

Roll No.

Total No. of Pages : 02

Total No. of Questions : 18

**B.Tech. (CSE) (Sem.-6)**  
**SIMULATION AND MODELING**

Subject Code : BTCS-601

M.Code : 71107

Date of Examination : 02-07-22

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION 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**

**Answer briefly :**

- 1) Mention two advantages and two disadvantages of simulation.
- 2) Write the major operations of list processing.
- 3) List the statistical tools used for data analysis.
- 4) Differentiate activity and attribute with respect to system simulation.
- 5) What is an unbiased estimator? Give example.
- 6) What is sampling with equal and unequal variances?
- 7) Name any two techniques to generate Pseudo-Random numbers.
- 8) Compare process orientation and event orientation in simulation of computer systems.
- 9) What is meant by stochastic nature of output data?
- 10) State the equivalence property of queuing networks.

## SECTION-B

- 11) What is meant by event scheduling and time-advance mechanism in discrete event simulation? Give appropriate examples for both.
- 12) Describe the inverse transformation technique for Weibull and for Empirical Continuous Distribution.
- 13) What is preemptive and non-preemptive priority discipline queuing model? Give example.
- 14) Do you think the test of significance is important in the comparison and evaluation of simulation models? Give proper reasons.
- 15) Discuss the concept of both, confidence interval with specified precision and multiple linear regressions.

## SECTION-C

- 16) What is the use of network queues? Briefly discuss the steady state behavior of infinite (M/G/l) and finite (M/M/c/K/K) calling population models.
- 17) Explain the basic structure of queuing models by taking any suitable queuing model and highlight the role of exponential and non-exponential distributions in statistical modeling.
- 18) Describe the following with respect to input modeling :
  - a. Chi-Square and Chi-Square with equal probabilities.
  - b. Calibration and Validation.

**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.**