*Total No. of Questions: 6* *Total No. of Printed Pages:3*

**Enrollment No.....**

Faculty of Science / Engineering

End Sem Examination May-2024

CA3CO06 Computer Architecture

Programme: BCA / BCA-MCA (Integrated) Branch/Specialisation: Computer Application

**Duration: 3 Hrs.** **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. ISA is abbreviation of- **1**

(a) Instruction Set Architecture
(b) Instruction Set Advantages
(c) Instruction Set Attributes
(d) Instruction Set Application

ii. What is the full form of CPU? **1**

(a) Computer Processing Unit
(b) Computer Principle Unit
(c) Central Processing Unit
(d) Control Processing Unit

iii. The Booth's algorithm is used for- **1**

(a) Addition (b) Subtraction
(c) Multiplication (d) None of these

iv. Which of the following is the smallest unit of data in a computer? **1**

(a) Bit (b) KB (c) Nibble (d) Byte

v. A register in the microprocessor that keeps track of the answer or result of any arithmetic or logic operation is the _____. **1**

(a) Stack pointer (b) Instruction pointer
(c) Program counter (d) Accumulator

vi. The Central Processing Unit (CPU) consists of: **1**

(a) ALU and Control unit only
(b) ALU, Control unit and Registers
(c) ALU, Control unit and system bus
(d) ALU, Control unit, Registers, and Internal bus

P.T.O.

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|---|---|---|---|---|
| | vii. | Which of the following is the data width of 8086?<br>(a) 8 bit (b) 16 bit<br>(c) 20 bit (d) 1 kb | | **1** |
| | viii. | Which of the following are the address data bits of 8086 processor?<br>(a) Pin 1 to Pin 15 (b) Pin 2 to Pin 16<br>(c) Pin 1 to Pin 19 (d) Pin 2 to Pin 20 | | **1** |
| | ix. | Which of these memories acts as a buffer between CPU and main memory?<br>(a) ROM (b) RAM<br>(c) Cache (d) Hard disc | | **1** |
| | x. | The speed of secondary memory is-<br>(a) Fastest (b) Faster than primary<br>(c) Slower than primary (d) None of these | | **1** |
| Q.2 | i. | Write definition of computer. | | **2** |
| | ii. | What is input and output unit? Explain. | | **3** |
| | iii. | Justify the statement that "Computer is a dumb machine". Also compare computer with human brain. | | **5** |
| OR | iv. | Explain Instruction Set Architecture (ISA)? Also write the features of ISA. | | **5** |
| Q.3 | i. | Solve 1101-1001 by 2's complement. | | **2** |
| | ii. | What is floating point representation? Explain with example. | | **3** |
| | iii. | Solve (-5) *3 by booth algorithm. | | **5** |
| OR | iv | Divide 1010 by 0011 Restoring division algorithms. | | **5** |
| Q.4 | i. | Explain the concept of bus in any computer architecture. | | **2** |
| | ii. | What do you mean by register transfer language and micro-operations? | | **3** |
| | iii. | Explain different types of data movement among registers. | | **5** |
| OR | iv | Design of simple arithmetic & logic unit. | | **5** |
| Q.5 | | Attempt any two: | | |
| | i. | Explain the architecture of 8086 with suitable block diagram. | | **5** |
| | ii. | Explain the instruction set of 8086 in detail. | | **5** |
| | iii. | Draw and explain the pin diagram of 8086. | | **5** |



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|---|---|---|---|
| Q.6 | i. | What do you mean by auxiliary memory? | **2** |
| | ii. | Explain the concept of cache memory. | **3** |
| | iii. | Explain memory hierarchies with suitable diagram. | **5** |
| OR | iv. | Explain associative memory in detail. | **5** |

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## Marking Scheme

## CA3CO06 Computer Architecture

| | | | | |
|---|---|---|---|---|
| Q.1 | i) | A. Instruction Set Architecture | | **1** |
| | ii) | C. Central Processing Unit | | **1** |
| | iii) | C. Multiplication | | **1** |
| | iv) | A. Bit | | **1** |
| | v) | D. Accumulator | | **1** |
| | vi) | D.ALU, Control unit, Registers, and Internal bus | | **1** |
| | vii) | B.16 bit | | **1** |
| | viii) | B. Pin 2 to Pin 16 | | **1** |
| | ix) | C. Cache | | **1** |
| | x) | C. Slower than primary | | **1** |
| Q.2 | i. | Write definition of Computer. | 2 Marks | **2** |
| | ii. | What is Input and Output unit | 1.5 Marks | **1.5+** |
| | | Explain | 1.5 Marks | **1.5** |
| | iii. | "Computer is a dumb machine". | 2 Marks | **2+3** |
| | | Also …. with human brain. | 3 Marks | |
| OR | iv. | Explain Instruction Set Architecture | 2 Marks | **2+3** |
| | | Also write the features of ISA. | 3 Marks | |
| Q.3 | i. | Solve 1101-1001 by 2's complement | 2 Marks | **2** |
| | ii. | What is floating Point representation | 2 Marks | **2+1** |
| | | Explain with Example. | 1 Mark | |
| | iii. | Flow Chart | 2 Marks | **5** |
| | | Marks Steps | 3 Marks | |
| OR | iv | Divide …. algorithms. | 5 Marks | **5** |
| Q.4 | i. | The concept …. architecture. | 2 Marks | **2** |
| | ii. | Register Transfer Language | 1.5 Marks | **1.5+1.5** |
| | | Micro operations | 1.5 Marks | |
| | iii. | Types | 5 Marks | **5** |
| OR | iv | Diagram | 2 Marks | **5** |
| | | Explanation | 3 Marks | |
| Q.5 | | Attempt any two | | |



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|---|---|---|---|---|
| | i. | Diagram | 2 Marks | **5** |
| | | Explanation | 3 Marks | |
| | ii. | Explain the instruction set of 8086 in detail | (1 Mark*5) | **5** |
| OR | iii. | Diagram | 2 Marks | **3+2** |
| | | Explanation | 3 Marks | |
| Q.6 | i. | What do you mean by Auxiliary memory, | 2 Marks | **2** |
| | ii. | Explain the concept of Cache Memory. | 3 Marks | **3** |
| | iii. | Explain memory hierarchies | 2 Marks | **2+3** |
| | | With suitable diagram. | 3 Marks | |
| OR | iv. | Explain Associative memory in detail. | 5 Marks | **5** |

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