Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech(CSE)/SEM-7/CS-704F/2012-13

2012

MODELLING AND SIMULATION

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : 5 × 2 = 10

   i) Experiment with the actual system is the part of

      a) system

      b) experiment with a model of the system

      c) physical model

      d) mathematical model.

   ii) Analytical solution is the solution of

      a) mathematical model b) simulation

      c) physical model d) both (b) & (c).

   iii) Simulation is done on

      a) mathematical model b) conceptual model

      c) physical model d) none of these.

iv) GPSS was designed for

a) Simulation of queuing system

b) ALGOL

c) SIMULA

d) GPSS/H.

v) Historical data are generated

a) by using random number generation

b) without using random number generation

c) by using the prime number generation

d) without using prime number generation.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

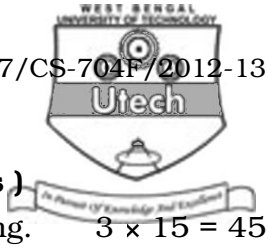
2. What is analytic model ? Explain briefly what is system and what is simulation.

3. What is feature event list ? Write down an event scheduling time advanced algorithm.

4. What are the phases of project life cycles ? Explain them briefly.

5. What are historical records ? Explain how they are generated.

6. Explain structure *vs* behaviour model.



GROUP – C
(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. What do you understand by list processing ? What is a record ? How is list processing done by Dynamic Link list ? What do you understand by the simulation environment ? Write short notes on GPSS & SIMULA 8. 2 + 2 +1 + 2 + 4 + 4

8. What are discrete and continuous random variables ? How memoryless properties holds in exponential distribution ? Show that the inter-arrival times of the incoming jobs are exponentially distributed for Poisson Distribution. 3 + 4 + 8

9. What are random integer and random numbers ? What is the period and density of the random number ? Write a procedure to generate the random number. How do we test the random number ? 2 + 2 + 2 + 2 + 5 + 2

10. What is Verification and Validation of Simulation Models ? Explain how Model Building is used to Verification and Validation. 3 + 3 + 9

11. Measure the system performance of M/M/1 model stating M/M/1 model in detail. 15