

B.E. Degree Examinations, April 2011
Electrical and Electronics Engineering
Sixth Semester
EE9351 Embedded System Design

Time: 3 Hours

Max.Marks: 100

Answer ALL Questions

Part -A (10 x 2=20 Mark)

1. Give two factors specific to Embedded processors that differentiates it from a General Processor.
2. What is the advantage of running a processor at reduced clock speed and full clock speed for certain instructions?
3. What is need for watch dog timer and reset after the watched time?
4. What is the role of RTS & CTS signals in serial communication bus protocols?
5. What is Blocksize & what is its impact in memory access?
6. What is 'real time' and 'real time clock'?
7. How are Busy & Wait modes advantageous for I/O device interfacing?
8. What is difference between compiler & cross assembler?
9. What is critical section of a Task?
10. How does a Pipe differ from a Queue?

Part -B (16 x 5=80 Mark)

11) Specify with advantage two reasons for the need for RTOS based Embedded Processor. Write briefly on Task Control Blocks & its role. (4+12)

12a) What is need for memory management? With neat figures explain the memory mapping techniques. (4+12)

(OR)

12.b) Explain Briefly on any Two : (8+8)

- (1) Serial Bus Communication Protocol
- (2) Memory Devices Read/ Write operation
- (3) Bus arbitration & Speed Enhancement of Buses.

13a) List any three strategies for synchronization between Tasks & ISRs. How is a counting Semaphore created? What are the limitations if OS makes all ISR to share a single stack? (6+5+5)

(OR)

13b) With neat figures explain on the USB protocol & state how it can be considered for a multiple device Serial Bus Communication. (16)

14a) How does the DMA based processor outperform the interrupt handling efficiency for a typical case as Digital Camera automation? (16)

(OR)

14 b) What is the advantage of Time-Slicing in RTOS? What are Preemptive & Non- Preemptive Scheduling? Write briefly on Scheduling of Processes.(4+12)

15a) With neat figures explain how Co-processing unit like the 6845 CRT Display controller is effective in building a multitask application. (4+12)

(OR)

15b) Write Briefly on any Two: (8+8)

- (1) Cache memory is a Boon & a Bane for embedded systems.
- (2) Modern Trend in use of Embedded Processor for Application development
- (3) Need for functions like Kernels, message in a processor