SubjectCode:21A050401

R21 - SET 1

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II B.Tech I Semester Regular Examinations February / March –2023
DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION
(Common to CSE, CSE-AI & CSE-IOT Branches)
Time: 3hours Max.Marks:70

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10marks.**Answer all questions** in Part A.
Part B consists of 5Units.Answer any one question from each unit.
Each question carries 12marks and may have a, b as sub questions.

PART-A (5x2=10Marks)		
1.a)	What is the role of IR, PC, MAR & MDR inside the processor	[K1] (2 M)
b)	Distinguish between combinational logic and sequential logic	[K2] (2 M)
c)	What is Big-Endian and Little-Endian	[K2] (2 M)
d)	What is Miss and Hit in cache	[K1] (2 M)
e)	What is an I/O Interface	[K1] (2 M)
PART- B (5x 12= 60Marks)		
	UNIT-I	
2.a)	What is computer? Explain different types of computers	[K2] (5 M)
b)	Briefly explain the generations of computer	[K2] (7 M)
	(OR)	
3.a)	Given the two binary numbers X=1010100 and Y=1000011, perform the subtraction (i)X-Y; and (ii) Y-X, by using 2's complement method	[K3] (7 M)
b)	Explain about Floating point Representation with an example	[K2] (5 M)
	UNIT-II	
4.a)	Construct a 4*16 line decoder using 3*8 line decoder	[K3] (6 M)
b)	Draw the 4-bit Johnson counter and explain the operation	[K2] (6 M)
	(OR)	
5.a)	Design a Modulo-10 synchronous counter using JK flip flop	[K3] (7 M)
b)	Implement the following Boolean function using 8:1 Mux F (A, B, C, D) = Σm (0, 1, 3, 4, 8, 9, 15)	[K3] (5 M)
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	UNIT-III	
6.a)	Illustrate addition and subtraction of two floating point binary numbers with flow chart	[K2] (7 M))
b)	Explain the flowchart of the multiply algorithm with an example	[K2] (5 M))
	(OR)	
7.a)	Describe about various addressing modes with examples	[K2] (7 M))

b)	Explain types of instruction formats	[K2] (5 M))
	UNIT-IV	
8.a)	Explain Register transfer with an example	[K2] (6 M))
b)	Difference between Hardwired and Microprogrammed control unit	[K2] (6 M))
	(OR)	
9.a)	Explain the memory hierarchy of a computer system with a neat diagram	[K2] (6 M))
b)	Explain virtual memory technique	[K2] (6 M))
	UNIT-V	
10.a)	Describe the interrupt priority schemes for simultaneous requests received from the processor	[K2] (6 M))
b)	Write short notes on accessing I/O devices	[K2] (6 M))
	(OR)	
11.a)	List and explain the standard I/O interfaces used in computer system?	[K2] (6 M))
b)	What is DMA? Explain the use of DMA controller in computer system?	[K2] (6 M))