

IV B.Tech II Semester Supplementary Examinations, Apr/May 2006
SIMULATION & MODELLING

(Common to Computer Science & Engineering and Mechatronics)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Discuss the advantages and disadvantages of simulation.
(b) Discuss some of the areas of application of system simulation. [8+8]
2. (a) Explain the distributed lag model with an example.
(b) Give the advantages of distributed lag model compared to other models. [10+6]
3. (a) Explain about analog computers and analog methods used in simulation.
(b) Discuss about hybrid computers and digital-analog simulators. [8+8]
4. What are important methods for generating random numbers? Explain rejection method and inverse transformation method. What are the difference between the above two methods? [16]
5. A production department has 20 identical machines. The run time until failure of a machine occurs is exponentially distributed with a mean of 10 hours. Repair times are uniformly distributed between 2 and 6 hours. Develop a simulation model to find.
(a) how many repair persons are needed to ensure that the mean number of machines running is greater than 16.
(b) if there are 4 repair persons, estimate the expected number of machines, that are either running or being served. [8+8]
6. (a) Explain the three main simulation programming tasks to be performed with the help of two suitable diagrams.
(b) Discuss the following:
 i. Counters
 ii. Utility
 iii. Occupancy [8+8]
7. Write a SIMSCRIPT program of a production unit which follows LIFO rule. [16]
8. (a) Discuss the permanent and temporary entities with respect to SIMSCRIPT and GPSS.
(b) Discuss the implementation of Activities in SIMSCRIPT and GPSS. [8+8]
