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NEW SCHEME

# Fourth Semester B.E. Degree Examination, July 2007
## EC / EE / TE / BM / ML / IT
## Microprocessor

Time: 3 hrs.] [Max. Marks:100

**Note :1.** ***Answer any FIVE full questions.***
***2. Programs should have comments.***

1 a. Give the block diagram of 8085 and explain the function of each block. **(10 Marks)**
b. What do you mean by interfacing? **(05 Marks)**
c. What are the functions of the following: i) Buffer ii) Latch. **(05 Marks)**

2 a. What happens when the following instructions are executed:
i) XCHG ii) LDAX B iii) PUSH PSW iv) LHLD 1600H **(08 Marks)**
b. What are machine control instructions? Give an example for each. **(06 Marks)**
c. Write an assembly language program to generate a secret code. Input is an 8 bit data from memory. In the coded output the MSB is given by $A_7 = A_5(+)A_3(+)A_0$ where (+) indicates EX – OR operation. **(06 Marks)**

3 a. Generate a time delay of 5 minutes, using a program, given that the clock frequency of the processor as 3.07 MHz. **(05 Marks)**
b. What are nested loops? How do you generate a square wave using nested loops? **(05 Marks)**
c. Explain the stack operation with explanatory diagrams. **(05 Marks)**
d. What are flags? Describe each flag of 8085 and its significance. **(05 Marks)**

4 a. Write an assembly language program to add and subtract two 8 digit Binary numbers stored starting from memory locations X and X+5. The result of addition and subtraction should start from memory locations Y and Y+5 respectively. Make provisions for inter digit carry. **(10 Marks)**
b. Explain the addressing modes used in INTEL's 8085 processor with an example. **(10 Marks)**

5 a. Interface two 4K EPROMS and two 4K RAMs to 8085 by designing a suitable interface circuit. Also connect two I/O devices to the system. Give the memory map of the whole set up. **(10 Marks)**
b. Differentiate between I/O mapped I/O and memory mapped I/O. **(05 Marks)**
c. Write an assembly language program to convert the Binary numbers stored in memory to ASCII code number by writing a suitable program. **(05 Marks)**

6 a. Give a detailed account of the Interrupt mechanism available in 8085 processor. **(10 Marks)**
b. What is a non-maskable interrupt? What is its significance and where is it used? **(05 Marks)**
c. What happens when 8085 is reset? Also, explain what happens when RST is executed. **(05 Marks)**

7 a. Using 8255 programmable peripheral interface, connect an ADC to 8085 processor to read the temperature of a furnace at 15 minute intervals. **(10 Marks)**
b. How do you program 8253 programmable interval timer to act as hardware strobe? **(05 Marks)**
c. What is DMA? Briefly explain the two different DMA operations. **(05 Marks)**

8 a. Interface 8X3 keyboard with 4 seven segment displays to 8085 based microcomputer. Assume suitably any missing data. Give control word to read keyboard and display data. **(10 Marks)**
b. Give the control words and status words of programmable interrupt controller 8259 and explain their significance. **(10 Marks)**

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