

B.E. Degree Examinations, May/June 2011
Electrical and Electronics Engineering
Seventh Semester
EE513 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 Blocksize & what is its role in memory access?
4. What is 'real time' and 'real time clock'?
5. What are advantages of Busy & Wait mode for I/O devices?
6. What is the need for RTS & CTS signals in serial communication bus protocols?
7. What is role of watch dog timer?
8. What is difference between compiler & cross assembler?
9. What are Preemptive & Non- Preemptive Scheduling?
10. Discuss how an embedded processor is designed specific for a washing machine?

Part -B (16 x 5=80 Mark)

11) Write briefly on 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) How does the DMA based processor outperform the interrupt handling efficiency for an Embedded Processor? (16)

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

(OR)

13.b) Write Briefly on any Two :

(8+8)

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

14a) Discuss the need for functions like Kernel, ISR, Task, Thread in a processor.

(OR)

14 b) What is the advantage of Time-Slicing? 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
- (2) Modern Trend in use of Embedded Processor for Application development
- (3) Simulators , Emulators