2019

MICROPROCESSOR

PAPER —2105

Full Marks : 100

Time : 3 hours

Answer **Q.No. 1** and any **four** from the rest

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

1. Answer any *five* questions : 2 × 5

(*a*) Why data bus is bidirectional in microprocessor ?

(*b*) What do you mean by general purpose register in *8085* microprocessor ?

(*c*) What are the functions of program counter and stack pointer ?

(*d*) How many address lines are in 4096×8 EPROM chip ?

(*e*) If the clock frequency is 5 MHz, how much time is required to execute an instruction of 18T-states ?

(*f*) What is the function of PUSH and POP instructions ?

(*g*) Describe immediate addressing mode.

(*h*) Differentiate between micro computer and microprocessor.

2. (*a*) What are various status flags in 8085 microprocessor ? Discuss their roles.

(*b*) Write 8085 assembly language program to convert Binary number to BCD.

(*c*) What is the function of 8255A ? 5 + 6 + 4

3. (*a*) Describe different addressing modes of 8086 μp.

(*b*) What are the advantage of having segmentation ?

(*c*) Discuss the functions of the following signals of 8085 MPU :

(*i*) READY
(*ii*) RESET OUT
(*iii*) INTR
(*iv*) HOLD $4 + 3 + (2 \times 4)$

4. (*a*) What is timing diagram ? What do you mean by T-State and machine cycle ?

(*b*) What is fold back memory ? Explain with example.

(*c*) Draw the timing diagram of the instruction MVI A, 32 H. $(2 + 3) + 5 + 5$

5. (*a*) Identify the register contents and the flag

status as the following instructions are executed :

		A	S	Z	C4
LXI	H, 2070 H				
MVI	M, 64H				
MVI	A, 8FH				
CMP	M				

(*b*) Explain what operation is performed when the following instructions are executed :

(*i*) RRC
(*ii*) ADC M
(*iii*) XCHG
(*iv*) LDAX Rp.

(*c*) How does the microprocessor differentiate among a positive number and a negative numbers ? $5 + (2 \times 4) + 2$

6. (*a*) What is vector interrupt ? Give example.

(*b*) Explain memory mapped I/O and I/O mapped I/O.

(*c*) Draw the block diagram of 8086 microprocessor and briefly explain each block. 3 + 4 + 8

7. Write short notes on : 5 × 3

(*i*) Interrupt of 8085

(*ii*) DMA controller

(*iii*) Hardware interrupts.

[*Internal Assessment* : 30 Marks]