

2. a) Explain various phases involved in the process of simulation along with their importance. 7
   b) What are probability distribution functions? Explain Poisson's distribution function with suitable examples. 7

3. a) Define a queuing model and explain how it is useful for the simulation of single queuing system. 7
   b) Explain the following queuing system characteristics. 7
      i) Calling population
      ii) System capacity
      iii) Arrival process
      iv) Queue behaviour and discipline
      v) Service time and service mechanism

4. a) What are the desired properties of random number generators and also discuss various tests for random numbers. 7
   b) Discuss random variant distribution and explain inverse transform technique in detail. 7

5. a) Explain the methods to generate random numbers and also discuss acceptance and rejection technique. 7
   b) Explain the modelling of data collection and also discuss how to identify distribution of data. 7

6. a) Explain the role of output analysis and discuss various types of simulation based on output analysis. 7
   b) Describe performance metrics and discuss various measures to estimate the performance of a single model. 7

7. a) What do you understand by model verification and validation and describe briefly the various method for validating input model. 7
   b) Describe initialization bias in steady-state simulation. 7

8. Distinguish between
   a) Terminating and non-terminating simulation 7
   b) Input models with and without data 7

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