53 (IE 501) MPMC

2014

MICROPROCESSORS AND MICROCONTROLLERS

Paper : IE 501

Full Marks : 100

Pass Marks : 30

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1. *(a)* Name the control and status signals of 8085 microprocessor. Explain the functions of each of them. 5

   (b) What are the flags present in the flag registers of 8085 microprocessor ? How these flags are affected. 5

   (c) What do you mean by demultiplexing of lower order address bus ? How it is done ? Explain with a diagram. 5

Contd.

(d) Write a program to find the largest of two numbers stored in memory locations CO50 and CO51 ? Display the result in location CO55. 5

2. (a) Draw the timing diagram of the following instructions. 6×2=12

(i) IN (ii) STA

(b) Define instruction cycle, machine cycle and T-states. 3

(c) Write a program to add four numbers stored in memory locations CO50, CO51, CO52, CO53 and display the result in location CO70 ? 5

3. (a) Draw the functional block diagram of 8085 and explain all the important components. 12

(b) Define the functions of following instructions 8

(i) STAX (ii) LXI (iii) LDA (iv) RAR

(v) JNZ (vi) XRI (vii) CMA (viii) CMP

4. *(a)* Explain with the help of a suitable diagram and software instructions, how peripheral are interfaced with 8085 microprocessor using memory mapped interfacing technique. 7

(b) What do you mean by vectored and non-vectored interrupt in 8085 ? Name the vectored and non vectored interrupts in 8085. 3

(c) Illustrate using a suitable diagram, the steps involved in the execution of an instruction in 8085. 5

(d) Write a program to transfer a block of five data from a set of memory locations to another set of memory locations. 5

5. *(a)* Calculate the total delay in the following program assuming the system clock frequency is 6*MHz* 5

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    MVI C, 30H
LOOP1 : DCR C
    JNZ LOOP 1
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(b) Draw the block diagram of 8255 Programmable Peripheral Interface. Describe the functions of each block.

Specify the bits of control word for 8255 operation in simple I/O mode. 10

(c) Write in steps the 8085 interrupt process ? 5

6. (a) Name the control signals associated with 8255 operation in input handshake mode. Describe the functions of these control signals. 8

(b) Draw the block diagram of 8253 Programmable Interval Timer.

Discuss *any three* modes of 8253 timer. 8

(c) Write the functions of following devices ? 4

(i) Tristate Buffer

(ii) 3 to 8 Decoder

(iii) Latches

(iv) RAM.

7. Write short notes on : ***(any two)*** 10×2=20

(a) ADC interfacing with 8085

(b) 8251 Programmable Communication Interface

(c) Interfacing a keyboard and displaying the value of each key in seven segment LED using 8255.

(d) 8257 DMA Controller.
