

Lab 5

1)

Truth Table:

x	y	D	B
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	0

K-Map

D:

y \ x	0	1
0	0	1
1	1	0

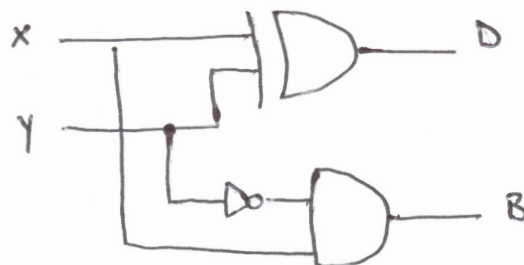
$$D = x\bar{y} + \bar{x}y$$
$$= x \oplus y$$

B:

y \ x	0	1
0	0	1
1	0	0

$$B = x\bar{y}$$

Logic Circuit Diagram:



2)

Truth Table

x	y	z	D	B
0	0	0	0	0
0	0	1	1	1
0	1	0	1	1
0	1	1	0	1
1	0	0	1	0
1	0	1	0	0
1	1	0	0	0
1	1	1	1	1

K-Map:

D:

x \ yz	00	01	11	10
0	0	1	0	1
1	1	0	1	0

$$\begin{aligned}
 D &= \bar{x}(y\bar{z} + \bar{y}z) + x(\bar{y}\bar{z} + yz) \\
 &= \bar{x}(y \oplus z) + x(y \odot z) \\
 &= x \oplus y \oplus z
 \end{aligned}$$

B:

x \ yz	00	01	11	10
0	0	1	1	1
1	0	0	1	0

$$B = \bar{x}(y + z) + yz$$

Logic Circuit Diagram:

