JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech I - Semester Examinations, April/May-2012
ADVANCED MICROCONTROLLERS
(REAL TIME SYSTEMS)

Time: 3hours   Max. Marks: 60

Answer any five questions
All questions carry equal marks

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1.a)   What are the differences between ALU, CPU, MPU and a microcontroller?
  b)   What is locked by program locked bits? What is the purpose of providing it?
  c)   Which register or counter of MCs-51 cannot be accessed with MOV instruction?

2.a)   What is asynchronous serial communication and data framing?
  b)   Write RS232 standards for DB9 pin out.

3.a)   Write an 8051 C program to receive byte of data serially & put them on P1. Set the baud rate to 4800, 8 bit data, 1 stop bit.
  b)   Explain about the Instruction & data Cache.

4.a)   What are the different ways to introduce a delay in 8051 C. Give the three factors which affect the accuracy of the delay?
  b)   Write an 8051 C program to toggle the bits of P1 ports continuously with a 250ms delay.

5.a)   What are counting and timing requirements? Explain modes of operation of timer/counter with relevant block diagrams.
  b)   What are external interrupts? How they are handled in 8051? How level trigged interrupts are reset? How to set INTI as edge triggered interrupt?

6.a)   Draw the block schematic of stepper motor interfaced to 8051 at port P0 for the rotation of 45 degrees in anticlockwise direction. Write a C program for the same. Assume motor step angle as 1.8 degrees per step.
  b)   Interface 2 x 16 line LCD to 8051.

7.a)   Draw and explain the register file map for PIC-16 family of controller.
  b)   Explain about the interrupt Synchronization.

8.a)   What are the power management features offered by 8051?
  b)   Discuss the functionality of built in 8-bit ADC's.

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