Total No. of Questions: 6 *Total No. of Printed Pages:3*

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

P.T.O.

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
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
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
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
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.2 i.	Discuss the various components of computer system.	**2**	1	1	1	1
ii.	Describe the types of buses used in computer system in detail.	**3**	1	1	1	1
iii.	Illustrate the use of register transfer languages with its operations.	**5**	1	1	1	1
OR iv.	Discus 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?	**2**	2	1	2	1
ii.	Illustrate the instruction cycle in detail.	**8**	2	1	2	1

OR iii.	Discuss in detail various types of addressing modes in computers.	**8**	2	1	2	1
Q.4 i.	Illustrate the addition operation with signed magnitude with an appropriate example and flowchart.	**3**	2	2	3	1
ii.	Multiply A & B by using booth multiplication, where A= 010111 and B= 110111.	**7**	3	2	3	1
OR iii.	Divide A by B where A= 0111000000 and B=10001. discuss it with appropriate flowchart and table.	**7**	3	2	3	1
Q.5 i.	Illustrate the concept of serial and parallel transmission.	**4**	1	1	4	1
ii.	Discuss in detail the DMA.	**6**	2	1	4	1
OR iii.	Explain in detail the auxiliary, associative and cache memory.	**6**	2	1	4	1
Q.6	Attempt any two:					
i.	Illustrate the concept of Array and Vector processor.	**5**	2	1	5	1
ii.	Discuss in detail the interprocess communication.	**5**	2	1	5	1
iii.	Differentiate between RISC and CISC processors.	**5**	2	1	5	1

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Marking Scheme
CS3CO34-BC3CO54 Computer System Architecture

Q.1	i)	c	**1**
	ii)	b	**1**
	iii)	b	**1**
	iv)	d	**1**
	v)	b	**1**
	vi)	c	**1**
	vii)	a	**1**
	viii)	a	**1**
	ix)	b	**1**
	x)	d	**1**

Q.2	i.	0.5mark for each major component	**2**
	ii.	1 mark for each type.	**3**
	iii.	2 mark for the explanation and 3 mark for operations.	**5**
OR	iv.	2 mark for explanation and 3 mark for flowchart / Tables.	**5**

Q.3	i.	1 mark for each type of signal.	**2**
	ii.	4 marks for states and 4 marks for flowchart /diagram.	**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.	**3**
	ii.	6 mark for table and 3 mark for flowchart and 1 mark for answer. **Step wise marking for each correct step.** **A= 0.010111 SC= 7** **B= 0110111** **Final Answer -1265= 10011110001**	**7**
OR	iii.	3 mark for table and 3 mark for flowchart and 1 mark for answer **Reminder in A= 00110 SC=5** **Quotient in Q= 11010**	**7**

Q.5	i.	2 mark for each type.	**4**
	ii.	4 marks for illustration and 2 marks for diagram.	**6**
OR	iii.	2 marks for each.	**6**

Q.6			
	i.	2.5 marks for each	**5**
	ii.	3 marks for discussion and 2 marks for diagram	**5**
	iii.	1 mark for each difference.	**5**

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