2019

COMPUTER SCIENCE

(Major)

Paper : 5.4

(Microprocessor and Assembly Language Programming)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Answer the following as directed: 1×6=6

(a) 8085 microprocessor can access ____ kbytes of memory.

(Fill in the blank)

(b) The length of memory read machine cycle is 3-T states.

(State True or False)

(c) ____ instruction adjusts accumulator to packed BCD after adding two BCD numbers.

(Fill in the blank)

(d) In _____, the I/O devices are assigned and identified by 16-bit addresses.
(Fill in the blank)

(e) 8255A has three 8-bit ports.
(State True or False)

(f) Which of the following instructions will clear the accumulator?

(i) ORA A

(ii) XRA A

(iii) CMA

(iv) None of the above
(Choose the correct option)

2. Answer the following questions : 2×5=10

(a) What is the use of IO/$\overline{M}$ pin?

(b) Why are AD_0–AD_7 lines multiplexed?

(c) Write the use of stack in CALL and RET instructions.

(d) Explain PUSH PSW instruction.

(e) Give an introduction of 8279.

3. Answer any *four* of the following questions :
5×4=20

(a) Explain different control sugnals used by 8085.

(Continued)

(b) Draw and explain timing diagram of memory. Write machine cycle.

(c) List the internal registers of 8085A and describe the primary function of each register.

(d) Explain different data formats supported by 8085.

(e) Briefly explain hardware interrupts of 8085.

(f) Calculate delay generated by the following program :

```
      L XI B, FFFFH
LOOP : DCX  B
       MOV  A, B
       ORA C
       JNZ LOOP
       RET
```

(g) Give brief description of the following instructions :

SUI

CMC

RRC

SBB

XCHG

(Turn Over)

4. Answer any *three* of the following questions : 8×3=24

(a) Design a memory system for 8085 microprocessor such that it should contain 8 kbytes of EPROM and 8 kbytes of RAM.

(b) Indicate machine cycle and T-states required for execution of STA instruction.

(c) Write an assembly language program to copy a block of bytes in reverse order. Make necessary assumptions.

(d) Draw block diagram and write basic functions of 8255A or 8254.

(e) Write short notes on :

(i) IN and OUT instruction

(ii) Interfacing seven-segment display

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