(c) A'BC+ABC'+A'BD=BD'+ABC'
See the truth table of problem 2.4(3)
$\Sigma m(5,6,7,12,13)$ NOT EQUAL TO $\Sigma m(4,6,12,13,14)$
---> False

(d) X'Z+X'Y+XZ = X'YZ'+X'YZ+X'Z
See the truth table of problem 2.4(4)
$\Sigma m(1,2,3,5,7)$ NOT EQUAL TO $\Sigma m(1,2,3)$
---> False

(e) (P+Q'+R)(P+Q'+R')=Q'+PR'+RP'
See the truth table of problem 2.4(5)
$\Sigma m(0,1,4,5,6,7)$ NOT EQUAL TO $\Sigma m(0,1,3,4,5,6)$
---> False

2.14 (a) Dual of $X \oplus Y$ = Dual of (XY'+X'Y).
=(X+Y')(X'+Y)
Complement of $X \oplus Y$ = (XY'+X'Y)'
=(XY')'(X'Y)'=(X'+Y)(X'+Y)
They are equal
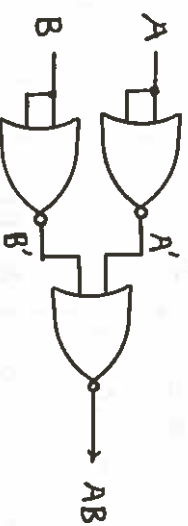
(b) $X \uparrow (Y \uparrow Z) \neq (X \uparrow Y) \uparrow Z$
$X \uparrow (Y \uparrow Z)=X \uparrow (YZ)'=(X(YZ)')'=X'+YZ$
$(X \uparrow Y) \uparrow Z=(XY)' \uparrow Z=((XY)'Z)'=XY+Z'$

(c) $(X \oplus Y) \oplus Z = X \oplus (Y \oplus Z)$
$(X \oplus Y) \oplus Z =(X'Y+XY') \oplus Z$
$=(X'Y+XY')'Z+(X'Y+XY')Z'$
$=(X+Y')(X'+Y)Z+(X'Y+XY')Z'$
$=(XY+X'Y')Z+X'YZ'+XY'Z'$
$=XYZ+X'Y'Z+X'YZ'+XY'Z'$

$X \oplus (Y \oplus Z)=X \oplus (Y'Z+YZ')$
$=X'(Y'Z+YZ')+X(Y'Z+YZ')'$
$=X'Y'Z+X'YZ'+X(Y'Z+YZ')'$
$=X'Y'Z+X'YZ'+X(Y'Z'+YZ)$
$=X'Y'Z+X'YZ'+XY'Z'+XYZ$
They are equal

2.15 (a) AND

(b) OR

(c) NOT

2.16 (a) $P'(A,B,C)=\Sigma m(2,4,6,7)$
(b) $P'(A,B,C)=\Pi M(0,1,3,5)$
(c) $P'Q=(\Sigma m(2,4,6,7))(\Pi M(0,1,3,5))$
$= \Sigma m(4,7)$
(d) $P'+Q=(\Sigma m(2,4,6,7))+(\Sigma m(1,4,5,7))$
$=\Sigma m(1,2,4,5,6,7)$ (Minterm)
$P'+Q=\Pi M(0,3)$ (Maxterm)

2.17 (a) $P'+PQR+QR'=\dfrac{P'+PQR+QR'}{T4a}$
$=P'+QR+QR'$
$=\dfrac{P'+Q(R+R')}{P5a}$
$=\dfrac{P'+Q}{P5b}$
$=P'+Q$

(b) $\dfrac{X'Y(Y'+Z')+W'X'Z'+WX'Y'(Z+Z'X)}{P4b}$
$=\dfrac{X'YY'+X'YZ'+W'X'Z'+WX'Y'\dfrac{(Z+X)}{T4a}}{P5b}$
$=\dfrac{X'YZ'+W'X'Z'+WX'Y'Z+WX'Y'X}{P4b}{P5b}$
$=X'YZ'+W'X'Z'+WX'Y'Z$