

Total number of printed pages-4

52 (4) 4.1 (0)

2017

MICROPROCESSOR

(Old Course)

Paper : 4.1

Full Marks : 60

Time : Three hours

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

1. (a) What is microprocessor ? Give one example of 8-bit microprocessor. 1+1=2
- (b) Define assembly level language. What is a machine code in assembly level language programming ? 1+1=2
- (c) What is an accumulator and why it is present in microprocessor ? 2
- (d) An EPROM chip contains 16-bit address lines and 8-bit data lines. What is the size of the EPROM chip (in KB) ? 2

Contd.

(e) What is peripheral-mapped I/O and memory-mapped I/O ? $1+1=2$

2. Answer **any four** : $4 \times 5 = 20$

(a) What do the following Opcodes imply —

(i) LXI

(ii) ADI

(iii) STAX

(iv) MOV

(v) JNZ

(b) What is instruction word size ? Explain each of the instruction word size with proper example.

(c) Explain the bus system of the 8085 microprocessor.

(d) Explain the interrupts in 8085 microprocessor.

(e) Write the different addressing modes of 8085 microprocessor in detail with proper example.

3. Answer **any two** : $2 \times 6 = 12$

(a) Why PUSH and POP instructions are used in 8085 microprocessor ? What are the two 16-bit register present in the 8085 microprocessor ? How the sign (S) and zero (Z) flags of the microprocessor are set and reset ?

$2+2+2$

(b) Draw the bus timing diagram of the following instruction —

Instruction	Machine code	Memory address
MVI A, 32H	3EH	8000H
	32H	8001H

(c) Find the total delay to execute the following instructions with T-states if the clock frequency of the system is 2MHz.

	MVI B, 38H	7T
LOOP2 :	MVI C, FFH	7T
LOOP1 :	DCR C	4T
	JNZ LOOP1	10/7T
	DCR B	4T
	JNZ LOOP2	10/7T

4. Answer **any two** : $2 \times 5 = 10$

(a) Write an 8085 assembly language program to find the smallest number in a list of 10 data bytes.

(b) Write an 8085 assembly language program to add two 8-bit numbers and store the result in the memory location 9020H.

(c) Write an 8085 assembly language program to find the sum of 20 data bytes and store the result in memory location 8050H.

5. Write short notes on : **(any two)** $2 \times 4 = 8$

(a) Counter and Time delay

(b) CALL and RETURN instruction

(c) CY and P flags

(d) CS, RD, WR, IOR signals.