

Roll No. ....

**Subject Code—2090**

**M. C. A. (Fifth Year) EXAMINATION**

**(5 Years Integrated Course)**

**MCA-504**

**SYSTEM SIMULATION AND MODELLING**

*Time : 3 Hours*

*Maximum Marks : 100*

**Note :** Attempt any *Five* questions. All questions carry equal marks.

1. (a) What do you mean by model ? Give the description of various types of model.

**10**

- (b) What are the advantages and disadvantages of System Simulation ?

**10**

2. Differentiate between the following :

- (a) Continuous simulation and discrete simulation

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- (b) Analog simulation and digital simulation
- (c) Fixed time simulation and even-to-even simulation
- (d) Hypotheses, theory and law
- (e) Model Data and Real System Data.

**5×4=20**

3. Write short notes on the following :

- (a) Expression Based Language
- (b) SIMSCRIPT.

4. (a) Explain the following :

(i) Verification

(ii) Validation.

**15**

(b) Differentiate between numerical integration and continuous integration. **5**

5. (a) Explain the uses of Time-sharing computer system in simulation process.

**10**

- (b) Explain briefly process involved in driving a model. 10
6. Write a program for traversing activity network in the forward and backward pass to identify the critical activities of the networks. Also explain how would you determine the probability that the project will be completed within schedule time. 20
7. (a) Explain the following terms in detail :  
(i) Data aggregation  
(ii) Accuracy  
(iii) Credibility 15
- (b) What are features of discrete and continuous simulation language ? 5
8. Describe in detail what manner Database and AI approaches play an important role in modelling and simulation. 20