디지털시스템 과제 1 17011599 안정연.

1.9

(d) $(\text{ABDE.C})_{16} = 5\times16^3+1\times16^2+13\times16^1+14+12\times\frac{1}{16} = 20958.75$

(e) $(110011.001)_2 = 32+16+2+1+0.125 = 51.125$

1.18

(a) 11001 − 10010

10010 의 2의 보수 = 01110

```
  11001
+ 01110
-------
 (1)00111
```

drop.

Ans: 00111.

(b) 1100 − 111100.

111100 의 2의 보수 = 000100

```
   1100
+ 000100
--------
  10000
```

Ans: 10000

(c) 10101 − 11011

11011의 2의 보수 = 00101.

```
  10101
+ 00101
-------
  11010
```

Ans: 11010.

(d) 1100011 − 10001

10001의 2의 보수 = 01111

```
  1100011
+   01111
---------
  1101010
```

Ans: 1101010

2.2

(e) $(a+b+c')(ab'+c)$

$= \underbrace{aab'}_{0} + ac + \underbrace{bab'}_{0} + bc + ca'b' + \underbrace{cc'}_{0}$

$= ac+bc+a'b'c'$

$= (a+b)c+(abc)'$

(f) $a'bc+abc'+abc+a'bc'$

$= bc(a+a')+bc'(a+a')$

$= bc+bc'$

$= b(c+c')$

$= b$

2.8. $F = x'y+yz'$

$F' = (x'y+yz')' = (x'y)'(yz')'$

$= (x+y')(y'+z)$

$F\cdot F' = (x'y+yz')(x'y)'(yz')'$

$= \underbrace{(x'y)(x'y)'(yz')'}_{=0} + \underbrace{(yz')(yz')'(xy)'}_{=0}$

$= 0+0 = 0$

$F+F' = (x'y+yz')+(xy)'(yz)'$

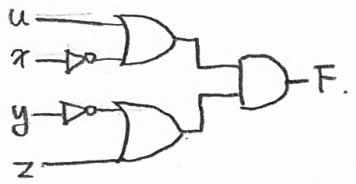
$= \underbrace{((xy)'\cdot(yz)')'}_{=X} + \underbrace{(x'y)'(yz')'}_{=X}$

$= X'+X$

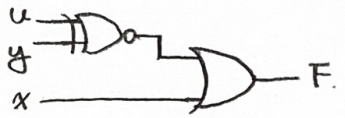
$= (X\cdot X')' = 0' = 1$

2.13

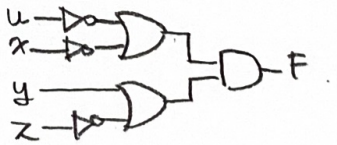
(a) $F = (u+x')(y'+z)$



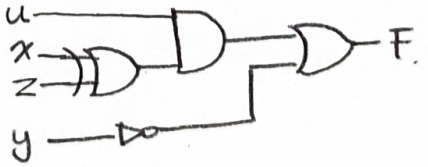
(b) $F = (u\oplus y)'+x$



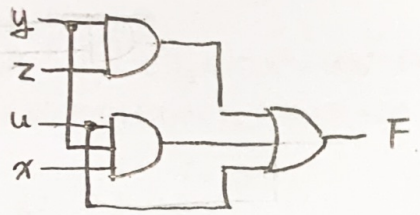
(c) $F = (u'+x')(y+z')$



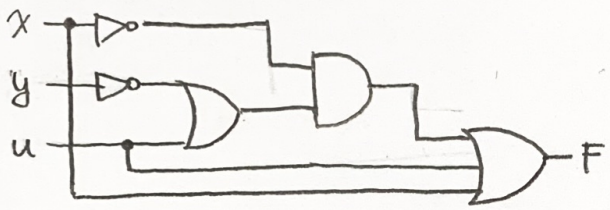
(d) $F = u(x\oplus z)+y'$



(e) $F = u + yz + u'xy$



(f) $F = u + x + x'(u + y')$



2.22

(a) $(w + xy')(x + y'z)$

$= wx + wy'z + xy' + xy'z$

$= wx + wy'z + xy' \rightarrow$ SOP

(b) $xy + (w' + y'z')(z' + x'y')$

$= xy + w'z' + x'y'w' + yz' + x'y'z'$

$= xy + w'z' + x'y'w' + yz' \rightarrow$ SOP