

Reg. No:

SRM Institute of Science and Technology
Tiruchirappalli Campus, Trichy – 621 105
Faculty of Engineering and Technology

Continuous Learning Assessment - I, Third Semester, August-2023.

21CSS201T – Computer Organization and Architecture
(Regulations 2021)

Date: 10.08.2023/AN

Time: 60 Minutes

Max. Marks: 25

Answer ALL Questions.

PART A – (5 x 1 = 5 marks)

1.	The radical of Hexa decimal number system is: A. 2. B. 8. C. 16. D. 15.	CO 1 L1
2.	Find out the octal value of 85_{10} . A. 35. B. 125. C. 75. D. 45	CO 1 L3
3.	Convert the $(A2C6)_{16}$ to decimal. A. 2035. B. 51065. C. 85005. D. 41670.	CO 1 L3
4.	Which code is called as self-complementary code? A. BCD. B. XS-3. C. 2421. D. Hexadecimal	CO 1 L1
5.	Find 2's Complement of the number: 8 A. 1000. B. 1001. C. 0111. D. 1010.	CO 1 L3

Answer ALL Questions.		
PART B – (2 x 4 = 8 marks)		
6.	Elaborate on Number systems with suitable examples.	CO 1 L2
7.	a) Convert $(543.21)_8$ into Hexa decimal. (2 marks) b) Convert $(CA7)_{16}$ to Octal. (2 marks)	CO 1 L3

Answer ALL Questions.		
PART C – (1 x 12 = 12 marks)		
8.	a) Convert Binary to Gray: (4 marks) i) 110011 ii) 011101 b) Convert the number into XS-3: (4 marks) i) $(34)_{10}$ ii) $(86)_{10}$ c) Find the two's complement of the number $(43)_{10}$ and convert into Octal. (4 marks)	CO 1 L3
OR		
9.	a) Perform the addition operation. i) $1111 + 0111 + 1101 + 1011$ (3 marks) ii) $(35)_{10} + (72)_{10} + (23)_{10}$ (3 marks) b) Perform the subtraction operation. i) $10001 - 01111$ (3 marks) ii) $(65)_{10} - (32)_{10}$ (3 marks)	CO1 L3

CLA - II

COA

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Continuous Learning Assessment - II, Third Semester, September-2023.

21CSS201T – Computer Organization and Architecture

(II.Btech CSE, ECE)

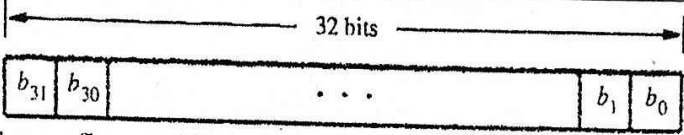
(Regulations 2021)

Date: 26.09.2023/AN

Time: 90 Minutes

Max. Marks: 50

Answer ALL Questions.		
PART A – (10 x 1 = 10 marks)		
1.	The sign magnitude is represented using: <input checked="" type="checkbox"/> A. MSD (Most Significant Digit) B. LSD (Least Significant Digit) C. MSD (Middle Significant Digit) D. LSD (Last Significant Digit)	CO1 L1
2.	_____ makes decisions based on a combination of digital inputs. A. AND gate B. NOT gate C. Neither A or B <input checked="" type="checkbox"/> D. Both A and B	CO1 L2
3.	Which of the following instruction preserves the value in LOCA and adds the value to R0? A. PRESERVE LOCA,R0 <input checked="" type="checkbox"/> B. ADD LOCA,R0 C. REPLACE LOCA,R0 D. READD LOCA,R0	CO2 L3
4.	_____ holds the value of information during transfer A. Bus B. Register <input checked="" type="checkbox"/> C. Buffer register D. Processor	CO2 L2

5.	<p>If a computer is 64 bits, a single word can hold upto _____ ASCII characters.</p> <p>A. 6 B. 8 C. 16 D. 4</p>	CO2 L3
6.	<p>At some point, when the current instruction has finished executing and the control moves to the next instruction to be executed. What happens to the Program Counter (PC)?</p> <p>A. Decrement B. Does not change C. Points to the current instruction. D. Incremented.</p>	CO2 L3
7.	 <p>In the above figure, if b_{31} value is 1, what can be described about the whole number stored in the 32 bits?</p> <p>A. Positive B. Negative C. Decimal D. None of the above.</p>	CO2 L3
8.	<p>The left hand side (LHS) of De Morgan's theorem represents a NAND gate with inputs A and B, whereas the right hand side (RHS) of the theorem represents an OR gate with inverted inputs.</p> <p>A. Simple NAND B. Bubbled OR C. Bubbled NOR D. XNOR</p>	CO3 L4
9.	<p>_____ is a powerful tool in digital design.</p> <p>A. Logic gates B. De Morgan's theorem C. Bubbled NOR D. ALU (Arithmetic and Logic Unit)</p>	CO3 L1
10.	<p>The LHS of De Morgan's theorem represents a NOR gate with inputs A and B, whereas the RHS represents an AND gate with inverted inputs.</p> <p>A. Simple NAND B. Bubbled OR C. Bubbled NOR D. Bubbled AND</p>	CO3 L3

Answer Any Four Questions.		
PART B – (4 x 4 = 16 marks)		
11.	Explain the relationship between the memory and processor with suitable diagram.	CO2 L2
12.	Write the operating steps involved in executing an instruction	CO2 L2
13.	Define byte addressability and what are the ways the byte address can be assigned across words?	CO2 L2
14.	Explain the AND, OR NAND and EX-OR gate with its truth table and logical symbol.	CO2 L3
15.	Perform the binary multiplication for the following: (a) $(13)_{10} * (23)_{10}$ (2marks) (b) $(45)_{10} * (34)_{10}$ (2marks)	CO1 L3
16.	Perform the BCD Subtraction ^{Add} for the following: (a) $(565)_{10} + (346)_{10}$ (2marks) (b) $(782)_{10} + (477)_{10}$ (2marks)	CO1 L3

Answer ALL Questions.		
PART C – (2 x 12 = 24 marks)		
17.	(a) Apply the zero address and two address instructions for the following expressions i) $X = (A + B + C) \times (D \times Z) + (N + M)$ ii) $n = (a \times n) + (b + s) \div (f \times d)$ or (b) Apply the one address and three address instructions for the following expressions i) $Z = (A - B + C) * (D / E) - (F + G + H)$ ii) $M = (N + 6) / (O + P + Q) * K$	CO3 L3
18.	(a) What is the role of adders in ALU process? Explain it with its types or (b) Explain the theorems used to solve the Expressions of Boolean algebra with corresponding truth table and list its applications.	CO3 L2

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Continuous Learning Assessment - III, Third Semester, September-2023.
21CSS201T – Computer Organization and Architecture
(Regulations 2021)
(CSE and ECE)

Date: 08.11.2023/AN
Time: 90 Minutes

Max. Marks: 50

Answer ALL Questions.

PART A – (10 x 1 = 10 marks)

1.	Booth Algorithm is implemented for A. Unsigned Multiplication B. Signed Multiplication C. Division D. Carry Save addition	CO 3 L1
2.	Carry-Save Adder (CSA) is also known as _____ A. 2-2 adder B. 3-2 adder C. Multiplier D. Divider	CO 3 L1
3.	In Restoring method, if MSB of A is 0 then, Q_0 will be. A. 10 B. 01 C. 0 D. 1	CO 3 L3
4.	Which is not a IEEE 754 basic component? A. Normalized Mantissa B. Exponent C. The biased exponent D. The Sign of Mantissa	CO 4 L1
5.	$IR \leftarrow [PC]$, this instruction belongs to _____ phase. A. assignment B. execution C. fetch D. addition	CO 4 L3
6.	MDR has _____ input(s) and _____ output(s) A. 2,1 B. 2,2	CO 4 L3

	C. 1,1 D. 1,2	
7.	Which of the following is not a conditional signal? A. wake B. start C. stop D. restart	CO 4 L3
8.	MFC stands for _____ A. Member Function Connect B. Memory Function Connect C. Memory Function Completed D. Member Function Complete	CO 4 L3
9.	ARM works based on _____ A. ISA B. RISC C. CISC D. 8085	CO 5 L1
10.	Parallelism cannot be performed at _____ A. Bit level B. Instruction level C. Task level D. Sentence level	CO 5 L3

Answer Any Four Questions.		
PART B – (4 x 4 = 16 marks)		
11.	Write the control sequence for the following instruction ADD R1, (R2), R3	CO4 L3
12.	Perform the unsigned multiplication for the following numbers: Multiplicand: (13) ₁₀ Multiplier: (16) ₁₀	CO3 L3
13.	How an instruction is executed with a single processor bus? Explain it with a suitable diagram	CO4 L3
14.	Divide 63 by 8 using Restoring method	CO3 L3
15.	Define Parallelism Explain its types.	CO5 L2
16.	Perform multiplication operations with a stream of numbers using pipelining method $A_i * B_i * C_i$ where $i=1$ to 7	CO2 L3

Answer ALL Questions.

PART C – (2 x 12 = 24 marks)

17.	Explain about carry look-ahead adder and implement 4bit value as example or (b) Compare sequential and pipelining process by implementing laundry analogy	CO3, L2 CO4, L2
18.	(a) Describe about Flynn's classification with its types or (b) Explain about the different types of hazards with an example.	CO4,5 L2