* S E - 7 4 0 3 / 4 0 0 *

SE-7403

B. E. IV (Sem. VII) (Elect.) Examination

April / May – 2011

Microprocessor & Its Applications to Electrical Engg.

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 4 (Sem. 7) (Elect.)**

Name of the Subject :

☛ **Microprocessor & Its Applications to Electrical Engg.**

☛ Subject Code No. : **7 4 0 3** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Attempt all questions.

(3) Answers to the two sections must be written in separate answer books.

(4) Figures to the right indicate full marks.

(5) Assume any data if needed.

SECTION - I

1 (a) Fill in the blanks : **6**

(1) _____ address lines are required to address 16 k Memory.

(2) ALE signal is used to be multiplex _____ address lines.

(3) 8085 can access maximum _____ memory locations because it has _____ address lines.

(4) RST 4 has _____ internal memory address.

(5) MSE stands for _____.

(6) _____ is a Programmable Communication Interface.

(b) Define T-state and instruction cycle. **4**

(c) Why Buffer is required in interfacing ? **3**

(d) Explain following pins of 8085 : 4

(i) ALE

(ii) Ready

(e) Draw and explain memory; write machine cycle. 3

2 Attempt any **two** : 15

(1) Design an interfacing scheme having two 8 k EPROM and eight 8 k RAM using suitable decoder. Also show its memory map.

(2) Draw Timing diagram for LDA 8000 h and show all necessary signals.

(3) Explain 8279 with the help of block diagram.

(4) Draw an interfacing scheme to interface one common anode seven segment display and write a program to display '0' on it.

3 Attempt any **three** : 15

(1) Draw and explain timing diagram of OUT 10 h instruction.

(2) Explain all steps that take place when an interrupt comes. List also all available interrupts in 8085.

(3) Explain mode 1 operation of 8255.

(4) Draw and explain each block of 8254.

(5) Draw and explain interfacing scheme to interface 8255 with 8085.

SECTION - II

4 (a) Fill in the following blanks :

(1) TRAP interrupt has vector address _____. 1

(2) OUT 25 h is _____ byte instruction. 1

(3) The addressing mode of LDAX B is _____. 1

(4) JNC 3000 H instruction checks the status of _____ flag to divert the flow of program sequence. 1

(5) If A=35 H then after execution of CPI 64 H instruction the content of A = _____ and the status of carry flag is _____. **2**

(b) Explain the instructions : **4**

(i) CNZ

(ii) DI

(c) Explain flag resister and importance of each. **4**

(d) Identify the contents of the registers, the memory location (2055 H) and the flags (AC, CY, S, Z) as the following instruction are executed : **4**

```
LXI H, 2055 H
MVI M, 8A H
MVI A, 76 H
ADD M
STA 2055 H
HLT
```

(e) How may times the following LOOP will be executed ? **2**

```
        LXI B, 0007H
LOOP :  DCX B
        MOV, A,B
        ORA C
        JNZ LOOP
```

5 (a) Write a program that transfers an array of 20 bytes in memory starting from 8050 H to a new location starting from 8055 H to empty five spaces for new data. **8**

(b) A bar code scanner scans the items being shipped from the loading dock and stores the binary codes of various items in memory starting from 8000H. The end of data is indicted by byte 00H. Write a program that finds the no. of washing machines and the no. of T. V. set from the set and stores the count in memory at 9000H and 9001 H respectively. The code for washing machine is A5 H and that of T.V. set is B3 H. **8**

Data : FA, 67, A3, A5, 02, A5, 09, FA, B3, 57, 00

OR

5 (a) Write a program to perform following multibyte decimal addition 45678932 + 56789887 **8**

(b) A set of certain data byte is stored in memory starting from C100H. The data string is terminated by FFH. Write a program that checks each data byte for positive or negative rejects negative data adds all positive data and store the 16-bit result in memory starting from C130H. **7**

6 (a) Draw an interfacing scheme to interface ADC0804 with 8085 and hence write a program to read 100 samples from ADC with 50 ms time interval. **9**

(b) Write a program to find out the lowest and highest number from the given set of data. Store both the numbers in consecutive memory locations. **6**

OR

6 (a) What are different software and hardware interrupts associated with 8085 ? Explain internal block diagram of 8085 interrupt system alongwith the priority of various interrups and the memory map of their vector location. **9**

(b) Draw and explain block diagram of 82534. Explain its control word format. List various modes in which 8253 can operate and explain its interfacing with 8085. **6**