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Question Paper Code : 21318

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Sixth Semester

Electronics and Instrumentation Engineering

CS 2364/EI 64/10133 EE 703 — EMBEDDED SYSTEM

(Common to Instrumentation and Control Engineering)

(Regulation 2008/2010)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Mention the major challenges in Embedded system design.

2.   Which type of memory is more suitable for Embedded systems? Justify your answer.

3.   Mention the advantages and disadvantages of Interrupt driven I/O operation.

4.   List the main features of PCI/X bus.

5.   What are Non-maskable interrupts? State how NMIs are important for Embedded systems.

6.   What is the use of Semaphore?

7.   State the main differences between Real time OS and Conventional OS.

8.   Specify the significant features of QNX.

9.   What are the major structural units in PIC microcontroller?

10. What is the function of MBasic compiler?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain in detail the steps of Embedded system design process. (10)

    (ii) Describe the basic block diagram of an Embedded real time system. (6)

Or

    (b) (i) Explain the need for memory management. Discuss about the different memory management methods. (10)

    (ii) Discuss briefly the Embedded computory applications. (6)

12. (a) Discuss in detail the function of major structural units in Embedded system. (16)

Or

    (b) (i) Explain the function of Device drivers. (6)

    (ii) Explain how data is transferred using VSB bus and PCI bus. (10)

13. (a) (i) Explain what is Interrupt overrun. Describe how to prevent the Interrupt overrun. (8)

    (ii) Discuss about Multithreaded programming. (8)

Or

    (b) Explain the principle of Preemptive and Non-preemptive multi tasking. Discuss about the scheduling algorithms suitable to these two types of multi tasking. (16)

14. (a) (i) Describe the basic concepts of Real time OS. What are the different types of RTOS? (8)

    (ii) Explain the features of µC/OS-II. (8)

Or

    (b) (i) Explain the Interrupt handling in RTOS environment. (8)

    (ii) Discuss about the services of Unix based RTOS. (8)

15. (a) Explain the PIC microcontroller based embedded system design.

Or

    (b) (i) Explain the use of microcontroller based embedded development boards. (10)

    (ii) Write a short note on basic output and digital input system. (6)

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