Lab04_XIAQIN_QIU

1.

a) $\neg(X\bar{Y}+Z)=\neg(X\bar{Y})\bar{Z}=(\bar{X}+Y)\bar{Z}=\bar{X}\bar{Z}+Y\bar{Z}$

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

c) $R=\bar{X}Y\bar{Z}+\bar{X}\bar{Y}\bar{Z}+XY\bar{Z}$

X	*Y*	*Z*	*DNF Term*	*R*
0	0	0	$\bar{X}\bar{Y}\bar{Z}$	1
0	0	1	$\bar{X}\bar{Y}Z$	0
0	1	0	$\bar{X}Y\bar{Z}$	1
0	1	1	$\bar{X}YZ$	0
1	0	0	$X\bar{Y}\bar{Z}$	0
1	0	1	$X\bar{Y}Z$	0
1	1	0	$XY\bar{Z}$	1
1	1	1	XYZ	0

2.

a) Shown below

b) Shown below

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

c) $R=X\bar{Y}+XZ+\bar{Y}Z+\bar{X}Y\bar{Z}$

3.

a) Shown below

b) Shown below

XY \ VZ	00	10	11	01
00	1	1	0	0
10	1	0	1	1
11	1	1	0	0
01	0	0	1	1

c) $R=\bar{V}\bar{Y}\bar{Z}+\bar{X}\bar{Y}\bar{Z}+X\bar{Y}Z+XY\bar{Z}+\bar{X}YZ$

4.

a) Shown below

b) Shown below

XY \ VZ	00	10	11	01
00	1	1	1	1
10	1	1	1	1
11	0	0	0	1
01	1	1	0	0

c) $R = \bar{Y} + \bar{V}XZ + \bar{X}\bar{Z}$

5.

a) Shown below

b) Shown below

XY \ VZ	00	10	11	01
00	1	1	1	1
10	1	1	0	0
11	1	1	1	0
01	1	1	0	0

c) $R = \bar{X}\bar{Y} + \bar{Z} + VXY$