

CSIT-230 HW_2 Corrections

1.

$$\bullet XY Z + XY + XY Z$$

$$XY(Z + \bar{Z}) + \bar{X}Y$$

$$XY + \bar{X}Y$$

$$Y(X + \bar{X}) = Y$$

2..

$$\bullet XY (X + Y)(Y + Y)$$

$$XY(X + Y)$$

$$\overline{(X + Y)(X + Y)}$$

$$\overline{X + XY + XY + Y Y}$$

$$\overline{X(1 + Y + Y)} = \bar{X}$$

3.

$$\bullet XY + XY$$

$$(\overline{X} \overline{Y}) (\overline{X} Y)$$

$$(\overline{X} \overline{Y}) (\overline{X} Y)$$

$$(\overline{X} + Y) (X + \overline{Y})$$

$$\overline{X} * X + XY + \overline{X}Y + Y * \overline{Y}$$

$$XY + \overline{X} \overline{Y}$$

4.

$$\bullet XY + X \overline{Y}$$

$$(\overline{X} \overline{Y}) (\overline{X} Y)$$

$$(\overline{X} + Y) (X + \overline{Y})$$

$$(\overline{X} + Y) (X + Y)$$

$$X * \overline{X} + X \overline{Y} + X Y + Y Y$$

$$= XY + X \overline{Y}$$

5.

$$\bullet F = AB + A + AB$$

$$\begin{array}{r}
 \overline{A+B+A+AB} \\
 \hline
 1+\overline{B}+\overline{A}B \\
 \hline
 1+\overline{A}B \\
 \hline
 (1+\overline{A})(1+B) \\
 \hline
 (1) \quad (1)
 \end{array}$$

$$F=0$$

6.

$$F = ABC + CD + CE$$

$$\begin{array}{r}
 \overline{(ABC)} \overline{(CD)} \overline{(CE)} \\
 \hline
 \overline{(ABC)} \overline{(CD)} \overline{(CE)}
 \end{array}$$

$$= \overline{ABC} \overline{DE}$$

7.

$$XY + YZ + XYZ$$

1	0	0	1
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0	0	1	1
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$$XZ + XY$$

8.

• $AD + BD + BC + ABD$

0	1	1	1
0	1	1	0
0	1	1	0
0	1	1	1

$$D + BC$$

9.

• $ABC + CD + BCD + BC$

0	0	1	1
0	1	1	0
0	1	1	1
0	0	1	1

$$BD + BC + AC$$

10.

• $ABC + CD + BCD + BC$, with don't care condition: $x = ABCD$ 1

0	0	1	1
0	1	1	X
0	1	1	1
0	0	1	1

$$BD + C$$