



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

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIFTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019**

**Course Code: EE363**

**Course Name: COMPUTER ORGANIZATION AND ARCHITECTURE**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions, each carries 5 marks.*

- 1 Differentiate mono bus and multi bus organization. (5)
- 2 Explain about instruction type and instruction format. (5)
- 3 How to construct an ALU, which perform basic arithmetic and logic operations? (5)
- 4 Explain horizontal and vertical organization of a micro-programmed control unit. (5)
- 5 What does memory hierarchy mean? What is its significance? (5)
- 6 Explain the concept of virtual memory and its implementation in computer system. (5)
- 7 Differentiate various types of interrupts. (5)
- 8 Explain about memory mapped I/O system. (5)

**PART B**

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

- 9 a) With the help of a block schematic explain the basic operational concepts of a digital computer. (5)
- b) Explain different performance measures for comparing system performance. (5)
- 10 a) Illustrate the steps involved in a typical memory read and write cycle with example? (5)
- b) What is meant by addressing mode? Explain absolute and indirect addressing modes with suitable examples. (5)
- 11 a) Explain the basic organization of a digital computer with description of each unit. (5)
- b) Differentiate characteristics of RISC and CISC systems. (5)

**PART C**

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

- 12 a) Explain floating-point representation of an integer. (3)
- b) With the help of an example, explain Booths multiplication algorithm. (7)

- 13 a) Differentiate micro routine and control word with respect to control unit design. (3)  
b) Explain the data path implementation for the instruction ADD (R3), R1 in a 3-bus processor unit. (7)
- 14 a) Draw and explain the circuit for implementing unsigned integer multiplication. (5)  
b) Explain micro programmed control and mention its advantages. (5)

**PART D**

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

- 15 How the concept of pipelining is implemented effectively in a computer system. (10)  
Explain different Pipeline hazards with suitable examples.
- 16 a) Explain DMA method of data transfer in detail. (6)  
b) Explain the synchronous and asynchronous I/O technique. (4)
- 17 a) Discuss the various mapping techniques used in cache memories. (6)  
b) Explain the characteristics of I/O systems. (4)

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