

Total No. of printed pages = 3

CSE 181402

Roll No. of candidate

1/8/22

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2022

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B.Tech. 4<sup>th</sup> 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)  $y : M[AR] \leftarrow R$
- (a) Memory write
  - (b) Memory read
  - (c) Address transfer
  - (d) Memory transfer

[Turn over

- (iv) Microprogrammed control organization uses
- (a) Control logic, gates, FF etc.
  - (b) Made for instruction representation
  - (c) Controlled information stored in memory
  - (d) None of these
- (v) In an instruction format if value of 'T' 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)  $K : A \leftarrow B$
  - (b)  $K : M[A] \leftarrow B$
  - (c)  $K : A \leftarrow M[B]$
  - (d)  $K : M[A] \leftarrow M[B]$
- (ix) Which of the following is not a Memory reference instruction?
- (a) STA
  - (b) LDA
  - (c) INC
  - (d) ADD

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- (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

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