Printed Page:-04 **Subject Code**:- **AMICSE0405**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech (Integrated)

SEM: IV - THEORY EXAMINATION (2023 - 2024)

Subject: Microprocessor

Time: 3 Hours **Max. Marks: 100**

General Instructions:

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

1. *This Question paper comprises of* ***three Sections -A, B, & C.*** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION-A 20

1. Attempt all parts:-

1-a. Find the content of accumulator A after the execution of XRA A. (CO1) 1

(a) 02H
(b) 01H
(c) 00H
(d) A0H

1-b. Choose vector location of TRAP. (CO1) 1

(a) 0024H
(b) 0034H
(c) 002CH
(d) 003CH

1-c. DAA instruction is used for. (CO2) 1

(a) Double Add Accumulator
(b) Decimal Adjust Accumulator
(c) Decrement Accumulator
(d) none of above

1-d. Carry flag is not affected after the execution of (CO2) 1

(a) ADD B
(b) SBB B
(c) INR B

(d) ORA B

1-e. Calculate the content of A at the end of this program? (CO3) 1

STC
MVI A, 35H
ACI 26H

(a) 5Ch
(b) 2Dh
(c) 23h
(d) 5Bh

1-f. Which instruction is used to add the contents of the B register to the accumulator in the 8085 microprocessor? (CO3) 1

(a) ADD B
(b) ADC B
(c) ADI data
(d) SUB B

1-g. The input and output operations are respectively similar to the operations. (CO4) 1

(a) read, read
(b) write, write
(c) read, write
(d) write, read

1-h. The 8085 microprocessor has two instructions for data transfer between the processor and the I/O devices. (CO4) 1

(a) Rx & Tx
(b) DIN & DOUT
(c) IN & OUT
(d) MVI & STA

1-i. Find the purpose of the EU (Execution Unit) in the 8086 microprocessor? (CO5) 1

(a) It performs address calculations.
(b) It executes instructions fetched by the BIU.
(c) It manages interrupts and exceptions.
(d) It controls the flow of data between the CPU and memory.

1-j. 8086 can access memory up to? (CO5) 1

(a) 512KB
(b) 1Mb
(c) 2Mb
(d) 256KB

2. Attempt all parts:-

2.a.	After execution of the program find the status of the carry flag. (CO1) MVI A, B4H MVI C, 4BH ADD C MOV C, A INR C HLT	2
2.b.	Write instructions to load the hexadecimal numbers 65H in register C and 92H in the accumulator A , then add register C and A and display result at PORT1. (CO2)	2
2.c.	Comment on the following (CO3) a)Stack b)Subroutine	2
2.d.	If the memory chip size is 1024*4 bits, how many chips are required to make up 16KByte memory? (CO4)	2
2.e.	List the difference between 8085 & 8086 Microprocessors. (CO5)	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	Different types of Machine Cycles in 8085, also list required number of T States in each cycle. (CO1)	6
3-b.	Differentiate between Von-neumann and Harvard architecture. (CO1)	6
3-c.	Explain the following instructions: CALL, DAD B, XTHL, STAX B, CMP M (CO2)	6
3-d.	Evaluate the content of A at the end of this program? Also calculate total Number of T-States. (CO2) MVI A, 06H RLC MOV B, A RLC RLC ADD B	6
3.e.	List the difference between PUSH-POP and CALL-RET. (CO3)	6
3.f.	The memory address of the last location of an 8K byte memory chip is given as FFFFH. Specify the starting address. (CO4)	6
3.g.	Draw and explain register organization of 8086. (CO5)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Draw and explain the internal architecture of 8085 microprocessor.(CO1)	10
4-b.	Elaborate the following.(CO1) a) Flag Register in 8085 & Represent all flags b) Addressing modes in 8085	10

5. Answer any one of the following:-

5-a.	Explain the timing diagram during of the execution of the CALL 5025H instruction by 8085 processor with the help of neat timing diagram. (CO2)	10
5-b.	Elaborate all Logical Operations, Also tabulate the flag status of all instructions. (CO2)	10

6. Answer any one of the following:-

6-a.	Write an assembly language program to convert any two digit decimal number/BCD to hexadecimal/binary using 8085 instruction set. (CO3)	10
6-b.	Do the assembly language program to count continuously in hexadecimal from FF H to 00 H in a system with 0.5 microsecond clock period. Use register C to set up a one millisecond delay between each count and display the numbers at one of the output ports. (CO3)	10

7. Answer any one of the following:-

7-a.	Elaborate interrupts, explain different types of interrupts available in 8085, also list vectored & Non-vectored, Maskable & Non-maskable.(CO4)	10
7-b.	Differentiate between Memory Mapped I/O and peripheral Mapped I/O in details. (CO4)	10

8. Answer any one of the following:-

8-a.	Draw and explain the Block diagram of 8255(PPI). (CO5)	10
8-b.	Draw the internal block diagram of 8086 microprocessor. Explain the BIU and EU.(CO5)	10