(Deemed to be University Accredited Autonomous Institute)

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Second Year B. TECH. (Computer Science and Engineering)

MSE , ODD SEMESTER, AY 2022-23 | MSE

Computer Organization and Architecture (6CS204)

PRN: _____

Day, Date and Time: Friday, 14/10/2022, 03.00 pm to 04.30 pm

Max Marks: 30

IMP: Verify that you have received question paper with correct course, code, branch etc.

Instructions: a) All questions are compulsory.
b) Writing question number on answer book is compulsory otherwise answers may not be assessed.
c) Assume suitable data wherever necessary.
d) Figures to the right of question text indicate full marks.
e) Mobile phones and programmable calculators are strictly prohibited.
f) Except PRN anything else writing on question paper is not allowed.
g) Exchange/Sharing of stationery, calculator etc. not allowed.

Text on the right of marks indicates course outcomes (only for faculty use) | Marks

Q1 State all Machine Cycles for following Instructions clearly indicating — 12 — CO2

1. Type of the Machine Cycle : Opcode Fetch (*F*) / Memory Read (*R*) /Memory Write (*W*)
2. Register/Pair which is Source of Address during the Machine Cycle
3. The Register which is either Source or Destination of Data during the Machine Cycle

(***NO Other Explanation needed***) (***Attempt ANY <u>EIGHT</u>***)

For Example STA 6000 is having following Machine Cycles
M1: (F, PC, IR) M2: (R, PC, Z) M3: (R, PC, W) M4: (W, WZ, A)

i) MVI M, 55H **ii) INR M** **iii) STAX D**

iv) MOV A, M **v) PUSH B** **vi) POP D**

vii) MOV M, H **viii) LDA 8000H** **ix) RET**

b) For following Instructions *ONLY* State *Number of Bytes and Number of Machine Cycles*. (The Complete Instruction Format is purposely **NOT** given to test the knowledge.) 6

(**NO Other Explanation needed**) (***Attempt ANY TWELVE***)

(For Example **CMP M** is a *1 Byte Instruction and it requires 2 Machine Cycles* for completion. *Therefore Answer is (1, 2)*)

While writing the Answers in the Answerbook, write down both Sub-question Number and the Instruction as well and then the Answer so that you don't lose marks due to sub-question sequence missing.

i) MVI A	**ii) LXI SP**	**iii) ADD M**	**iv) SUB B**
v) SHLD	**vi) DCR M**	**vii) LDA**	**viii) ADI**
ix) LDAX B	**x) DCX H**	**xi) SPHL**	**xii) CMA**
xiii) INR B	**xiv) STC**	**xv) ORA A**	

Q3 ***Attempt ANY FOUR*** of the following. 12

i) Write an 8085 Assembly Language Program to add *two 8-Bit Numbers* stored in Memory at ***8050H*** and ***8051H*** and store the result of the addition at ***8052H*** & ***8053H***.

ii) Write an 8085 Assembly Language Program to transfer a Block of ***8 Bytes*** of Data stored in Memory from ***8100H*** onwards to ***8200H*** onwards.

iii) Write an 8085 Assembly Language Program to multiply *two 8-Bit Numbers* stored in Memory at ***8050H*** and ***8051H*** and store the result of the multiplication at ***8052H*** & ***8053H***.

iv) With a neat Diagram Explain in very brief Internal Architecture of 8085 including Register Set, Memory Interfacing and Functioning of 8085.

v) Draw and Explain the Floating Point Representation Format with one example.