Fourth Semester B.E. Degree Examination, Dec.08/Jan.09
Microprocessors

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions*

1 a. Give a general block diagram of Microprocessor based system. Explain briefly the various blocks of the system.
   (10 Marks)
   b. Explain the operation of following pins of 8085:
   (1)Ready (2)SO & SI (3)10/$\overline{m}$ (4)ALE (5)AD_0-AD_7
   (10 Marks)

2 a. Explain various addressing modes in 8085 with example for each.
   (10 Marks)
   b. Explain the function of following instructions:
   (i)XCHG (ii)SPHL (iii)XTHL (iv)PUSH PSW (v)DAA
   (10 Marks)

3 a. Write an ALP to find average of six 8-bit numbers stored in memory location XX10H. Store the average value in location XX20H.
   (08 Marks)
   b. Explain function and timing associated with STA instruction.
   (06 Marks)
   c. Calculate time required to execute the following program segment with 8085 CPU connected to crystal of 2MHz.
   MVID,04 H
   back: DCRD
       JN2 back
   (06 Marks)

4 a. Write a 8085 ALP subroutine to convert a 2 digit BCD number to 2 digit hex number.
   (10 Marks)
   b. Write a subroutine named FACT to find factorial of a number, in 8085 microprocessor.
   (10 Marks)

5 a. Design a circuit to interface 4KB RAM using 6116 from address 1000H and 2 KB ROM using 2716 from address 0000H. Assume demultiplexed address and data buses are available. Complete address decoding is required.
   (10 Marks)
   b. Explain (1)Memory mapped I/O   (2)I/O mapped I/O   (3)Serial I/O
   in connection with 8085 processor system. Indicate advantage of each of above I/O types.
   (10 Marks)

6 a. Explain SIM and RIM instruction of 8085.
   (06 Marks)
   b. Interface an A/D converter to 8085and write a program to convert analog input to digital.
   (10 Marks)
   c. Explain the sequence of operations that takes place when interrupt on INTR pin of 8085 is active.
   (04 Marks)

7 a. Explain the internal schematic of 8255 chip and its operating modes briefly.
   (10 Marks)
   b. What is DMA operation? Explain the features and operation of DMA controller 8257 with block diagram.
   (10 Marks)

8 Write short notes on:
   a. 8253 time
   b. 8279 keyboard controller.
   c. USART 8251
   d. RS232 serial communication standards.
   (20 Marks)

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