

Name : Muhammad Ali khan

Reg No. 16550

Mid term Assignment: No 5

Subject: Digital logic design

(Lab)

Instructor : Muhammad Amin

Reg 16550

Lab = 05

A	B	B _{in}	(D)	(B _{out})
0	0	0	0	0
0	0	1	1	1
0	1	0	1	1
0	1	0	1	1
1	0	0	1	0
1	0	1	0	0
1	1	0	0	0
1	1	1	1	1

A	B _{in} \bar{B} \bar{B} _{in}	\bar{B} \bar{B} _{in}	B _{in} B	B \bar{B} _{in}
	00	01	11	10
0	0	1	0	1
1	1	0	1	0

$$\begin{aligned} \text{Difference} &= \bar{A} \bar{B} B_{in} + \bar{A} B \bar{B}_{in} + A \bar{B} \bar{B}_{in} + A B B_{in} \\ &= \bar{A} (\bar{B} B_{in} + B \bar{B}_{in}) + A (\bar{B} \bar{B}_{in} + B B_{in}) \\ &= \bar{A} (B \oplus B_{in}) + A (B \oplus B_{in}) = \bar{A} (B \oplus B_{in}) + A (B \oplus B_{in}) \\ &= A \oplus B \oplus B_{in} = A \oplus B \oplus B_{in} \end{aligned}$$

A	B _{in} \bar{B} \bar{B} _{in}	B _{in} B	B _{in} B	B _{in} B
	00	01	11	10
A	0	1	1	1
A	1	0	0	0

$$B_{out} = \bar{A} B + A \bar{B}_{in} + B B_{in}$$

A B Bin 20 = 101

