2017/ODD/18/24/MCS–502/360

UG Odd Semester (CBCS) Exam., December—2017

COMPUTER SCIENCE

(5th Semester)

Course No. : MCSCC–502

(Modelling and Simulation)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The questions are of equal value

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. Write a simulation model and program for a fighter and an enemy bomber aircraft pursuit problem with the following assumptions :

(a) The target and the pursuer are flying in the same horizontal plane

(b) The fighter's speed V_F is constant (20 km/min)

(c) The target's path is specified as

Time (t)	1	2	3	4	5	6	7	8	9	10	11	12
$X_B(t)$	80	90	99	108	116	125	133	151	151	160	169	189
$Y_B(t)$	0	–2	–5	–9	–15	–18	–23	–29	–25	–35	–21	–20

(d) After a fixed time span the fighter changes its direction in order to point itself toward the bomber.

Find out whether the fighter will chase the bomber.

2. Explain the basics of spread sheet simulation of a queuing system.

UNIT—II

3. List the general principle simulation software and explain the simulation model through GPSS.

4. Write a simulation model for a discrete event inventory problem, stating the assumptions.

UNIT—III

5. Write a simulation model for a single-server queue system.

6. Write a simulation model for a two-server queue system.

UNIT—IV

7. Write a program to generate and print 5000 uniformly distributed random numbers between 0 and 1.

8. Write a program for a deterministic problem to find the value of   through random numbers.

UNIT—V

9. Explain the output analysis for terminating simulations.

10. Explain the output analysis for steady-state simulations.

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