JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
IV.B.TECH - I SEMESTER REGULAR EXAMINATIONS NOV/DEC, 2009
EMBEDDED SYSTEMS
(Common to CSE, IT, E.CON.E, CSS)

Time: 3hours   **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks
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1.   a) Define an embedded system? List out the software tools needed on designing on embedded system. Discuss about any one of them.   [8+8]
          b) Compare top down and bottom up design

2.   a) Draw the program model of 8051, Explain the function of special function registers of 8051
          b) Explain the interrupt handling capacity of 8051   [8+8]

3.   a) Write an assembly language program to add two 16 bit numbers stored in R_1R_0 and $R_7 R_6$ of register bank O of 8051, store the result in $R_4 R_3$ from register bank 2 of 8051.   [8+8]

          b) Write a brief note on shift and rotate operations of 8051.

4.   a) Explain different brands instructions in 8051 with an example each   [8+8]

          b) Write an assembly language program to 8051 to keep incrementing R_1 and decrementing R_2 register of register Bank 3 of 8051 till they become equal.

5   Explain the different serial data communication modes of 8051 with examples [16]

6   a) Compare, binary semaphores, Mutex and counter semaphore   [8+8]
          b) Describe the function relevant to μ cos operating systems.

7.   a) Using VRTX RTOS develop C – Pseudocode for handling interrupts for a typical embedded systems.   [8+8]
          b) Explain how resource sharing is carried out in a typical embedded systems design.

8.   Write a note on
          a) Architectural features of ARM
          b) $I^2 C$ bus

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