Q1

a)

F = ∑m(1,3,4,6,7)

=A’B’C+A’BC+AB’C’+ABC’+ABC

b)

A’B’C+A’BC+AB’C’+ABC’+ABC

= A’(B’C+BC) +A(B’C’+BC’+BC)

=A’C(B’+B)+A[B’C’+B(C’+C)]

=A’C+A(B’C’+B)

=A’C+A(B+C’)

=A’C+AB+AC’

c)

F =∏M(0,2,5)

=(A+B+C)(A+B’+C)(A’+B+C’)

D)

(A+B+C)(A+B’+C)(A’+B+C’)

=(A+C)(A’+B+C’)

e)

[(A’C+AB+AC’)’]’

=[(A’C)’(AB)’(AC’)’]’

F)

([(A+C)(A’+B+C’)]’)’

=[(A+C)’+(A’+B+C’)’]’

g)

X C

0 1

AB 00 0 1

01 0 1

11 1 1

10 1 0

Output = A’C+AC’+AB = A’C+AC’+AB+BC

(A+C)(A’+B+C’) = A’C+AC’+AB+BC +CC’ +AA’ = A’C+AC’+AB+BC

Thus b) =d)

2a)

X CD

00 01 11 10

AB 00 1 1

01 1 1

11

10 1 1

X= AB’D’ + A’BC’D + A’BCD + A’B’D’

=A’BD +B’D’

B)

X RS

00 01 11 10

PQ 00

01 0 0

11 0 0

10

Y=(P+Q’+R+S’)(P+Q’+R’+S’)(P’+Q’+R+S’)(P’+Q’+R’+S’)

= Q’+S’

Q3

F(A,B,C,D) = ∑ m(0.5.5.8.14)

X CD

00 01 11 10

AB 00 1 0 0 X

01 0 1 X 1

11 0 0 X 1

10 1 0 0 0

F(A,B,C,D) = B’C’D’ + A’BD + BC

d(A,B,C,D) = ∑ m(2,7,15)

Q4

F(A,B,C,D) =(B’+C+D)(A’+D’)(B+D’)(B+C’)