1. Convert these binary system numbers to decimal system numbers ;

a) 100101101

b) 11100.1001

c)111111

d)100000.0111

2. convert decimal to hexadecimal:

0.4375

Ans; .7

3. convert decimal to binary:

A. 0.7 8 2

Ans 1100100001

B. 22.5

ANS = (10110.1)

4. Convert 372.348 to hexadecimal system number

SOLUTION

1. Convert 372.348 to decimal system number

250.4375

2. Convert 250.437510 to hexadecimal system number

FA.7

5. CONVERT .1011 (BINARY INTO DECIMAL

ANS: .6875

6. CONVERT .1101 (BINARY INTO DECIMAL

ANS .8125

7. 1101.0111 Binary to decimal:

Ans 13.437510

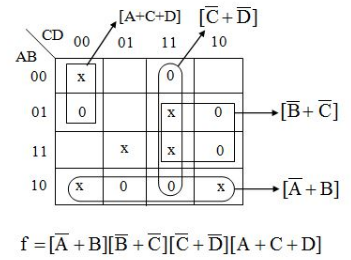
8. The number of essential prime implicants in the function f(a, b, c, d) = Σ(1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15) is \_\_\_\_\_\_\_\_.

Ans 0

9.  F(A,B,C,D) = Π[3,4,6,9,11,14]+ d[0,7,8,10,13,15]

Form the k map , write down the minimised equation , find out the prime implicants

Solution



A diagram of a square with numbers and letters

Description automatically generated with medium confidence**we can select a’+d’ instead of a’+b**

**10** Simplified expression/s for following Boolean function

F(A,B,C,D)=Sigma(0,1,2,3,6,12,13,14,15)

1. A’B’+AB+A’C’D’
2. A’B’+AB+A’CD’
3. A’B’+AB+BC’D’
4. A’B’+AB+BCD’

Choose the correct answer from the options given below:

1. a only
2. b only
3. b and c only
4. b and d only

ANS : D

A hand holding a piece of paper with writing on it

Description automatically generated

A diagram of a graph

Description automatically generated

Which will be the equation of simplification of the given K-map?

ANS B'D' + AB' + B'C'

A graph on a piece of paper

Description automatically generated

Consider the boolean expression F(A, B, C, D) = Σm = (0, 1, 2, 5, 6, 7, 8, 10, 14, 15). Find the number of essential prime implicates

ANS 2 , PI ARE 6

A drawing of a game

Description automatically generated with medium confidence

Top of Form

Bottom of Form

Top of Form

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Top of Form

Consider the Boolean function, F(w, x, y, z) = wy + xy + w̅xyz + w̅ x̅ y + xz + x̅y̅z̅.  
Which one of the following is the complete set of essential prime implicants?  
(A) w,y,xz,x̅z̅  
(B) w,y,xz  
(C) y,x̅y̅z̅  
(D) y,xz,x̅z

Bottom of Form

A paper with writing on it

Description automatically generated

for given boolean function what will b the no of prime implicants and no of essential prime implicants  
F(A,B,C,D)=Σm (1,3,4,5,9,11,14,15) +d(2,6,7,8)  
  where d represents dont cares.

[find the number of prime implicants, essential prime implicants, redundant prime implicants and selective prime implicants for pi M(0,1,2,5,7,8,9,10,14,15)](https://gateoverflow.in/414967/implicants-essential-implicants-implicants-selective-implicants)

ANS  PI=7 EPI=2  RPI=3,and SPI=4

**convert the following SOP Boolean expression to POS form F =X'Y +YZ'+XY'Z?**

A table with numbers and symbols

Description automatically generated

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Q. A table with numbers and letters

Description automatically generated

What is the minimum number of two input NAND gates required to realize this logic circuit?

ANS total 6 NAND gate is required.

QUESTION .If **complemented and uncomplemented** variable both present then minimum **NAND gates are 4**

**Draw a logic diagram using only two-input NAND gates to implement the following expression:**

( AB + A'B')( CD' + C'D )

**Implement the following functions with three-level NOR gate circuits.**

F = wx' + y'z' + w'yz'

F = (5,6,9,10)

**Implement the following expressions with three-level NAND circuits.**

F = AB' + ABD + ABD' + A'C'D' + A'BC'

**Implement the function F with the following two-level forms: NAND-AND, AND-NOR, OR-NAND, and NOR-OR.**

F(A,B,C,D) = (0,1,2,3,4,8,9,12)