

Code No: A5503

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I Semester Regular Examinations March 2010

EMBEDDED SYSTEMS CONCEPTS

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

Time: 3hours

Max.Marks:60

Answer any five questions
All questions carry equal marks

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- 1.a) Define the terms 'System' and 'Embedded System'. Explain the skills needed in designing an embedded system.
- b) With suitable example explain the procedure for designing an embedded system on a VLSI Chip. [6+6]
- 2.a) Explain the structural units in general-purpose processors and their functions.
- b) Explain how DMA features enables the devices of the embedded system to access the system memories directly. [6+6]
- 3.a) Tabulate the examples of various types of I/O devices used in an embedded system.
- b) Explain the concept of software timers as the virtual timing devices in an embedded system. [6+6]
- 4.a) Explain about serial port device drivers in an embedded system.
- b) Explain the usual hardware interrupts that relate to the internal device of an embedded system. [6+6]
- 5.a) Explain the concepts of 'Context' and 'Context-switching' in an embedded system.
- b) How to solve the priority inversion problem and a deadlock situation when using a semaphore? [6+6]
6. Explain in detail about the use of software tools for development of an embedded system. [12]
- 7.a) Explain the uses of Target system or its emulator and ICE.
- b) Draw and explain an action plan for designing a system in its development process. [6+6]
8. Write short notes on any TWO of the following.
 - a) CAN Bus.
 - b) Device driver ISR.
 - c) Threads. [6+6]
