(4)LET L=X'Z+X'Y+XZ   R=X'YZ'+X'YZ+X'Z

X	Y	Z	X'	Z'	X'Z	X'Y	XZ	L	X'YZ'	X'YZ	R
0	0	0	1	1	0	0	0	0	0	0	0
0	0	1	1	0	1	0	0	1	0	0	1
0	1	0	1	1	0	1	0	1	1	0	1
0	1	1	1	0	1	1	0	1	0	1	1
1	0	0	0	1	0	0	0	0	0	0	0
1	0	1	0	0	0	0	1	1	0	0	0
1	1	0	0	1	0	0	0	0	0	0	0
1	1	1	0	0	0	0	1	1	0	0	0

FALSE

(5)LET L=(P+Q'+R)(P+Q'+R')   R=Q'+PR'+RP'

P	Q	R	P'	Q'	R'	(P+Q'+R)	(P+Q'+R')	L	PR'	RP'	R
0	0	0	1	1	1	1	1	1	0	0	1
0	0	1	1	1	0	1	1	1	0	1	1
0	1	0	1	0	1	0	1	0	0	0	0
0	1	1	1	0	0	1	0	0	0	1	0
1	0	0	0	1	1	1	1	1	1	0	1
1	0	1	0	1	0	1	1	1	0	0	1
1	1	0	0	0	1	1	1	1	1	0	1
1	1	1	0	0	0	1	1	1	0	0	0

FALSE

2.5 (1) XY'+X'Z+Y'Z=X'Y+X'Z
LEFT =XY'(Z+Z')+X'Z(Y+Y')+Y'Z(X+X')
=XY'Z+XY'Z'+X'YZ+X'Y'Z+XY'Z+X'Y'Z   P5(a)
=X'Y'Z + X'YZ +XY'Z' +XY'Z   P4(b)
T1(a)

RIGHT=X'Y(Z+Z')+X'Z(Y+Y')
=X'YZ+X'YZ'+X'YZ+X'Y'Z   P5(a)
=X'Y'Z + X'YZ + X'YZ'   P4(b)
FALSE   T1(a)

(2) (B'+C)(B'+D)=B'+CD
LEFT =(B'+C)(B'+D)
RIGHT=B'+CD
=(B'+C)(B'+D)
TRUE   P4(a)

(3) A'BC+ABC'+A'BD=BD'+ABC'
LEFT =ABC'+A'BC+A'BD
RIGHT=ABC'+BD'
=ABC'+BD'(A+A')
=ABC'+ABD'+A'BD'   P5(a)
FALSE   P4(b)

(4) X'Z+X'Y+XZ=X'YZ'+X'YZ+X'Z
LEFT =X'Z(Y+Y')+X'Y(Z+Z')+XZ(Y+Y')   P5(a)
=X'YZ+X'Y'Z+X'YZ+X'YZ'+XYZ+XY'Z   P4(b)
=X'Y'Z + X'YZ' + X'YZ +XY'Z + XYZ   T1(a)
RIGHT=X'YZ'+X'YZ+X'Z(Y+Y')   P5(a)
=X'YZ'+X'YZ+X'YZ+X'Y'Z   P4(b)
=X'Y'Z + X'YZ' + X'YZ   T1(a)
FALSE

(5) (P+Q'+R)(P+Q'+R')=Q'+PR'+RP'
LEFT =P+(Q'+R)(Q'+R')   P4(a)
=P+Q'+RR'   P4(a)
=P + Q'   P5(b)
RIGHT=Q' + PR'+RP'
=Q' + P ⊕ R
FALSE

2.6 (1)False   X+Y' is a disjunction
(2)True
(3)False   AB'C' is a conjunction
(4)True
(5)False
(6)False
(7)False

2.7 (1)Normal SOP
(2)Neither one of (i)-(iv)
(3)Neither one of (i)-(iv)
(4)Canonical POS
(5)Canonical SOP
(6)Neither one of (i)-(iv)
(7)Neither one of (i)-(iv)

2.8 (1)(A+B'+C)(A'+B)(B'+C')
(2)AB'C+A'BC'+A'B'
(3)(X+Y'+Z(X+Y'))(X'+Y')
(4)(A+B+C'D')(A'+B'+C')(C+D'+AC')
(5)(A+B')(C+D'+A'B')=1

2.9 (1)F'(A,B)=(A'+B)(A+A'B) =(A'+B)(A+B)
T4(a)   P4(b)
=A'A +AB +B +A'B =B + A'B =B
P5(b) T3(a)   T3(a)

(2)F'(A,B,C)=(A+B'+C'A)(AB(B'+C'))(ABC)
=(A+B'+C'A)(ABB'+ABC')(ABC)
P5(b)
=(A+B'+C'A)(ABC')(ABC)   P5(b)
=0