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**B.E Degree END SEMESTER EXAMINATIONS, May/June 2013**

**Electrical and Electronics Engineering**

**Sixth Semester/ R- 2008**

**EE 9351 Embedded System Design**

**Time: 3 Hours**

**Max. Marks: 100**

**Answer ALL Questions**

**PART – A (10 x 2 = 20 Marks)**

1. State how an embedded processor supports is unique compared to a general purpose PC interface.
2. What is role of processor reset and system reset?
3. Why is it important to include Processors with interrupt service routines?
4. What is the need for i2c BUS Communication?
5. State a cause for interrupt Latency and discuss on one solution to avoid it.
6. How is vector address used for an interrupt source?
7. Brief on the need of a watchdog timer with reset functionality after the watched time.
8. When does a preemption event occur in a RTOS based system?
9. What is a Assembler & a cross- compiler?
10. Give 2 unique features that make PIC microcontroller useful for building of embedded applications.

**PART – B ( 5 x 16 = 80 Marks)**

- 11) Explain briefly on how special Embedded processor have improved efficiency with use of multitasking RTOS with scheduling mechanism.

(16)

- 12 a) List any two factors which may be the cause for delay in peripheral interface Explain with neat diagrams on how DMA based processor can remove delay for higher speed process.

(4+12)

(OR)

12 b) Give the Building blocks for an Embedded system & explain on how on-chip memory management schemes can improve higher speed process. (4+12)

13 a) Justify the types & need for various Bus communication standards. Describe one type of the serial communication BUS with its communication protocol. (4+12)

(OR)

13 b) Explain on any two of the following (8+8)

- (i) Cache replacement policy
- (ii) RAM & ROM devices
- (iii) Memory mapping techniques

14 a) Write briefly on any two: (8+8)

- (i) Semaphores for intertask communication
- (ii) mailbox & message for Interprocess communications
- (iii) pipe & queue for multitasking

(OR)

14 b) Write briefly on any two: (8+8)

- (i) Interrupt driven data transfer
- (ii) Instruction pipeline
- (iii) Device driver

15 a) Write briefly on the special features & commands of VxWorks as a special RTOS (16)

(OR)

15 b) Explain briefly on the role of PIC microcontroller with I/O interface for a typical embedded application design. (16)