

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Computer Science and Engg.) (Sem.-6)

SIMULATION AND MODELLING

Subject Code : BTCS-606-18

M.Code : 79251

Date of Examination : 07-07-22

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) What is Probability density function?
- b) Name the entities, attribute, activities, events, and state variables for the Airport system.
- c) What is quantile-quantile plot?
- d) What is sample size?
- e) What is parametric test?
- f) What is output analysis?
- g) What are the characteristics of queuing system?
- h) What is non-stationary poisson process?
- i) What is normal distribution?
- j) What is dynamic mathematical model?

SECTION-B

2. What do you mean by time advance mechanisms in simulation? Discuss Discrete-Event time advance approach with flowchart.
3. Given the pdf $f(x) = \frac{x^2}{9}$ on $0 \leq x \leq 2$ develop a Random variate generator for this distribution.
4. The cars arriving at a gas station is Poisson distributed with a mean of 10 per minute. Determine the number of pumps to be installed if the firm wants to have 50% of arriving Cars as zero entries (*i.e.*, cars serviced without waiting).
5. What is System simulation? Explain the steps involved in simulation study.
6. What is queuing notations? Explain the long-run measures of performance of queueing systems.

SECTION-C

7. What are random numbers? Why these numbers are important for simulation experiments? Explain the Combined Linear Congruential Generators method for generating random numbers.
8. What is input modeling? What are the different steps involved in input modeling?
9. Discuss the output analysis for steady-state simulation.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.