

TCS-506

192

Printed Pages : 3

Paper Code & Roll No. to be filled in your Answer Book

Roll No.

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Odd Semester Examination-2016

B.Tech (Semester-V)**MODELLING & SIMULATION**

[Time : 2 Hours]

[Maximum Marks : 50]

Note : Attempt **all** questions.1. Attempt **any four** questions : [3×4=12]

- (a) What is Single Server Queuing problem? Simulate it with suitable example.
- (b) What is the difference between Static physical model & Dynamic physical models, Explain it with suitable example?
- (c) Discuss various time event mechanisms.
- (d) Give a layout for simulation of University Registration System.
- (e) Write a short note on Monte Carlo simulation.

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(1)

[P.T.O.]

2. Attempt **any four** questions : [3×4=12]

- (a) What is storage entity in GPSS? Discuss its various blocks and related SNA.
- (b) What is method of testing random number generation of non-uniformly distributed random numbers?
- (c) Write a program to generate uniformly distributed random numbers between 0 & 1. Study & Comment on the behaviour of least significant digit of these number generated?
- (d) How do programmers deal with the exception situation in Simulation process?
- (e) Discuss the Queues in GPSS?

3. Attempt **any two** questions : [6×2=12]

- (a) Discuss the various general approaches to generate random variables?
- (b) Explain LCG method. Use the LCG method to generate a sequence of random numbers where $Z_0=27$, $a=13$, $c=37$ and $m=100$?
- (c) Explain Uniformity test. A sequence of 1000 four-digit numbers has been generated and an analysis

indicated the following combinations & frequencies :

Combination, i	Observed Frequencies, O_i
Four different digits	565
One Pair	392
Two Pairs	17
Three Like Digits	24
Four Like Digits	2
Total	1000

4. Attempt **any two** questions : [7×2=14]
- (a) Discuss Little's theorem. Discuss the analytical results for M/M/1, M/M/1/N, M/M/c and M/G/1 Queuing models?
- (b) Explain Chi-square goodness-of-fit test for exponential distribution, with an example.
- (c) Write short notes on :
- (i) Applications of Queuing Theory
 - (ii) Generalized Poisson Queuing System

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