

Roll No

MCSE - 302(B)

M.E./M.Tech., III Semester

Examination, June 2016

Simulation and Modeling (Elective-II)

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions. All questions carry equal marks.

- 1. a) Consider the grocery store with one checkout counter prepare the simulation table for eight customers and find out average waiting time of customer in queue idle time of server, and average service time. The Inter Arrival Time (IAT) and Service Time (ST) are given in minutes.
IAT: 3, 2, 6, 4, 4, 5, 8
ST (min): 3, 5, 5, 8, 4, 6, 2, 3
Assume first customer arrives at $t = 0$ 7
- b) Generate 10 random numbers by using the following function: 7
 $Y = 0.5093 + 0.2 \sin(X) \quad 0 \leq X \leq \pi/2$
- 2. a) What do you mean by system simulation? What are main drawbacks of simulation technique? 7
- b) How can we compute the steady state solution of the M/M/1 queue? 7
- 3. a) List the circumstances under which simulation is the appropriate tool and circumstances under which simulate is not appropriate tool. 7
- b) How DYNAMO simplifies the equation? Explain and describe with example. 7

- 4. a) What is System Dynamic Modeling? Explain causal loop diagrams and flow diagrams with example. 7
 - b) Explain the different techniques used for generating random numbers with examples. 7
 - 5. a) What is the role of random numbers in system simulation? Discuss multiplicative congruence generator method for generating random numbers. 7
 - b) What do you mean by verification and validation of simulation model? Explain. 7
 - 6. a) Discuss the Acceptance-Rejection method for the generation of pseudo-random numbers. 7
 - b) Write a brief notes on POWERSIM. 7
 - 7. a) Briefly explain the three-step approach, the aids in the validation process. 7
 - b) Differentiate between continuous and discrete system. 7
- http://www.rgpvonline.com
- 8. Write short notes on the following: (Any Four) 14
 - a) Analytic Vs Simulation Model
 - b) Simulation Language
 - c) Characteristics of Queuing system
 - d) Probability concepts in simulation process
 - e) High Level computer system simulation

http://www.rgpvonline.com

http://www.rgpvonline.com

http://www.rgpvonline.com

http://www.rgpvonline.com