Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FOURTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019

Course Code: EC206

Course Name: COMPUTER ORGANISATION

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks

			Marks
1	a)	Explain with neat diagram a 32 bit ripple carry adder.	(3)
	b)	With neat diagram explain Arithmetic Logic Unit	(5)
	c)	Explain the R- type instruction format of MIPS with example	(3)
	d)	Translate the following machine language code into MIPS assembly language: 0xAD310004	(4)
2	a)	Design a 4×4 binary multiplier. Illustrate with an example	(7)
	b)	Write notes on MIPS register set.	(4)
	c)	Translate the following MIPS assembly code to MIPS machine language code in hexadecimal form: lw $t2, 32 ($0)	(4)
3	a)	Explain how floating point numbers are represented in computer's memory.	(6)
	b)	Differentiate Big-Endian and Little-Endian machines	(4)
	c)	Explain load word and store word instructions with examples	(5)

PART B

Answer any two full questions, each carries 15 marks

4	a)	With examples, explain the different addressing modes available in MIPS.	(10)
	b)	Explain the control unit of a multi cycle processor	(5)
5	a)	Explain the various steps for executing a program	(9)
	b)	What are the weaknesses of a single cycle processor. How are they eliminated in a multi cycle processor?	(6)
6	a)	What are exceptions ? How the exceptions are handled ?	(7)
	b)	Draw and explain datapath for single cycle implementation for R-type instructions.	(8)

PART C

Answer any two full questions, each carries 20 marks

7	a)	With the help of a diagram, explain the concept of memory hierarchy.	(5)
	b)	Distinguish between Programmed I/O and Interrupt driven I/O	(5)
	c)	Explain how a virtual address is translated into a physical address in virtual memory using page table.	(10)
8	a)	Differentiate between SRAM and DRAM	(6)

	b)	Write short notes on (i) Serial port (ii) Parallel port	(4)
	c)	Explain LRU replacement algorithm	(4)
	d)	Explain with diagram direct mapping method in cache memory.	(6)
9	a)	What is meant by ROM? Explain the various types of ROM	(5)
	b)	With the help of a circuit diagram, explain the working of a SRAM cell.	(5)
	c)	Explain the concept of cache memory. Also define Miss Rate, Hit Rate and Average memory access time.	(10)

****