2018

MCA 2nd Semester Examination

MICROPROCESSOR

PAPER—MCA-204

Subject Code—32

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Answer any *seven* questions.

1. (a) What are the functions of the following signals of 8085 microprocessor

(i) ALE

(ii) IO/$\overline{M}$

(iii) CLK OUT.

(b) What are the limitations of 8085 microprocessor ?

(c) How does 8085 microprocessor generate appropriate control signals to interface memory and I/O ?

3+2+5

(Turn Over)

2. (a) Explain the terms — T-state, machine cycle and instruction cycle.

   (b) Draw and explain the timing diagram of LXI A, F500 H instruction of 8085 microprocessor.

   (c) How many T-states are required to execute MOV A, M and IN Post-addr. 3+5+2

3. (a) What are the ways to increase the number of loop iterations ?

   (b) Calculate the delay of the following loop (clock frequency 2 MHz) :

```
        LXI B, 1000 H
LOOP :  DCX B
        MOV A, C
        ORA B
        JNZ LOOP
```

   (c) Write an ALP to check a number is odd or even. 2+5+3

4. (a) Explain CALL and RET instruction.

   (b) What is PSW ?

   (c) Write an ALP to reset the zero flag. 3+2+5

5. (a) Explain the flag registers of 8086 microprocessor.

   (b) Explain the different addressing modes of 8086 microprocessor. 5+5

6. (a) Explain the function of the following instructions and calculate time delay of these (clock frequency 2 MHz) :

(i) STAX B

(ii) IN port addr.

(iii) ANA M

(b) Write an ALP to exchange two set of data bytes. 6+4

7. (a) Write down the lengths and addressing modes of the following instructions :

(i) LXI H, 2050 H

(ii) STA 3050 H

(iii) MOV A, M

(iv) IN 05 H

(b) Explain memory and input/output addressing modes of 8085 microprocessor.

(c) What is machine control instruction ? 4+4+2

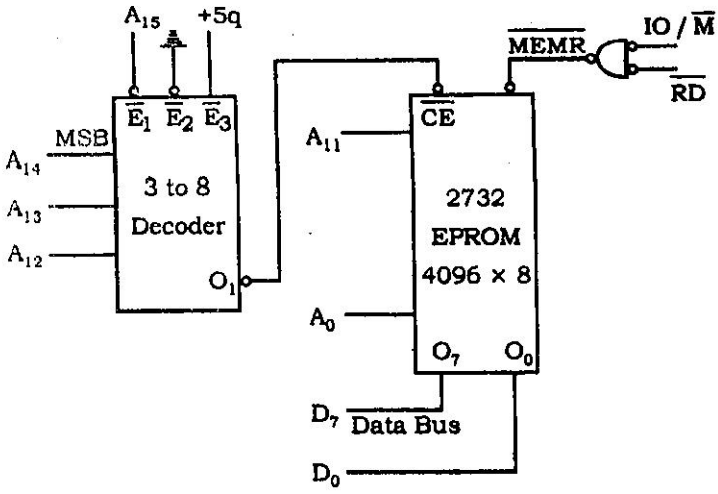
8. (a) Write an ALP to sort a set of data bytes in asscending order.

(b) Explain the different modes of operation of 8255 in detail. 5+5

9. (a) What is PSW ? Can we alter the content of flag register, if yes then explain how it could be done ?

(b) Write the differences between memory mapped I/O & peripheral mapped I/O. What is instruction cycle ? (2+3)+(3+2)

16. (a)



Identify the memory map.

(b) Specify the register contents and the flag states on the following instruction are executed :

A	B	S	Z	CY
xx	xx	x	x	x

XRA A
MVI B, 4A H
SUI 4FH
ANA B
HLT

(c) Why DAA instruction is used ? Explain.

[Internal Assessment : 30 Marks]