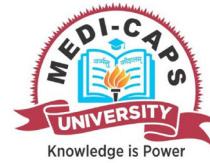


Enrollment No.....



Faculty of Engineering / Science  
End Sem Examination Dec 2024

CS3CO34 / BC3CO54 Computer System Architecture  
Programme: B.Tech. / B.Sc. Branch/Specialisation: CSE All /  
Computer Science

**Duration: 3 Hrs.****Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

	Marks	BL	PO	CO	PSO
Q.1 i. Which of the following is a type of computer architecture?	<b>1</b>	1	1	1	1
(a) Microarchitecture (b) Harvard Architecture (c) Von-Neumann Architecture (d) System Design					
ii. The length of a register is known as-	<b>1</b>	1	1	1	1
(a) Word limit      (b) Word size (c) Register limit      (d) Register size					
iii. Which of the following device stores the output from ALU?	<b>1</b>	1	1	2	1
(a) Memory devices      (b) Registers (c) Flags      (d) Output Unit					
iv. What is the sign magnitude representation of -1?	<b>1</b>	1	2	2	1
(a) 0001      (b) 1110 (c) 1000      (d) 1001					
v. Which of the following is used for binary multiplication?	<b>1</b>	1	1	3	1
(a) Restoring Multiplication (b) Booth's Algorithm (c) Pascal's Rule (d) Digit-by-digit multiplication					

	[2]		[3]
vi.	What is the value of n in multiplication of $110 * 1000$ ? (a) 2      (b) 3      (c) 4      (d) 0	1      3      2      3      1	OR    iii. Discuss in detail various types of addressing modes in computers.      8      2      1      2      1
vii.	When the R/W bit of the status register of the DMA controller is set to 1? (a) Read operation is performed (b) Write operation is performed (c) Read & Write operation is performed (d) None of the mentioned	1      1      1      4      1	Q.4    i. Illustrate the addition operation with signed magnitude with an appropriate example and flowchart. ii. Multiply A & B by using booth multiplication, where A= 010111 and B= 110111. OR    iii. Divide A by B where A= 0111000000 and B=10001. discuss it with appropriate flowchart and table.
viii.	Which of the following is independent of the address bus? (a) Secondary memory (b) Main memory (c) Onboard memory (d) Cache memory	1      1      1      4      1	Q.5    i. Illustrate the concept of serial and parallel transmission. ii. Discuss in detail the DMA.
ix.	Which of the following processor has a fixed length of instructions? (a) CISC      (b) RISC (c) EPIC      (d) Multi-core	1      1      1      5      1	OR    iii. Explain in detail the auxiliary, associative and cache memory.
x.	Which of the following circuitry used to processes that responds to and processes the basic instructions that are required to drive a computer system? (a) Memory      (b) ALU (c) CU      (d) Processor	1      1      1      5      1	Q.6    Attempt any two: i. Illustrate the concept of Array and Vector processor. ii. Discuss in detail the interprocess communication. iii. Differentiate between RISC and CISC processors.
*****			
Q.2	i. Discuss the various components of computer system. ii. Describe the types of buses used in computer system in detail. iii. Illustrate the use of register transfer languages with its operations.	2      1      1      1      1	
OR	iv. Discuss about various micro-operations in detail with an appropriate example.	5      1      1      1      1	
Q.3	i. What do you understand with timing and control signals? ii. Illustrate the instruction cycle in detail.	2      2      1      2      1 8      2      1      2      1	

**Marking Scheme**  
**CS3CO34-BC3CO54 Computer System Architecture**

		OR	iii. 2 marks for each.	6
Q.1	i) c ii) b iii) b iv) d v) b vi) c vii) a viii) a ix) b x) d	1 1 1 1 1 1 1 1 1 1	Q.6	i. 2.5 marks for each ii. 3 marks for discussion and 2 marks for diagram iii. 1 mark for each difference.  *****
Q.2	i. 0.5mark for each major component ii. 1 mark for each type. iii. 2 mark for the explanation and 3 mark for operations.	2 3 5		5 5 5
OR	iv. 2 mark for explanation and 3 mark for flowchart / Tables.	5		
Q.3	i. 1 mark for each type of signal. ii. 4 marks for states and 4 marks for flowchart /diagram.	2 8		
OR	iii. 1 mark for each mode	8		
Q.4	i. 1 mark for discussion of operation, 1 mark for example and 1 mark for flowchart.  ii. 6 mark for table and 3 mark for flowchart and 1 mark for answer.	3 7		
	<b>Step wise marking for each correct step.</b>			
	<b>A= 0.010111      SC= 7</b>			
	<b>B= 0110111</b>			
	<b>Final Answer -1265= 10011110001</b>			
OR	iii. 3 mark for table and 3 mark for flowchart and 1 mark for answer  <b>Reminder in A= 00110      SC=5</b>  <b>Quotient in Q= 11010</b>	7		
Q.5	i. 2 mark for each type. ii. 4 marks for illustration and 2 marks for diagram.	4 6		