MCA
(SEM VTH) THEORY EXAMINATION 2018-19
SIMULATION AND MODELING

Time: 3 Hours   *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1.   **Attempt *all* questions in brief.**   **2 x 7 = 14**
   a.   What is the Parameter Estimation?
   b.   Write any two properties of Pseudo Random Numbers?
   c.   How error estimation is done in Simulation?
   d.   Give the advantages of Poisson Distribution?
   e.   List the features of Non Exponential Distribution?
   f.   What are the Stochastic Activities?
   g.   Define the Sample Size?

SECTION B

2.   **Attempt any *three* of the following:**   **7 x 3 = 21**
   a.   Explain is Stationary process with example?
   b.   Explain the various types of Single Server Queuing System and Inventory problem?
   c.   Compare and contrast Random Number and Random Variate?
   d.   Describe the various principle used in modeling?
   e.   Differentiate between PERT and CPM?

SECTION C

3.   **Attempt any *one* part of the following:**   **7 x 1 = 7**
   (a)   Explain Inverse Transform Technique? Derive an expression for exponential distribution?
   (b)   What is Queue Behavior and Queue Discipline? List queuing notation for parallel server system?
4.   **Attempt any *one* part of the following:**   **7 x 1 = 7**
   (a)   What do you mean by world view? Discuss the various types of world view?
   (b)   Describe the process of model building verification and validation in details?
5.   **Attempt any *one* part of the following:**   **7 x 1 = 7**
   (a)   Explain Absolute clock and relative clock time in GPSS? How do you update the clock time in simulation?
   (b)   Define CSMP? Describe different types of statement in CSMP with example?
6.   **Attempt any *one* part of the following:**   **7 x 1 = 7**
   (a)   Describe different phase of simulation study with the help of flowcharts?
   (b)   What is Time Series input model? Explain AR (1) and EAR (1) model?
7.   **Attempt any *one* part of the following:**   **7 x 1 = 7**
   (a)   What is dummy activity? Why do we need dummy activities? In this context, bring out clearly the difference between identity and logic dummies?
   (b)   State the rules of constructing a project network?