Seventh Semester B.E. Degree Examination, December 2011
Real Time Systems

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting atleast TWO questions from each part.*

PART – A

1 a. Define real time systems. Explain different types of real time systems. (04 Marks)
    b. Describe the elements of a computer control system. (08 Marks)
    c. Discuss the different types of programs in system design. (06 Marks)
    d. Classify RTS, based on time constraints. (02 Marks)

2 a. With an example, explain sequence control in field application. (10 Marks)
    b. Explain supervisory control, with an example. (05 Marks)
    c. Write a note on Hierarchical systems. (05 Marks)

3 a. Explain digital signal interference, with a neat diagram. (08 Marks)
    b. Describe multi – level interrupts. (06 Marks)
    c. Write an explanatory note on pulse input and output interfaces. (06 Marks)

4 a. Discuss the requirements that a user should look for, in a programming language. (08 Marks)
    b. Define the following with respect to real time programming languages :
      i) Scope and visibility   ii) Global and local variables   iii) Modularity
      iv) Data types   v) Derived types   vi) Exception handling. (12 Marks)

PART – B

5 a. Discuss the two methods of code sharing, in detail. (08 Marks)
    b. Briefly explain mutual exclusion. (06 Marks)
    c. What are the two scheduling strategies? Explain briefly. (06 Marks)

6 a. Explain data transfer without synchronization. (08 Marks)
    b. What do you mean by semaphores? Explain. (06 Marks)
    c. List and explain the three levels of priority structures. (06 Marks)

7 a. Explain mutual exclusion, using conditional flags. (06 Marks)
    b. With a neat flow chart, describe the single program approach, with reference to RTS design. (08 Marks)
    c. Write a note on the basic software module, with respect to RTS. (06 Marks)

8 Write explanatory notes on the following :
    a. Hatley and Pirbhai method. (10 Marks)
    b. Ward and Mellar method. (10 Marks)

*****