

13. Explain with an example, importance of data distribution using Histogram. Also explain any *three* steps in the development of a useful model of input data ?

Or

Write short note on differential and partial equation models. Explain different types of simulation with respect to output analysis for terminating simulations. **11**

Roll No.

Exam Code : J-19

Subject Code—0428

M.C.A. (Fifth Year) EXAMINATION

(Batch 2009 Onwards)

(5 Years Integrated Course)

SYSTEM SIMULATION AND MODELING

MCA-504

Time : 3 Hours

Maximum Marks : 70

Section A

Note : Attempt any *Seven* questions. **7×5=35**

1. What do you mean by system Modeling, what are the measures for effectiveness ?
2. Explain in brief what are Discrete Systems and Stochastic Systems ?
3. What is meant by Simulation ?

4. Define the following terms used in Simulation :
 - (a) Entity
 - (b) Attribute.
5. What is the use of Chi-square test ? Give examples.
6. What are the different methods in selecting the statistical distribution ?
7. What is meant by the state of a system ? Explain with an example.
8. Explain the concept in discrete event simulation.
9. Explain Monte-Carlo simulation method with an example.
10. Explain different statistical models.

Section B

Note : Attempt all the questions.

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11. What do you mean by verification and validation of simulation model ? Explain calibration and validation of models, with the help of diagram.

Or

Using multiplicative congruential method, generate random numbers to complete cycle. Explain maximum density and maximum period
 $A = 11, m = 16, X_0 = 7.$ **12**

12. Write short notes on the following :
 - (a) Time Advance Algorithm
 - (b) Optimization via. Simulation.

Or

Explain chi-square goodness of fit test. Apply it to Poisson Assumption with $\alpha = 3.64$, data size = 100 and observed frequency. [where $X_{0.05,5}^2 = 11.1$] : **12**

0_i 12 10 19 17 10 8 7 5 5 3 3 1

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P.T.O.