

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1297 Roll No. 1 2 4 5 9 1 4 0 6 1

MCA

**(SEM. III) ODD SEMESTER THEORY
EXAMINATION 2013-14
MODELLING AND SIMULATION**

Time : 3 Hours

Total Marks : 100

Note :- Attempt questions from each Section as indicated.

SECTION-A

1. Attempt all parts : (10×2=20)
- (a) Define the term simulation and experimental frame.
 - (b) Write principles for building models.
 - (c) Differentiate between physical and mathematical model.
 - (d) Give any three situations when simulation is the appropriate tool and not an appropriate tool.
 - (e) Define Model. What are the different types of models ? Name them.
 - (f) What is Continuous Simulation ?
 - (g) Differentiate between analog and digital simulation.
 - (h) What do you mean by System Dynamics ?
 - (i) What is PERT and CPM ?
 - (j) What is object-oriented simulation ?

SECTION-B

2. Attempt any **three** parts : (3×10=30)
- (a) Name four principal entities, attributes and activities for the following systems :
- (i) A fast food restaurant
 - (ii) A hospital emergency room
 - (iii) A railway reservation system
 - (iv) University examination system.
- (b) Explain various techniques of simulation.
- (c) Explain simulation of water reservoir system.
- (d) Explain exponential growth model.
- (e) Explain CSMP-III simulation language.

SECTION-C

3. Attempt any **five** questions : (5×10=50)
- (a) What do you mean by a Corporate Model ? Discuss full corporate model with the help of a suitable diagram.
- (b) Describe different steps in simulation study.
- (c) Define Discrete Simulation. Explain fixed-time step and event-to-event discrete simulation model.
- (d) What are Pseudo-Random Numbers ? Explain methods of testing random number generation of uniformly distributed random numbers.
- (e) Explain modified exponential growth model. What is generalization of growth models ?
- (f) Explain MODSIM-III simulation language. What are its features ?
- (g) Explain forward pass method to compute the critical path of an activity network.