

MODULE I

Topic	Question	mark	Month &Year	Regulation
Algebraic rules &theorems	Write De-Morgan's theorem with three variables	2	Dec 10	2009
	State and prove De Morgan's theorem	5 5	Dec 10 Dec 08	2004 2K
	Minimize the following function using Boolean Algebraic theorems i. $F(A,B,C)=\sum m(0,1,3,5,7)$ ii. $F(A,B,C) = \prod M(0,2,4,6)$	5	Jul 12	2004
	Simplify the following expression using Boolean identities i) $Y = \bar{A}\bar{B}CD + ABCD + \bar{A}C\bar{D} + \bar{A}CD + A\bar{B}D$ ii) $Y = ABCD + \bar{A}\bar{B}C\bar{D} + AB\bar{C} + BC$	5	Dec 06	2K
	Using Boolean algebra, simplify the given logic expression as much as possible $F=A(A+AB)(A+ABC)(A+ABCD)$	5	Jun 04	
Gates &combinational logic	What are universal gates?	2	Oct 12	2009
	Draw a NAND logic diagram that implements $F(A,B,C,D)=\sum m(0,4,12)$	5		
	Generate EX-OR function using only NOR gates	2	Oct 11	
	Draw a NAND logic diagram that implements the compliment of the function $F(A,B,C,D)=\sum m(0,1,2,3,4,8,9,12)$	5	Dec 10	
	Design a combinational circuit with three inputs x, y and z and three output A,B and C. when the binary input is 0,1,2, or 3, the binary output is one greater than the input. When the binary inputs is 4, 5, 6, or 7, the binary output is one less than the input	6	Oct 11	
	Implement $F = \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + \bar{A}B\bar{D} + \bar{B}C\bar{D}$ using not more than five 2-input NAND gates	5	Jun 04	2K
	Explain why NAND and NOR gates are called universal gates	5		
	Implement EX-OR gate using only NAND gates	5	Dec 08	
SOP,POS,Min term&maxterms	Simplify in sum of products and product of sums $\bar{A}\bar{C} + \bar{B}D + \bar{A}CD + ABCD$	5	Oct 12	2009
	Convert the following expression into SOP&POS:- $(\bar{A}B + C)(B + \bar{C}D)$	5	Oct 11	
	Give examples for minterm and maxterm expansions	4	Oct 11	
	Find the minterms of the following Boolean expression $Y = A\bar{B} + \bar{A}B + AC$	5	Jun 10	2004
	Convert the logic function in to minterms $Y = A + \bar{B} + C + \bar{D}$	5	Jun 09	
	Convert the following logic function into MAX terms $Y=(A+B)(B+C)(C+D)(D+E)$	5	Jun 08	
	Find the minterms of the following Boolean expression by plotting in map $F(x, y, z) = xy + yz + x\bar{y}z$	5	Dec 07	

	Convert the following expression into SOP&POS $\bar{x} + x(x + \bar{y})(y + \bar{z})$	5	Jun 07	2K
Minimization	Simplify the Boolean function $F(w,x,y,z)=\sum m(0,1,2,4,5,6,8,9,12,13,14)$	2	Oct 12	2009
	Simplify the Boolean function $F(A,B,C,D,E)=\sum m(0,2,4,6,9,13,21,23,25,29,31)$ and implement using minimum number of NOR gates	10		
	Explain Quine-McCluskey method with an example	10		
	Simplify the Boolean function using 4-variable map $F(A,B,C,D)=\sum m(0,1,2,4,5,7,11,15)$	2	Oct 11	
	Simplify using 5-variable map $F(A,B,C,D,E)=\sum m(0,1,4,5,16,17,21,25,29)$	5	Oct 11	
	Simplify using 3-variable map $F(x,y,z)=\sum m(0,1,5,7)$	2	Dec 10	
	Minimize the following function using QuineMcCluskey method $F(A,B,C)=\sum m(0,2,4,6)$	8	Jul 12	2004
	Reduce the following expression using Quine-McCluskey method $F(A,B,C,D)=\sum m(0,2,5,9,11,12,17,25,31)$	15	Dec 10	
	Reduce the following expression using K-map $F(A,B,C,D)=\sum m(0,2,4,6,8,10) + \sum d(1,3,5)$	15	Dec 10	
	Simplify the following expression using Quine-McCluskey method $F(A,B,C,D,E,F)=\sum m(6,9,13,18,19,25,27,29,41,45,57,61)$	10 15	Jun 10 Dec 10	2004 2K
	Obtain the simplified expression in sum-of-products and product-of-sum form $F(A,B,C,D,E)=\sum m(0,1,4,5,16,17,21,25,29)$	15	Jun 09	2004
	Using cubical representation method find a minimum cost sum-of-product realization of the function:- $F(X_1, X_2, X_3, X_4) = \sum m(0,2,4,5,7,8,9,15)$	15	Dec 08	
	Using K-map simplify the following logic function and realize using logic gates $Y=\sum m(5,6,7,8,9)+\sum d(10,11,12,13,14,15)$	15	Jun 08	
	Simplify the Boolean function by means of tabulation method $P(A,B,C,D,E,F,G)=\sum m(20,28,52,60)$	10 15	Dec 10 Dec 07	2009 2004
	Simplify the following logic function using Karnaugh map and realize only by NAND gate $F(A,B,C,D)=\sum m(0,2,3,6,7,8,10,11,12,15)$	15	Jun 09	2K
	Simplify the Boolean function using Quine-McCluskey method $F(A,B,C,D,E,F,G)=\sum m(20,28,38,39,52,60,102,103,127)$	10 15 15	Oct 11 Jun 08 Dec 07 Jun 04	2009 2K 2K 2K
	Simplify the Boolean function $F(A,B,C,D,E)=\sum m(0,2,4,6,9,13,21,23,25,29,31)$	5 15	Dec 07 Jun 07	2004
	Simplify the Boolean function by means of tabular method and realize it using basic gates $Y=\sum m(0,2,6,7,8,10,12,14,15,52)$	15	Dec 06	
	Simplify the Boolean function F together with don't care conditions d in sum of product and product of sum $F(w,x,y,z)=\sum m(0,1,2,3,7,8,10)$ $d(w,x,y,z)=\sum m(5,6,11,15)$	5	Dec 05	
Simplify the Boolean function using Quine-McCluskey method	15			

	$F(A,B,C,D,E,F,G)=\sum m(20,28,52,60)$			
	What is the need for an optimized implementation of a logic function? Explain	7	Jul 12	2004
	Discuss multilevel synthesis and analysis with example	15	Dec 07	

