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Code No: A5503, A7703, A5710

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I Semester Examinations, March/April-2011

EMBEDDED SYSTEM CONCEPTS

(COMMON TO EMBEDDED SYSTEMS, EMBEDDED SYSTEMS AND VLSI DESIGN, VLSI SYSTEM DESIGN)

Time: 3hours **Max. Marks: 60**

Answer any five questions

All questions carry equal marks

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1.a) Draw the basic block diagram of structural units of a processor in ES and explain the functions of each block.

b) What is a microcontroller? How does a microcontroller differ from a DSP? [12]

2.a) Describe the serial interfaces, timer/counters and interrupts in 8051.

b) Explain the concept of software timers as the virtual timing devices in an embedded system. [12]

3.a) Explain how serial communication performed using the 12C Bus between the networked multiple devices.

b) Explain the computer parallel communication between the networked I/O multiple devices using the ISA, PCI, PCI-X and advanced buses. [12]

4.a) What is a timer device? Why should there be at least one timer device in a system?

b) Describe popular serial bus protocols used in ES. [12]

5.a) What is an exception and how is an error handling task executed on throwing the exception?

b) Explain the concepts of process, task and thread and their control block. [12]

6.a) What are the advantages and disadvantages of the busy and wait transfer mode for I/O devices?

b) Explain the Interrupt Servicing mechanism in a system. [12]

7. Explain the Development process of an embedded system. [12]

8. Write short notes any **two**

a) Embedded programming in C

b) Inter-process communication

c) Embedded system on chip (SOC). [12]

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