d) Write about the inverse transform method. 2

8. a) What are the properties of random numbers? 2

b) Explain Linear Congruential Method for random number generation. 6

c) How to test a random number? Explain. 3

d) What do you mean by input modeling? 3

UNIT - V

9. Write short notes on: 5+5+4=14

a) Iterative process of calibration

b) Optimization via simulation

c) Confidence-internal estimation

10. a) Explain the estimation of absolute performance. 7

b) Explain validation and verification of models. 7

PG/INTEGRATED ODD SEMESTER (CBCS) EXAM., FEBRUARY 2021

COMPUTER SCIENCE

5th Semester

COURSE NO. MCSCC - 502

(Modeling and Simulation)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

(Answer any five)

UNIT - I

1. a) Define simulation. 2

b) What is random variable? How is it so important in real time systems? 2

c) Discuss the steps of simulation. 5

d) Compare continuous time models and discrete event models with examples. 5

2. a) Write the techniques to perform verification of simulation model. 4

b) Write the steps to perform the validation of a simulation model. 4

c) Explain spreadsheet simulation. 3

d) Write the data collecting sources. 3

UNIT - II

3. a) What are the components of bliscrete event simulation? Explain. 3

b) Define state and clock. 2

c) Compare single threaded and multi-threaded simulation. 2

d) Explain three-phased approach. 3

e) Write the time-advance algorithm. 4

4. a) What is statistical model? Give example. 2

b) Simulate the single-channel queue problem by demonstrating the simulation table if 10

Inter Arrival Time	8	6	1	8	2	8
Service Time	4	1	4	3	2	4

c) What is list processing? 2

UNIT - III

5. a) What is queueing system? What are the characteristics of a queueing system? 4

b) What is Little's Law? 2

c) Explain network of queues. 4

d) What do you mean by inventory system simulation? Give example. 4

6. a) What are the factors of queueing system? 3

b) Compare single-server queue and multi-server queue. 5

c) Explain steady-state behavior of Finite-population Model. 6

UNIT - IV

7. a) How is histogram helpful in input modeling? Explain with example. 5

b) What are the key factors for selecting the appropriate distributions in simulation? 4

c) What is chi-square test? How is it related to modeling? 3