Printed Page:- 03 Subject Code:- BMCA0201

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

MCA

SEM: II - THEORY EXAMINATION (2023 - 2024)

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. The register is a type of _____ CO2 1

(a) Combinational circuit
(b) Sequential circuit
(c) CPU
(d) None

1-d. SRAM is also known as: CO2 1

(a) MRAM
(b) DRAM
(c) MMRAM

(d) Cache

1-e. Which type of control unit is faster? CO3 1

(a) Micro-programmed
(b) Hardwired
(c) Horizontal Micro-programmed
(d) Vertical Micro-programmed

1-f. Microprogrammed controller are better for which architecture- CO3 1

(a) RISC
(b) RESC
(c) CISC
(d) CIISC

1-g. Nature of ROM is: CO4 1

(a) Volatile
(b) Non-Volatile
(c) Versatile
(d) Volatile and versatile

1-h. Which of the following is the fastest means of memory access for CPU? CO4 1

(a) Register
(b) Cache
(c) Main memory
(d) Secondary memory

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. The method that is used to transfer information between internal storage and external I/O devices is known as- CO5 1

(a) I/O interface
(b) I/O Interrupt
(c) I/O processor
(d) None

2. Attempt all parts:-

2.a. Define the term Computer Architecture. CO1 2

2.b. Define Register. CO2 2

2.c. What is micro instruction? CO3 2

2.d.	Define set associative mapping?	CO4	2
2.e.	Define synchronous communication.	CO5	2

SECTION-B 30

3. Answer any five of the following:-

3-a.	Explain Excess-3 and BCD code.	CO1	6
3-b.	Draw the truth table and circuit diagram of AND, OR, NOT gates.	CO1	6
3-c.	Define microoperations with proper examples?	CO2	6
3-d.	Explain full adder using truth table.	CO2	6
3.e.	Explain addressing modes, its usage and types.	CO3	6
3.f.	Briefly explain Primary storage and secondary storage with suitable examples.	CO4	6
3.g.	Explain interrupt and its types?	CO5	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Explain Boolean Laws with example.	CO1	10
4-b.	Simplify the following expressions using Boolean algebra a) AB + A(CD +CD') b) (A'BC+AB'C+ABC'+ABC)	CO1	10

5. Answer any one of the following:-

5-a.	Construct a 16-bit common bus architecture.	CO2	10
5-b.	Explain: a)Register b)RTL c)Symbol Table of Register	CO2	10

6. Answer any one of the following:-

6-a.	Explain general register organization and explain the functionality of each component.	CO3	10
6-b.	Explain stack organization with register and memory referencing.	CO3	10

7. Answer any one of the following:-

7-a.	Construct the block diagram of RAM along with its working and truth table.	CO4	10
7-b.	Construct pyramid structure of memory hierarchy, explain each term.	CO4	10

8. Answer any one of the following:-

8-a.	Explain with the block diagram the DMA transfer in a computer system.	CO5	10
8-b.	Compare software and hardware interrupts.	CO5	10