Total No. of printed pages = 3

CSE 181402

Roll No. of candidate

2022

B.Tech. 4th Semester End-Term Examination

COMPUTER ORGANIZATION AND ARCHITECTURE

(New Regulation & New Syllabus)

Full Marks – 70

Time – Three hours

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

Answer question No. 1 and any *six* from the rest.

1. Choose the correct option for the following : (10 × 1 = 10)

(i) Which of the following is not a principal design metric?

(a) CPI

(b) Cycle time

(c) Performance

(d) Cycle

(ii) 10's complement of 13250 is

(a) 86750

(b) 86749

(c) 113249

(d) None of these

(iii) y : M[AR] ← R

(a) Memory write

(b) Memory read

(c) Address transfer

(d) Memory transfer

(iv) Microprogrammed control organization uses

(a) Control logic, gates, FF etc.

(b) Mado for instruction representation

(c) Controlled information stored in memory

(d) None of these

(v) In an instruction format if value of 'I' is 0 then it is

(a) Direct address

(b) Indirect address

(c) I/O

(d) No operation

(vi) How many bits will be required to specify the address of an operand for a memory organization of size 65536 words?

(a) 12

(b) 13

(c) 14

(d) 16

(vii) Which of the following register does not require clear or increment signals?

(a) Temporary register

(b) PC

(c) IR

(d) DR

(viii) If K = 1 then A ← B. The equivalent microinstruction is?

(a) K : A ← B

(b) K : M[A] ← B

(c) K : A ← M[B]

(d) K : M[A] ← M[B]

(ix) Which of the following is not a Memory reference instruction?

(a) STA

(b) LDA

(c) INC

(d) ADD

(x) CIL is a ———— instruction.

(a) Memory reference

(b) Register reference

(c) I/O reference

(d) None of these

2. What is addressing modes? Name addressing modes, four each from 8085 and 8086 with examples. (2+8=10)

3. Give the algorithm or flowchart for Booth algorithm. Apply Booth multiplication algorithm to multiply 11011 by 10111. Show each step. (4+6=10)

4. Draw the diagram of a control organization. Briefly explain. (6+4=10)

5. What is instruction cycle? Explain briefly. State memory referencing and Input-output instructions three from each. (2+5+3=10)

6. Differentiate between RISC and CISC. What are the probable characteristics of a computer? (5+5=10)

7. What are the different instruction formats in 8086? State properly. (10)

8. What is cache memory? What is L2 cache? Explain about the memory hierarchy. (2+1+7=10)

9. Write short notes on (*any two*) (5+5=10)

(a) DMA

(b) Pipeline hazard

(c) Register-set architecture