Register Number:……..

KUMARAGURU
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B.E. DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Third Semester

COMPUTER SCIENCE AND ENGINEERING

U18CST3003: Computer Architecture

COURSE OUTCOMES

CO1: Identify the different addressing modes used in a processor.

CO2: Apply the knowledge of arithmetic operations in the design of a fast adder.

CO3: Classify the control units present in a processor.

CO4: Analyze the various performance enhancement techniques of Cache memories.

CO5: Point out how the pipeline processor improves performance of a computer.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions: -

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

1.	Compare the Overflow flag and Carry flag	CO1	[K_2]
2.	Calculate the program execution time for executing 800 machine language instructions in a program. Out of 800 instructions, 10 instructions are put in a loop, and they are executed 9 times. Assume that on average there are 8 basic steps needed to execute 1 machine instruction and each basic step is completed in 1 clock cycle. The clock rate is 800 cycles/second	CO1	[K_3]
3.	Tell an example of a worst-case multiplier and a good multiplier	CO2	[K_2]
4.	What do you mean by Von Neumann rounding?	CO2	[K_2]
5.	What is the function of MFC control signal?	CO3	[K_2]
6.	List down the function of the microprogram counter.	CO3	[K_2]
7.	Compare EPROM and EEPROM	CO4	[K_2]
8.	What do you mean by read miss and read hit	CO4	[K_2]
9.	When an instruction is said to have a side effect.	CO5	[K_2]
10.	Explain the term- vectored interrupts	CO5	[K_2]

Answer any FIVE Questions: -
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.		What do you mean by addressing modes? Explain the different types of addressing modes with an example for each type	16	CO1	[K_2]
12.	a)	Multiply 11 * -14 using Booth's algorithm	4	CO2	[K_3]
	b)	Describe the floating-point addition-subtraction unit	12	CO2	[K_2]
13.	a)	Explain about the microprogrammed control method of generating control signals with examples	10	CO3	[K_2]
	b)	Write the control sequence for an unconditional branch instruction	6	CO3	[K_2]
14.	a)	Illustrate Direct mapping and Associative mapping techniques used for mapping memory blocks with cache blocks	8	CO4	[K_2]
	b)	Describe virtual-memory address translation with the necessary block diagram	8	CO4	[K_2]
15.	a)	Explain data hazards	10	CO5	[K_2]
	b)	What do you mean by bus arbitration? Illustrate centralized arbitration	6	CO5	[K_2]
16.	a)	Illustrate dynamic branch prediction	10	CO5	[K_2]
	b)	Divide 11101/111 using the Restoring division method	6	CO2	[K_3]

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