**Code No: D5708** **R09**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**M.Tech II - Semester Examinations, March/April 2011**
**SYSTEM MODELING AND SIMULATION**
**(VLSI SYSTEM DESIGN)**

**Time: 3hours** **Max. Marks: 60**

**Answer any five questions**
**All questions carry equal marks**
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1. a) Define simulation modeling. Explain about event driven models.
   b) Discuss about the discrete event simulation. [6+6]

2. a) What is meant by system integration? Explain.
   b) Explain about discrete and distributed delays. [6+6]

3. a) Explain system encapsulation.
   b) Define petrinet. Discuss the standard petrinet nomenclatures. [6+6]

4. a) Discuss about random walks, and draw the state diagram for a four-node random walk with reflecting borders.
   b) Define Poisson process? List out the Poisson Postulates and its properties? [6+6]

5. a) Suppose that telephone calls arrives randomly through out the day at an office at an average rate of 3 calls per two minutes. Assuming this is to be a Poisson process:
      i) How many calls expected between 2.00pm to 2.10pm.
      ii) What is the probability to receive more than 3 calls between 2.00pm to 2.02pm?
      iii) What is the probability to receive more than 3 calls between 2.15pm to 2.19pm?
   b) Discuss about M/M/C Queues. [12]

6. a) Explain about Alpha /Beta trackers.
   b) Discuss about multi dimensional optimization. [6+6]

7. a) Discuss the techniques for increasing model validity and credibility.
   b) Compare the simulation packages with programming languages. [6+6]

8. Write any **two** of the following:
   i) Continuous time Markov process.
   ii) White noise
   iii) State machines. [12]

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