Printed Page:- 04 **Subject Code:- AMCA0104Z**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MCA

SEM: I - CARRY OVER THEORY EXAMINATION JUNE **2023**

Subject: Computer System Organization

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. The base/radix for a decimal number is: (CO1) 1

(a) 16

(b) 9

(c) 10

(d) 2

1-b. POS terms are known as: (CO1) 1

(a) Minterm

(b) Maxterm

(c) Midterm

(d) Modterm

1-c. Symbolic notation that describes microoperation transfers among register is called: (CO2) 1

(a) Register Transfer Language

(b) Register Register Language

(c) Register Transister Language

(d) Transistor Register Language

1-d. Which among the following is an logical microoperation (CO2) 1

(a) R1 ← R1 ⊕ R2

(b) R 4 ← R5VR6

(c) F ← A ∧ B

(d) All of the above

1-e. CISC stands for: (CO3) 1

(a) Complex Information Sensed CPU

(b) Complex Instruction Set Computer

(c) Complex Intelligence Sensed CPU

(d) Complex Instruction Set CPU

1-f. Which of the following processor has a fixed length of instructions? (CO3) 1

(a) CISC

(b) RISC

(c) CU

(d) None

1-g. When power is switched off which memory loses its data? (CO4) 1

(a) Non-Volatile Memory

(b) Volatile

(c) Both of above

(d) none of the above

1-h. In which type of memory, once the program or data is written, it cannot be changed? (CO4) 1

(a) PROM

(b) EPROM

(c) EEPROM

(d) None

1-i. The method which offers higher speeds of I/O transfers is _____.(CO5) 1

(a) Interrupts

(b) Memory mapping

(c) Program-controlled I/O

(d) DMA

1-j.	For long distance communication which data transfer technique is used (CO5) (a) Serial Transfer (b) Parallel Transfer (c) Serial Parallel Transfer (d) Parallel Serial Transfer	1

2. Attempt all parts:-

2.a.	Convert the binary number 11110011 into decimal. (CO1)	2
2.b.	Write short note on Two Bus Organization & Three Bus Organization. (CO2)	2
2.c.	What is Micro-Instruction? (CO3)	2
2.d.	What is Auxiliary Memory? (CO4)	2
2.e.	Discuss Maskable interrupts with example? (CO5)	2

SECTION B **30**

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

3-a.	Draw the basic functional units of a computer.(CO1)	6
3-b.	Write a short note on Sequential Logic Circuit. (CO1)	6
3-c.	What are three state buffers. Explain the concept of common bus construction by using three state buffers. (CO2)	6
3-d.	What is Full Adder? Also explain full adder using truth table. (CO2)	6
3.e.	Discuss the working of RISC with the help of block diagram. (CO3)	6
3.f.	What is DRAM? Also explain 2D and 2.5D memory organization .(CO4)	6
3.g.	Write a short note on the following : i) Programmed I/O. (CO5) ii) Interrupt I/O. iii) Serial Communication	6

SECTION C **50**

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

4-a.	What is Gray Code? Explain the conversion of gray code to binary and binary to gray using a suitable example. (CO1)	10
4-b.	What is Addressing Mode ? Also explain different types of addressing modes. (CO3)	10

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

5-a.	What is meant by data bus? Explain bus and memory transfer.(CO2)	10
5-b.	What is bus arbitrator? Also differentiate between Centralized and Distributed bus arbitrator. (CO2)	10

.

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

6-a. What is Control Unit? Also explain the differences between hardwired and micro programmed control units.(CO3) 10

6-b. Evaluate the arithmetic expression X = (A + B) * (C + D) using stack organized computer. (CO3) 10

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

7-a. Write a short note on following: 10

i) Associative mapping
ii) Direct mapping
iii) Set associative mapping (CO4)

7-b. Write a short note on following: 10

i) Primary Memory
ii) Secondary Memory
iii) Cache memory (CO4)

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

8-a. Draw a diagram for Data transfer from I/O device to CPU in connection with programmed I/O and explain. (CO5) 10

8-b. What is DMA? Explain cycle stealing and burst mode of DMA.(CO5) 10