

(5)

R	00	01	11	10
PQ	0	1	1	1
	1	1	1	1

R	00	01	11	10
PQ	0	1	1	1
	1	1	1	1

$$(P+Q'+R)(P+Q'+R')$$

$$Q'+PR'+P'R$$

Identity is false

$$3.3 (1) F=AB'+A'(A+B')=B'$$

A	0	1
B	0	1
	0	0

$$F'=B$$

$$(2) F=A'B(C+A')+(AB)(B'+C'))'+(ABC)'$$

C	00	01	11	10
AB	0	1	1	1
	1	1	1	1

$$F'=0$$

$$(3) F=W'X'(Y'+Z'W')+(XYZ)'(X'+W'X')+(X'+Y')$$

YZ	00	01	11	10
WX	0	1	1	1
	0	1	1	1
	1	0	0	1
	1	0	0	1
	1	0	0	1

$$F'=XY$$

$$(4) F=A'BC'+(ABC)'+AB'(C'+B')$$

C	00	01	11	10
AB	0	1	1	1
	1	1	1	1

$$F'=ABC$$

$$(5) F=PQ'(R'S'+P'Q')RS'+(P+QR)'SR'$$

RS	00	01	11	10
PQ	0	0	0	0
	0	1	1	0
	0	0	0	0
	0	0	0	0
	0	0	0	0

$$F'=P+S'+R$$

$$3.4 (1) F(A,B,C)=(A+B')C'+A'C$$

C	00	01	11	10
AB	0	1	0	1
	1	1	1	0

$$\text{Canonical SOP} = A'B'C'+A'B'C+A'B'BC+AB'C'+ABC'$$

$$\text{Canonical POS} = (A+B'+C)(A'+B+C')(A'+B'+C')$$

$$(2) F(X,Y,Z)=(X'+Y')(X'+Z)+ZY'$$

Z	00	01	11	10
XY	0	1	0	0
	1	1	0	1

$$\text{Canonical SOP} = X'Y'Z'+X'Y'Z+XY'Z+XYZ$$

$$\text{Canonical POS} = (X+Y'+Z)(X+Y'+Z')(X'+Y+Z)(X'+Y'+Z)$$

$$(3) F(A,B,C,D)=AB'C+A'BC'D+A'BCD'+B'D'$$

CD	00	01	11	10
AB	0	1	0	0
	0	0	1	0
	1	0	0	1
	1	1	0	1

$$\text{Canonical SOP} = A'B'C'D'+A'B'CD'+A'BC'D+A'BCD'+AB'C'D'+AB'CD'+AB'CD$$

$$\text{Canonical POS} = (A+B+C+D')(A+B+C'+D')(A+B'+C+D)(A+B'+C'+D')(A'+B'+C+D)(A'+B'+C'+D')$$

$$(A'+B'+C+D')(A'+B'+C'+D)(A'+B'+C'+D')$$

$$(A'+B'+C+D')(A'+B'+C'+D)(A'+B'+C'+D')$$

$$(A'+B'+C+D')(A'+B'+C'+D)(A'+B'+C'+D')$$