USN | 1 | P | I | 1 | 0 | S | S | E | 0 | 6 |

First Semester M.Tech. Degree Examination, January 2011
Computer Systems Performance Analysis

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. Write and explain the steps common to all performance evaluation projects that help to avoid the common mistakes made during the performance evaluation. **(10 Marks)**
   b. With a neat diagram, explain the possible outcomes of a service request made to the system. **(05 Marks)**
   c. Write a note on the utility classification of performance metrics. **(05 Marks)**

2 a. Write and explain the steps taken to characterize measured workload data using clustering. **(10 Marks)**
   b. List the types of test workloads that have been used to compare computer systems. Explain any one. **(05 Marks)**
   c. Discuss the "impact of external components" and "repeatability" in the workload selection. **(05 Marks)**

3 a. Describe the design issues that occur during the design of software monitors. **(10 Marks)**
   b. What are the accounting logs? List their merits and demerits. **(05 Marks)**
   c. List at least five techniques for improving program performance. **(05 Marks)**

4 a. What is benchmarking? List and explain the mistakes that have been observed repeatedly during benchmarking. **(10 Marks)**
   b. Mention the limitations of the current RTES. **(04 Marks)**
   c. With a neat diagram, explain the capacity planning process. **(06 Marks)**

5 a. Discuss the most frequently used experimental designs by giving their advantages and disadvantages. **(10 Marks)**
   b. List and explain the analysis techniques which are informal and have results which are easy to explain to the decision makers. **(10 Marks)**

6 a. With a neat diagram, explain the basic components of a queue. **(10 Marks)**
   b. On a network gateway, measurements show that the packets arrive at a mean rate of 150 packets per second (pps) and the gateway takes about 3 milliseconds to forward them. Using an M|M|1 model, analyse the gateway. What is the probability of buffer overflow, if the gateway had only 15 buffers? How many buffers do we need to keep packet loss below one packet per million? **(06 Marks)**
   c. What is queuing networks? Give the classification of queuing networks. **(04 Marks)**

7 a. Explain how the recursion in MVA can be avoided. Give the modified MVA algorithm. **(10 Marks)**
   b. Describe the Chandy – Herzog- Woo decomposition method. **(06 Marks)**
   c. Explain at least two limitations of queuing theory. **(04 Marks)**

8 Write short notes on:
   a. Evaluation techniques
   b. Sieve kernel benchmark
   c. Distributed system monitor
   d. Balanced job bounds. **(20 Marks)**

* * * * *