

Code No: 57043

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, May/June - 2015****EMBEDDED SYSTEMS****(Common to ECE, ETM)****Time: 3 Hours****Max. Marks: 75****Answer any Five Questions  
All Questions Carry Equal Marks**

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1. Explain in detail about the challenges in embedded system design? Discuss the steps involved in the Design Process of Embedded System. [15]
- 2.a) Explain 8051 Micro controller Hardware, I/O ports and circuit with external memory.  
b) Explain counters and interrupts in 8051. [10+5]
- 3.a) Discuss in detail about the 8051 Instruction Set and there classifications with an illustration.  
b) What happens if a low – priority interrupt is activated while the 8051 is serving a Higher priority interrupts? [7+8]
4. Draw the architecture of Programmable system-on-chip and describe various analog/digital, Controller blocks associated with the architecture. [15]
- 5.a) Explain how semaphores are useful as a signalling device.  
b) Explain the operation of PSOC based capacitive sensor used for robust detection of the human finger with a light touch. [5+10]
- 6.a) Explain the functioning of semaphores in RTO's with suitable examples.  
b) Discuss in detail about Memory Management, Interrupt Routines in an RTOS Environment. [7+8]
- 7.a) Describe about Hard Real-Time Scheduling Considerations, Saving Memory and Power in detail.  
b) Differentiate between Linker and Locators for Embedded Software. [8+7]
- 8.a) Explain with block diagram the hardware components of a ARM based embedded device.  
b) Discuss about the ARM pipelining process in detail. [8+7]

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