2021
COMPUTER SCIENCE
[HONOURS]
Paper : IV

Full Marks : 50 Time : 2 Hours

The figures in the right-hand margin indicate marks.

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

GROUP-A

1. Answer any **two** questions from the following: 1×2=2

   a) What is fetch cycle?

   b) Define stack pointer.

   c) What do you mean by USB?

   d) How many T-state the CALL instruction will require?

GROUP–B

2. Answer any **five** questions: 2×5=10

   a) What is bus arbitration?

   b) Write the usefulness of SIM instruction.

   c) Give example of (i) Software interrupt and (ii) Non maskable interrupt of 8085.

   d) Write two differences between RAM and ROM.

   e) What are the duties of instruction register and program counter?

   f) What is three address instruction? Give example.

   g) State the advantages of Auto indexing.

GROUP–C

Answer any **three** questions from the following: 6×3=18

3. a) Why memory segmentation is useful?

   b) Explain memory segmentation of 8086. 2+4=6

4. a) Represent the decimal value –0.75 in IEEE-754 single precision format.

   b) What do you mean by tri-state device? 4+2=6

5. Convert the following in Zero-address, One-address and three instruction format:

$$Y = (A - B)/(C + D * E).$$ 2+2+2=6

6. a) Explain the differences between RAR and RLC instruction with example.

b) Explain demultiplexing of address and data bus in 8085. 3+3=6

7. a) Why interrupt is useful?

b) Explain in detail how 8085 handles interrupt call. 2+4=6

GROUP–D

Answer any **two** questions: 10×2=20

8. a) Draw the timing diagram of INR M.

b) Describe various addressing modes available in 8085 with example. 5+5=10

9. a) Define stack and stack pointer as applied to a microprocessor. What do you understand by the PUSH and POP instructions?

b) The following transfer statements specify a memory operation. Explain the memory operations in each case.

i) $R2 \leftarrow M[AR]$

ii) $M[AR] \leftarrow R3$

iii) $R5 \leftarrow M[R5]$ 6+(2+2)

10. a) Discuss the drawbacks of various cache writing policies.

b) A computer have memory size of 16K where each word is of 16 bit. The instruction stored in one location (word). Each instruction have two parts:

opcode field, and operand field.

i) How many bit in each field?

ii) Draw the instruction format and indicate the No. of bits.

iii) Specify the No. of operation in this computer. (2×3)+4

11. Write short notes on any **two** of the following: 5×2=10

a) Keyboard interfacing

b) Harvard architecture

c) Flag registers of 8086

d) Associative memory

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