Reg. No.

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MCA DEGREE V SEMESTER EXAMINATION NOVEMBER 2015

CAS 2502 SIMULATION AND MODELING
(Regular and Supplementary)

Time: 3 Hours   Maximum Marks: 50

PART A
(Answer *ALL* questions)

$(15 \times 2 = 30)$

I. (a) Define simulation. List some of the application areas of simulation.
    (b) List the components in a discrete event simulation model.
    (c) List some of the advantages and disadvantages of simulation.

II. (a) Which are the different approaches to storing lists in a computer?
    (b) Compare and contrast general purpose versus application oriented simulation packages.
    (c) Explain the general features of SIMSCRIPT.

III. (a) Explain the properties of random numbers.
     (b) Describe uniform distribution in inverse transformation technique.
     (c) List the different tests for random numbers.

IV. (a) Explain expectation of a random variable.
    (b) Define mean and variance.
    (c) Explain cumulative distribution function with an example.

V. (a) Explain stochastic nature of output data with an example.
    (b) Describe any two methods of identifying the distribution with data in input modeling.
    (c) With an example explain steady state simulation of a system.

PART B

$(5 \times 4 = 20)$

VI.   Explain continuous simulation with an example.
OR
VII. Explain Monte Carlo simulation with an example.

VIII. Explain the desirable software features when selecting simulation software.
OR
IX.   Compare the simulation languages with programming languages.

X.   Describe the generation of pseudo-random numbers.
OR
XI.   Explain exponential distribution in inverse transform technique.

XII. Explain discrete random variables and continuous random variables with examples.
OR
XIII. Briefly explain the characteristics of a queuing system.

XIV. With a neat diagram explain model building, verification and validation of a simulation model.
OR
XV.   Explain output analysis for terminating simulations.

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