Total No. of printed pages = 4

MICROPROCESSORS AND APPLICATIONS

Full Marks – 70

Pass Marks – 28

Time – Three hours

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

Answer any *five* questions.

1. (a) Define the meanings of the following instructions : 1×8=8

   (i) LXI   (ii) XRI

   (iii) STA   (iv) RAL

   (v) CMP   (vi) JNC

   (vii) XCHG   (viii) DAA

   (b) Design a scheme to interface a 2K RAM and a 4K ROM with 8085 microprocessor. 6

[Turn over

2. (a) Draw the timing diagram of any *two* of the following : 5×2=10

   (i) MVI

   (ii) OUT

   (iii) LDA

   (b) Write a program to add three numbers stored in memory locations Co50, Co51 and Co52. Store the result in location Co70 and carry in location Co71. 4

3. (a) Discuss the functions of following devices :

   (i) Octal hatch

   (ii) Tristate buffer

   (iii) 3 to 8 decoder. 2×3=6

   (b) (i) Why 8085 is called a 8 bit micro-processor ?

   (ii) The maximum size of memory which can be interfaced with 8085 is ———.

   (iii) The range of signed number in 8085 is between ——— to ———. 1×3=3

   (c) Write a program to find the largest of three numbers stored in memory locations Co50, Co51 and Co52 and store the result in location Co70. 5

4. (a) Draw the block diagram of 8255A Programmable Peripheral Interface and explain the functions of each block. 6

(b) Specify the bit of control word for the 8255A in BSR and I/O mode. 4

(c) For the following program, calculate the total delay :

Label	Opcode	Operand	T-states
	MVI	A, F8H	7
Loop :	DCR	A	4
	JNZ	Loop	10/7
			4

5. (a) Draw the block diagram of 8253 Programmable Interval Timer. Discuss any three modes of operation of 8253. 8

(b) Write a program to multiply two numbers stored in two memory locations and store the result in location Co50. 6

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

   (b) Describe the 8085 interrupt process in steps.   5

   (c) Name the interrupt which has got the highest priority in 8085.   1

   (d) Write a program to transfer ten blocks of data stored in memory locations Co50–Co59 to Co70–Co79.   5

7. Write short notes on any *two* :   7×2=14

   (i) Memory mapped I/O interfacing

   (ii) ADC interfacing with 8085

   (iii) 8251 Programmable Communication Interface.