2013

INTRODUCTION TO MICROPROCESSOR

Time Allotted : 3 Hours   *Full Marks :* 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words

as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

$$10 \times 1 = 10$$

i) The number of programmable 8-bit register of 8085

microprocessor is

a) 5 b) 6

c) 8 d) 7.

ii) Which one of the following is the software interrupt of

8085 microprocessor

a) RST 7·5 b) EI

c) RSTO d) all of these.

iii) Whenever the POP instruction is executed, the stack

pointer is

a) decremented by 1 b) decremented by 2

c) incremented by 2 d) incremented by 1.

iv) When a subroutine is called the address of the

instruction to CALL is saved in

a) stack pointer Resister

b) stack

c) combination of flag and AX register

d) program counter.

v) A clock IN interrupt handler on a computer requires 2 msec per clock tick. The clock runs at 60 Hz. What percent (%) of CPU is develop to the clock ?

a) 7·5 b) 12

c) 1·2 d) 18·5.

vi) The sequence of events that happen during typical fetch operation is

a) PC MAR MEMORY IR

b) PC MEMORY IR

c) PC MAR MEMORY MDR IR

d) PC MEMORY MDR IR.

vii) When the interaction LHLD is execute, number of T-states required are

a) 10 b) 14

c) 13 d) 15.

viii) If a DMA request is send to the microprocessor with a high signal to the HOLI pin, the microprocessor acknowledge the request

a) after completing the present cycle

b) immediately after receiving the signal

c) after completing the program

d) none of these.

ix) For 8257 controller .... is the highest priority channel by default

a) CH-3 b) CH-0

c) CH-1 d) any channel.

x) For 8255 PPI, the bi-directional mode of operation in

a) Model 1 b) Mode 2

c) Mode 0 d) Either (a) or (b).

xi) Clock signal of 8086 is with duty cycle

a) 20% b) 33%

c) 50% d) 66%.

xii) The interrupt masks in 8085 can be sent/reset by the

instruction

a) EI b) DI

c) RIM d) SIM.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Compare between a Microcomputer and a Microprocessor.

3. How does ALE Signal demultiplex the AD0-AD7 bus ?

Explain with diagram.

4. Define interrupt. Discuss the different interrupts available in

8085 microprocessor.

5. Give comparison between 8085 and 8086.

6. Write a short note on 8086 microprocessor.

7. Name the instruction of 8086 other than data transfer

operation having no effect on flag registers.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

8. What is tri-state buffer ? Why is it important ? What is the

purpose of control unit in a CPU ? Explain how 8085

identifies various operations. Comparison between Memory-

Mapped I/O and Peripheral I/O. $2 + 1 + 3 + 4 + 5$

9. What do you mean by sub-routine ? What are the advantages

of using sub-routine ? Write the different operating modes of

8259. Why 8085 processor is called an 8 bit processor ?
What is the advantage and disadvantage of multiplexed bus ?

10. Distinguish between S/W interrupts and H/W interrupts in Intel 8085 microprocessor. What are the functions of RESET, HOLD, INTERRUPT and READY pins ? Draw the timing diagram of IN instruction of Intel 8085 microprocessor. A set of 5 ASCII Hex digits is stored in the memory location starting from XX55H. Write a program to convert these numbers in binary. Add these numbers in binary and store the result in YYOOH memory location. $4 + 3 + 4 + 4$

11. Define bit, byte, nibble and word. What is a latch ? Explain its working. Write the interfacing of 8255 with Intel 8085 microprocessor. $4 + 3 + 8$

12. Write short notes on any *three* of the following : 3×5

a) 8085 architecture

b) 8255

c) DMA controller

d) Address bus and Control bus

e) 8086 interrupts.