NR

Code No: A5503

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech I Semester Examinations, October/November-2011
EMBEDDED SYSTEMS CONCEPTS
(EMBEDDED SYSTEMS)

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

Answer any five questions
All questions carry equal marks
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1.a) Show the various functional circuits in a core of an embedded system. And explain the significance of those circuits.
b) Mention the characteristics features of any two CISC microcontrollers. [12]

2.a) How does a memory map help in the designing a locator program? What is the intel format for the ROM image record?
b) How do separate caches for instruction, data, and branch transfer help in speed up of a system?
c) Explain the power saving modes in Power PC. [12]

3.a) Give the classification of I/O devices and explain various types of communication.
b) Mention various ways of synchronization in I/O devices.
c) Present format bits in synchronous HDLC protocol. [12]

4.a) Design a table that compares the maximum operating speed, bus length of ISA & PCI.
b) How does a USB protocol provide for a device attachment, reattachment, configuration, reset, reconfiguration, bandwidth sharing with other devices?
c) Mention different forms of Timers and their uses. [12]

5.a) Explain with examples each char, block and block device configurable as char device.
b) Discuss about the classification of processors Interrupt service mechanism from context saving angle. [12]

6.a) A system that controls traffic lights at a major inter section, reads from sensors that notice the presence of cars & pedestrians, has a timer and turns the red and green appropriately. What type of architecture do you propose for this system? Justify your decision with proper reasoning.
b) Explain the functioning of semaphores in RTO‘s with suitable examples. [12]

7.a) How does a inter process a communication takes place between two process? How do we shield data in a critical section of a process before being processed and changed by another higher priority process that stars executing before the first process finishes?
b) Discuss four software architectures moving from one to another that give you a great control. [12]

8.a) What are the issues of HW and SW in an Embedded system that need to be addressed by any development team?
b) Discuss the typical features of a simulator. [12]

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