Subject Code: 22CS/IT/CY/AM/DS 304PC	SET-II	HT NO:			7	R			

CMR TECHNICAL CAMPUS

UGC AUTONOMOUS

B. Tech. III Sem Regular End Examinations, February-2024

Computer Organization & Architecture

Common to CSE, IT, CSC, CSM, CSD& AIML

Time: 3 Hours **Max. Marks: 60**

Note

i. This Question paper contains Part- A and Part- B.
ii. All the Questions in Part A are to be answered compulsorily.
iii. All Questions from Part B are to be answered with internal choice among them.

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PART-A

10 X 01 = 10 Marks

			Marks	CO
1.	a	What is the Boolean expression for an AND gate?	1M	CO1
	b	Define the terms "unsigned" and "signed" in the context of data representation	1M	CO1
	c	Differentiate between assembly language and machine language.	1M	CO2
	d	List the advantages of the microprogramming.	1M	CO2
	e	Explain Addressing modes in CPU.	1M	CO3
	f	Define Floating-point Arithmetic operations.	1M	CO3
	g	Define direct memory access (DMA).	1M	CO4
	h	What is the main memory of a computer system?	1M	CO4
	i	Define parallel processing.	1M	CO5
	j	What is an array processor?	1M	CO5

PART- B

5 X 10 = 50 Marks

			Marks	CO
2.	a	Convert decimal numbers to their binary equivalents using fixed-point representation techniques.	5M	CO1
	b	Explain the concept of micro-operations and their significance in register transfer.	5M	CO1
		OR		
3	a	Design a simple block diagram for a digital computer system tailored to specific requirements.	5M	CO1

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	b	Describe the process of register transfer and its relationship .to data movement within a computer system. and processing in a digital computer system.	5M	CO1	L2
4	a	Explain the importance of various types of instructions and addressing modes in designing an effective ISA?	5M	CO2	L2
	b	Define microprogrammed control and explain its advantages and limitations compared to hardwired control.	5M	CO2	L2
		OR			
5	a	Describe the purpose and functions of computer registers in a digital computer system.	5M	CO2	L2
	b	explain the significance of address sequencing in the context of a microprogrammed control unit?	5M	CO2	L2
6	a	Discuss the significance of rounding modes in floating-point arithmetic operations and explain how do rounding modes affect the accuracy and precision of numerical computations?	5M	CO3	L3
	b	Explain the concept of relative addressing and its importance in supporting position-independent code.	5M	CO3	L2
		OR			
7	a	Explain the role of general-purpose registers in a CPU.	5M	CO3	L2
	b	Describe the process of division in computer arithmetic, including algorithms like restoring division and non-restoring division.	5M	CO3	L3
8	a	Define cache memory and explain its role in improving system performance.	5M	CO4	L2
	b	Compare and contrast synchronous and asynchronous data transfer methods.	5M	CO4	L2
		OR			
9	a	Discuss the importance of associativity in cache memory and how it affects cache performance.	5M	CO4	L2
	b	Define priority interrupt and its significance in I/O operations.	5M	CO4	L2
10	a	Describe how RISC architectures achieve efficiency and performance improvements compared to CISC architectures.	5M	CO5	L2
	b	Define vector processing and its advantages in handling array-based computations.	5M	CO5	L2
		OR			
11	a	List the key characteristics of RISC architectures.	5M	CO5	L2
	b	Describe the concept of instruction pipelining and its impact on instruction throughput.	5M	CO5	L2

CO : Course Outcomes

BL : Bloom's Taxonomy Levels **L 1 : Remembering** **L 2 : Understanding** **L 3 : Applying** **L 4 : Analysing** **L 5 : Evaluating** **L 6 : Creating**

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