Code No: P18ECT19

R18

HALL TICKET NUMBER

PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)
II B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, JAN - 2023
DIGITAL ELECTRONICS
(Common to CSIT,IT Branches)

Time: 3 hours Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

PART-A

Answer all the questions in Part-A (5X2=10M)

Q.No.		Questions	Marks	CO	KL
1	a)	Multiply the numbers 2E and 34 without converting them to decimal	[2M]	1	3
	b)	Simplify the following Boolean functions to a minimum number of literals xy + x'y + yz	[2M]	2	2
	c)	Simplify the following logical expression using Karnaugh maps F(x,y,z)= ∑(0,2,4,5,6)	[2M]	3	4
	d)	Define carry propagate?	[2M]	4	1
	e)	What is the purpose of programmable logic devices?	[2M]	5	2

PART-B

Answer One Question from each UNIT (5X10=50M)

Q.No.		Questions	Marks	CO	KL
		UNIT-I			
2.		Convert the following numbers into binary numbers $X=(BC)_{16}$, $Y=(73)_8$ and also find X+Y, X-Y in binary form	[10M]	1	
		OR			
3.		How do you convert a gray number to binary? Generate a 4-bit gray code directly using the mirror image property.	[10M]	1	
		UNIT-II			
4.		Reduce the following Boolean Function to four literals. $(A'C)(A'C')(A\ B\ C'D)$	[10M]	2	
		OR			
5.		Convert the given expression in standard POS form f(A,B,C)=(A+B)(B+C)(A+C)	[10M]	2	
		UNIT-III			
6.		Simplify the Boolean function using K-map in SOP and POS forms: $F = m(0, 2, 4, 7,8,12,14,15)$	[10M]	3	
		OR			
7.		Find the reduced SOP form of the following function. F(A,B,C,D= ∑m(1,3,7,11,15)+∑d(0,2,4)	[10M]	3	
		UNIT-IV			
8.		Draw and explain the block diagram of 4-bit parallel adder.	[10M]	4	
		OR			
9.		Explain the operation of a binary parallel adder subtractor circuit using relevant diagram.	[10M]	4	
		UNIT-V			
10.		Implement the following Boolean functions using PAL $F_1(A,B,C)=\sum(0,1,2,4)$, $F_2(A,B,C)= \sum(0,5,6,7)$, $F_3(A,B,C)= \sum(0,3,5,7)$.	[10M]	5	

		OR			
11.		Distinguish among PROM,PAL,PLA	[10M]	5	

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