NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - THEORY EXAMINATION (2022-2023 **)**

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.*

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SECTION A　　　　　　　**20**

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1. Attempt all parts:-

1-a.　　　Which of the following is a property of RST 7.5 interrupt? CO1　　　　1

　　　　　(a) It is a non-maskable interrupt

　　　　　(b) It has 3rd highest priority

　　　　　(c) It uses level-triggered signal

　　　　　(d) Its vectored address is 0034H

1-b.　　　Which of the following flag condition is used for BCD arithmetic operations in　　1
　　　　　microprocessor? CO1

　　　　　(a) Sign flag

　　　　　(b) Auxiliary carry flag

　　　　　(c) Parity flag

　　　　　(d) Zero flag

1-c.　　　The instruction RET executes with the following series of machine　　1
　　　　　cycle_____. CO2

　　　　　(a) Fetch, read, write

(b) Fetch, write, write

(c) Fetch, read, read

(d) Fetch, read

1-d.   For which one of the following, the instruction XRA A in 8085 microprocessor   1
can be used? CO2

      (a) Set the carry flag

      (b) Set the zero flag

      (c) Reset the carry flag and clear the accumulator

      (d) Transfer FFH to the accumulator

1-e.   Convert the binary number $(01011.1011)_2$ into decimal: CO3   1

      (a) $(11.6875)_{10}$

      (b) $(11.5874)_{10}$

      (c) $(10.9876)_{10}$

      (d) $(10.7893)_{10}$

1-f.   The binary-coded decimal (BCD) system can be used to represent each of the   1
10 decimal digits as a(n)_____. CO3

      (a) 4-bit binary code

      (b) 8-bit binary code

      (c) 16-bit binary code

      (d) ASCII code

1-g.   Which instruction indicates the transfer of program sequence to the address   1
specified by 16 bit value if Z flag =0 ? CO4

      (a) CZ Address

      (b) CNZ Address

      (c) CPE Address

      (d) CPO Address

1-h.   If the microprocessor has 10 address lines, then the number of memory   1
locations it is able to address is_____. CO4

      (a) 512

      (b) 1024

      (c) 2048

      (d) none

1-i.   The input provided by the microprocessor to the read/write control logic is   1
_____. CO5

(a) RESET

(b) A1

(c) WR(ACTIVE LOW)

(d) All of the mentioned

1-j.   The register that keeps track of all the DMA channel pending requests and   1
status of their terminal counts is _____. CO5

(a) mask register

(b) request register

(c) status register

(d) count register

2. Attempt all parts:-

2.a.   Define bit, byte and word. CO1   2

2.b.   What is an IN instruction? CO2   2

2.c.   What do you mean by Timer? CO3   2

2.d.   Explain the instruction: EI. CO4   2

2.e.   What is Logical Address? CO5   2

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SECTION B   **30**

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3. Answer any <u>five</u> of the following:-

3-a.   Explain the architecture of 8085 microprocessor. CO1   6

3-b.   Draw the Timing diagram for IN C0H. CO1   6

3-c.   Discuss all the XOR logical operations in detail. CO2   6

3-d.   Discuss all the CONDITIONAL CALL operations in detail. CO2   6

3-e.   What is the use of CALL instruction in 8085? What will happens when RETURN   6
(RET) is executed? CO3

3.f.   Explain why the number of output ports in the peripheral-mapped I/O is   6
restricted to 256 ports. CO4

3.g.   Interface 8251 with 8086 and explain the function of command words. CO5   6

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SECTION C   **50**

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4. Answer any <u>one</u> of the following:-

4-a.   Explain the instruction data flow in 8085 with example. CO1   10

4-b.   With proper example describe ASCII code. CO1   10

5. Answer any <u>one</u> of the following:-

5-a.   Explain ARITHMETIC OPERATIONS with example. CO2   10

5-b.   Write an assembly language program to add and subtract two 8 bit numbers.   10
       CO2

6. Answer any <u>one</u> of the following:-

6-a.   Calculate time delay using a Register Pair. CO3   10

6-b.   write a program for time delay by load register pair BC with 8000H, and   10
       calculate the loop delay TL if the system clock frequency is 3.072 MHz. CO3

7. Answer any <u>one</u> of the following:-

7-a.   With Proper diagram explain Memory-Mapped I/O Interfacing. CO4   10

7-b.   With proper diagram explain interfacing output displays. CO4   10

8. Answer any <u>one</u> of the following:-

8-a.   What are the two modes of DMA execution? Explain in details. CO5   10

8-b.   Explain the concept of pipelining in 8086. Discuss its advantages and   10
       disadvantages. CO5