Or

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

Subject Code—0398

M.C.A. (Fifth Year) EXAMINATION

(5 Years Integrated Course)

(For Batch 2009 Onwards) (Main & Re-appear)

SYSTEM SIMULATION AND MODELING

MCA-504

Time : 3 *Hours* *Maximum Marks :* 70

Section A

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

1. What is System Modeling ?

2. What is the difference between the analytical and simulation ?

3. Explain, in brief, what are continuous systems and Stochastic systems ?

4. What is meant by simulation ?

5. Define the following terms used in Simulation :

(a) Entity

(b) Attribute

6. Explain discrete random variables with the help of an example.

7. What is the use of Chi-square test ? Give example.

8. What is meant by the state of a system ? Explain with an example.

9. Explain Bernoulli trials and Bernoulli distribution.

10. Compare simulation packages with programming language.

Section B

Note : Attempt all the questions.

11. With the help of a flow diagram, explain the simulation of single channel queuing system.

Or

What do you mean by verification and validation of simulation model ? Explain calibration and validation of models with the help of diagram. **12**

12. Write short notes on the following :

(a) Optimization via simulation

(b) GPSS.

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**

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.