

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Fifth semester B.Tech degree examinations (S) September 2020

**Course Code: EE363****Course Name: COMPUTER ORGANIZATION AND ARCHITECTURE**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 5 marks.*

Marks

- |   |                                                                               |     |
|---|-------------------------------------------------------------------------------|-----|
| 1 | Differentiate various types of buses.                                         | (5) |
| 2 | What is meant by an instruction cycle? Describe its two phases?               | (5) |
| 3 | Differentiate the two types of byte address assignment methods?               | (5) |
| 4 | How to construct an ALU, which perform basic arithmetic and logic operations? | (5) |
| 5 | What does memory hierarchy mean? What is its significance?                    | (5) |
| 6 | Explain the significance of cache memory in computer system                   | (5) |
| 7 | Differentiate polling and interrupt schemes in I/O techniques.                | (5) |
| 8 | Explain the synchronous and asynchronous I/O technique.                       | (5) |

**PART B***Answer any two full questions, each carries 10 marks.*

- |    |                                                                                                             |     |
|----|-------------------------------------------------------------------------------------------------------------|-----|
| 9  | a) With the help of a block schematic explain the basic organizational units of a digital computer.         | (5) |
|    | b) Enlist the characteristics of third and fourth generation computers.                                     | (5) |
| 10 | a) Illustrate the load and store cycle with example                                                         | (5) |
|    | b) What is meant by addressing mode? Explain absolute and indirect addressing modes with suitable examples. | (5) |
| 11 | a) Write notes on different instruction sequencing techniques.                                              | (5) |
|    | b) Differentiate characteristics of RISC and CISC systems                                                   | (5) |

**PART C***Answer any two full questions, each carries 10 marks.*

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|----|-------------------------------------------------------------------------------------|-----|
| 12 | a) How floating point numbers are represented in computer system.                   | (5) |
|    | b) With the help of a flow chart explain how Booths multiplication algorithm works. | (5) |
| 13 | a) Explain the working of micro programmed control unit.                            | (5) |

- b) Explain the data path implementation for reading the instruction ADD in ADD (R3), R1 in a 3-bus processor unit. (5)
- 14 a) How integer division is performed in an ALU? Explain with suitable circuit. (6)
- b) Explain horizontal and vertical organization of a micro programmed control unit. (4)

**PART D**

*Answer any two full questions, each carries 10 marks.*

- 15 How parallel operations are implemented effectively in a computer system. (10)  
Explain any three types of Pipeline hazards.
- 16 a) Explain DMA method of data transfer in detail. (6)
- b) Write notes on associative mapping function related to cache memory. (4)
- 17 a) Explain interrupt driven I/O technique. (5)
- b) Discuss different performance measures for I/O devices. (5)

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