

**REAL TIME SYSTEMS**

Time: 3 hrs

Max. Marks:100

**PART-A**

- 1 a. Define  
1) Real time system 2) Clock based system  
3) Event based system 4) Interactive system.(8M)  
b. Differentiate :  
1) Real time and non real time programming 2) Hard and soft real time with examples.(6M)  
c. Why real time programming is more difficult to verify than non real time programming?(2M)  
d. Draw the block diagram of a generalized computer control system.(4M)
- 2 a. List the advantages and disadvantages of DDC?(4M)  
b. Explain briefly: 1) Preprogrammed adaptive control 2) Self tuning adaptive control  
3)Model reference adaptive control.(6M)  
c. Compare batch processing and continuous processing.(4M)  
d. Write a note on distributive system.(6M)
- 3 a. why is memory protection important in real time system? What methods can be used to provide memory protection?(4M)  
b. Define 1) Asynchronous and synchronous transmission technique 2) Interrupt response vector 3) Polling.(6M)  
c. Explain process related interface, with suitable examples.(10M)
- 4 a. How do strong data typing contribute to the security of programming language?(6M)  
b. Explain the approaches of application oriented software.(8M)  
c. What is cutlass and what are the major requirements of cutlass?(6M)

**PART-B**

- 5 a. Explain : 1) Task chaining and swapping 2) Task overlaying.(7M)  
b. Explain the task management system, with states of tasks.(7M)  
c. Explain the scheduling policies.(6M)
- 6 a. What is code sharing? Explain the serially reusable and reentrant code.(7M)  
b. Explain the mutual exclusion using binary semaphore.(7M)  
c. List the minimum set of operation that RTOS kernel need to support, with examples.(6M)
- 7 a. Explain foreground and background systems, with flowchart.(10M)  
b. How data will be shared with common memory?(5M)  
c. Differentiate pool and channel.(5M)
- 8 a. Explain Yourdon methodology.(5M)  
b. Explain with relevant diagrams the Ward and Mellor method.(7M)  
c. Write about the environmental model, with context diagram for drying oven.(8M)

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