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06EC762

Seventh Semester B.E. Degree Examination, Dec.09/Jan.10
Real Time Systems

Time: 3 hrs. Max. Marks:100

Note: ***1. Answer any FIVE full questions, selecting at least TWO questions from each part.***
2. Missing data or figures may be suitably assumed.

PART – A

1 a. Define:
i) Real time system ; ii) Clock based system
iii) Event based system ; iv) Interactive system. **(08 Marks)**

b. Differentiate :
i) Real time and non real time programming; ii) Hard and soft real time with examples. **(06 Marks)**

c. Why real time programming is more difficult to verify than non real time programming? **(02 Marks)**

d. Draw the block diagram of a generalized computer control system. **(04 Marks)**

2 a. List the advantages and disadvantages of DDC? **(04 Marks)**

b. Explain briefly: i) Preprogrammed adaptive control ; ii) Self tuning adaptive control ; iii) Model reference adaptive control. **(06 Marks)**

c. Compare batch processing and continuous processing. **(04 Marks)**

d. Write a note on distributive system. **(06 Marks)**

3 a. Why is memory protection important in real time system? What methods can be used to provide memory protection? **(04 Marks)**

b. Define: i) Asynchronous and synchronous transmission technique ; ii) Interrupt response vector ; iii) Polling. **(06 Marks)**

c. Explain process related interface, with suitable examples. **(10 Marks)**

4 a. How do strong data typing contribute to the security of programming language? **(06 Marks)**

b. Explain the approaches of application oriented software. **(08 Marks)**

c. What is cutlass and what are the major requirements of cutlass? **(06 Marks)**

PART – B

5 a. Explain: i) Task chaining and swapping ; ii) Task overlaying. **(07 Marks)**

b. Explain the task management system, with states of tasks. **(07 Marks)**

c. Explain the scheduling policies. **(06 Marks)**

6 a. What is code sharing? Explain the serially reusable and reentrant code. **(07 Marks)**

b. Explain the mutual exclusion using binary semaphore. **(07 Marks)**

c. List the minimum set of operation that RTOS kernel need to support, with examples. **(06 Marks)**

7 a. Explain foreground and background systems, with flowchart. **(10 Marks)**

b. How data will be shared with common memory? **(05 Marks)**

c. Differentiate pool and channel. **(05 Marks)**

8 a. Explain Yourdon methodology. **(05 Marks)**

b. Explain with relevant diagrams the Ward and Mellor method. **(07 Marks)**

c. Write about the environmental model, with context diagram for drying oven. **(08 Marks)**

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