

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

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FOURTH SEMESTER B.TECH DEGREE EXAMINATION(R&S) MAY 2019**

**Course Code: EC206**

**Course Name: COMPUTER ORGANISATION (EC)**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two full questions, each carries 15 marks*

Marks

- |   |  |     |
|---|--|-----|
| 1 | a) Explain Propagate adder and ripple carry adder.   | (8) |
|   | b) Illustrate the use of shifters and rotators with example in arithmetic circuits.                                | (7) |
| 2 | a) Define the following terms of MIPS processor:<br>(i) Register Set. (ii) Operands. (iii) Memory. (iv) Registers. | (8) |
|   | b) With example explain briefly R-type and I-type Instruction format in Machine Language.                          | (7) |
| 3 | a) Define fixed point number systems with examples.  | (7) |
|   | b) Convert to MIPS assembly instruction (i) 0x2128FF6A<br>(ii) 0x0253882A  | (8) |

**PART B**

*Answer any two full questions, each carries 15 marks*

- |   |  |     |
|---|--|-----|
| 4 | a) Explain Pseudoinstructions and exceptions in MIPS.                    | (8) |
|   | b) Explain Floating Point instructions used in MIPS                      | (7) |
| 5 | a) Briefly define the state elements used in MIPS processor.             | (7) |
|   | b) Explain the data path of single cycle R-type instruction.             | (8) |
| 6 | a) With neat diagram explain multi cycle control for R-type instruction. | (8) |
|   | b) Explain signed and unsigned instructions used in MIPS                 | (7) |

**PART C**

*Answer any two full questions, each carries 20 marks*

- 7 a) Illustrate the different modes of data transfer in I/O systems. (5)  
b) Mention the working of memory cells SRAM and DRAM. (10)  
c) Draw Memory Hierarchy diagram. (5)
- 8 a) Explain Address Translation in virtual Memory. (8)  
b) With neat diagram explain briefly TLB. (7)  
c) Define Write through and Write Back Policies. (5)
- 9 a) Illustrate the different mapping methods of Cache Memory. (8)  
b) Write short notes on Segmentation and paging. (7)  
c) Sketch the internal organization of a memory chip. (5)

\*\*\*\*