B.E. (IT) Sem VII

Con. 5609–09. Computer Simulation & Modelling SP–6686

(3 Hours) [Total Marks : 100

N.B. : (1) Questions No. 1 is compulsory.
(2) Solve any four questions out of remaining six questions.

1. (a) What is meant by modeling and simulation? Explain different types of simulation. 10

(b) Describe briefly queueing , inventory and reliability systems. 10

2. (a) Draw flowchart for arrival event and departure event. Compare event Scheduling, process interaction and activity scanning approach 10

(b) What are the different categories of simulation software? Mention the features of GPSS simulation software 10

3. (a) What is Poisson process? Relate it to arrival event. And explain queue behavior and queue discipline 10

(b) Describe useful statistical models employing discrete and continuous distribution 10

4. (a) Test the following random numbers for independence by poker test: 10

{ 0.594, 0.928, 0.515,0.055, 0.507, 0.351, 0.262, 0.797, 0.788, 0.442, 0.097, 0.798, 0.227, 0.127, 0.474, 0.825, 0.007, 0.182, 0.929, 0.852, }

$\alpha = 0.05$, $X^2_{0.05,2} = 5.99$

(b) By using inverse transform technique which of the distributions random Variates can be generated. Develop a random variate generator for random Variable X with p.d.f. 10

$f(X) = e^{2X}, -\infty < X \leq 0$

$e^{-2X}, 0 < X < \infty$

5. (a) Describe the steps involves in the development of a model of input data. how would you collect input data 10

(b) Which tests are used to test goodness of fit? Describe any one of them 10

6.	(a)	State the properties of random numbers. How are random numbers generated?	10
	(b)	explain verification and validation process	10
7.	(a)	Write short notes on acceptance /rejection technique	10
	(b)	Write short notes on simulation of manufacturing system	10