

Code No: R6-R7-48

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA IV Semester Supplementary Examinations January 2010
EMBEDDED SYSTEMS

Time: 3 hours

Max.Marks:60

Answer any FIVE questions
All questions carry equal marks

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1. Divide the Embedded systems into different categories. Give two examples for each category of embedded systems and explain their important features.
- 2.(a) What are the specific features of the 8051 microcontroller architecture.
(b) Draw the programming model of the 8051 microcontroller that has collection of 8- and 16-bit registers and 8-bit memory locations.
3. (a) List the data addressing modes of 8051 microcontroller and explain them with suitable examples.
(b) Explain how an external addressing performed using MOVX and MOVC instructions.
- 4 Explain the following Jump instructions.
 - (a) JMP @ A+DPTR
 - (b) AJMP sadd
 - (c) LJMP ladd
 - (d) SJMP radd. [4×4=16]
 - (e) JC radd
 - (f) JNC radd
 - (g) JB b, radd
 - (h) JNB b, radd
5. Interface 4×4 push-button keyboard matrix to 8051-based system that has 8255 interface for detecting the key closure and displaying pressed key scan code on 2- digit 7-segment LED display. Use only one port for keyboard and two ports for display. Assume suitable addresses for 8255.
- 6 Explain the features of the following methods of inter-task communication
 - (a) Semaphores
 - (b) Queues
 - (c) Mail boxes
 - (d) Pipes
7. Explain the differences between a 'Host Computer System' and a 'Target System' in terms of their hardware and software.
8. (a) Compare and contrast ARM Bus and SHARC Bus
(b) Describe ARM two stage Address translation.
