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06EC762

Seventh Semester B.E. Degree Examination, June 2012
Real Time Systems

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Define a real time system. Explain generalized computer control system with hardware and software interface details. (10 Marks)
b. Classify real time systems based on time constraint with an example for each and appropriate equations. (10 Marks)
- 2 a. With a neat block diagram, explain Direct Digital Control. (07 Marks)
b. Write PID control algorithm. (03 Marks)
c. Describe supervisory control with a neat block diagram. (06 Marks)
d. Discuss gain scheduled programmed adaptive control. (04 Marks)
- 3 a. Briefly explain the following:
i) Parallel computers ii) Polling iii) DMA (06 Marks)
b. Explain analog interface for input and output operation. (08 Marks)
c. With a neat block diagram, explain interrupt masking. (06 Marks)
- 4 a. Define CUTLASS. What are the major requirements of CUTLASS? Describe CUTLASS host target configuration. (10 Marks)
b. With an example program, Explain interrupts and device handling. (10 Marks)

PART – B

- 5 a. Explain typical structure of a real time operating system (RTOS). (06 Marks)
b. What are the basic functions of the task management module? With system commands explain RTOS task state diagram. (10 Marks)
c. What do you mean by minimum operating system Kernel? List its functions. (04 Marks)
- 6 a. What is code sharing? How do you overcome code sharing problem? Explain. (10 Marks)
b. Write a note on detailed arrangement of IOSS. (05 Marks)
c. Explain different mechanisms supported by RTOS for the transfer of data between tasks. (05 Marks)
- 7 a. Discuss preliminary design details of real time system. (10 Marks)
b. Define mutual exclusion principle and explain mutual exclusion with a neat flow chart and sample program. (10 Marks)
- 8 a. Write a note on:
i) Yourdon methodology. (05 Marks)
ii) Drying oven-context diagram. (07 Marks)
b. Differentiate : Ward and Mellor methodology and Hotley and Pirbai methodology. (05 Marks)
c. List various real time system development methodologies. (03 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.