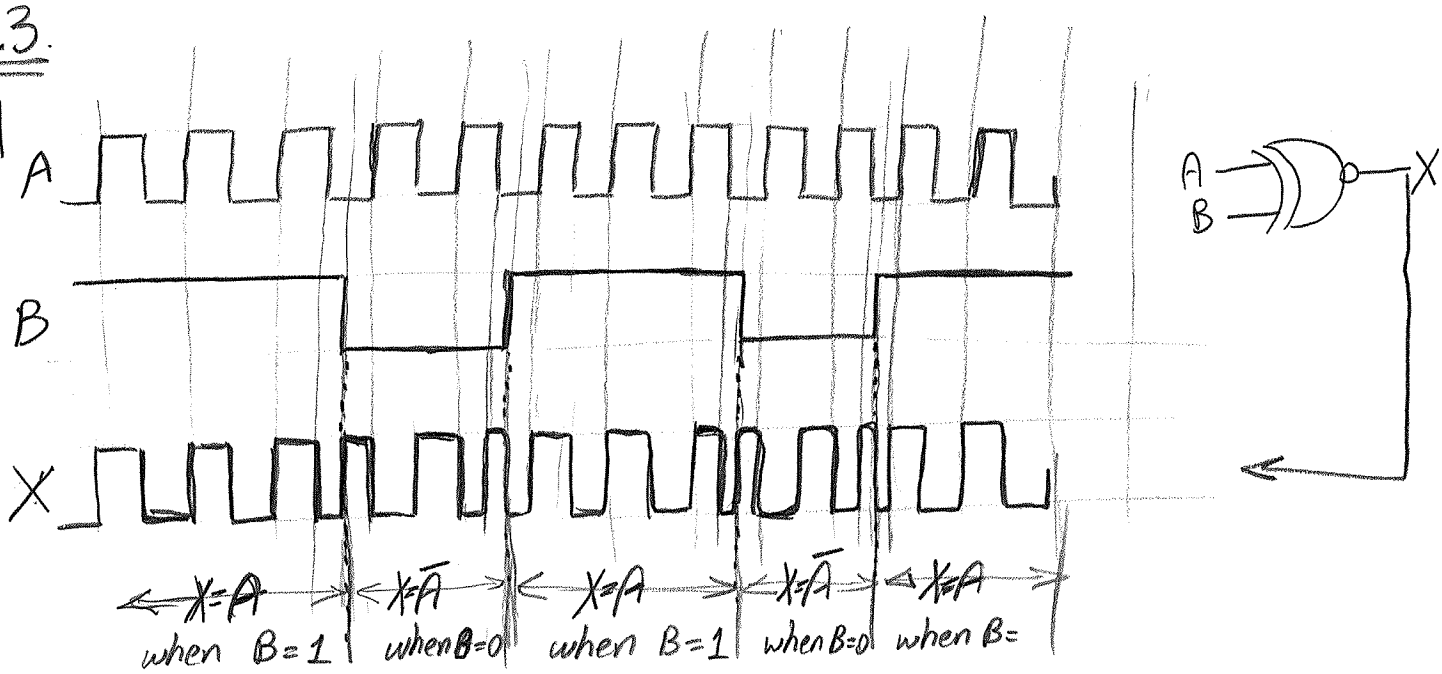
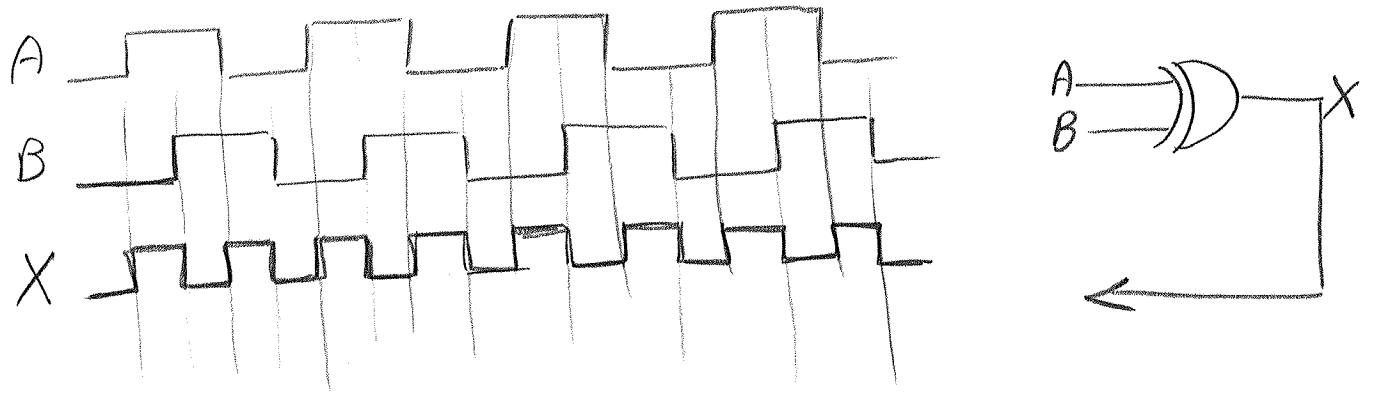
Ch.3.

25


A
B
X
A
B
X
X=A
X=Ā
X=A
X=Ā
X=A
when B=1
when B=0
when B=1
when B=0
when B=

26


A
B
X
A
B
X

Ch. 4

**1** Expression that is a 1 whenever $1^+$ var's (A, B, C, D) are 1's.

$\Rightarrow \quad A+B+C+D$

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**3** Expression that is a 1 when $1^+$ var's (A, B, C) are 0's.

$\Rightarrow \quad \bar{A}+\bar{B}+\bar{C}$

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**5** (b) $A\bar{B}C$ is product term

To make $A\bar{B}C=1 \Rightarrow A=1$ & $B=0$ & $C=1$

(f) $\bar{A}+B$ is sum term

To make $\bar{A}+B=0 \Rightarrow A=1$ & $B=0$

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**6** (b) $X = (\overline{A+B})\,C$

# of inputs = 3 $\Rightarrow$ Truth Table has $2^3=8$ raws

| A | B | C | A+B | $(\overline{A+B})$ | $X=(\overline{A+B}).C$ |
|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 1 | 0 |
| 0 | 0 | 1 | 0 | 1 | 1 |
| 0 | 1 | 0 | 1 | 0 | 0 |
| 0 | 1 | 1 | 1 | 0 | 0 |
| 1 | 0 | 0 | 1 | 0 | 0 |
| 1 | 0 | 1 | 1 | 0 | 0 |
| 1 | 1 | 0 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 | 0 | 0 |

7 (b) $AB\bar{C}D + \overline{A\bar{B}C} = D\bar{C}BA + \overline{\bar{C}BA}$

$\Rightarrow$ Commutative Law

(c) $AB(CD + E\bar{F} + GH) = ABCD + ABE\bar{F} + ABGH$

$\Rightarrow$ Distributive Law

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8 (b) $A\bar{A}B + AB\bar{C} + AB\bar{B} = AB\bar{C}$

$\Rightarrow$ Rule 8: $X.\bar{X} = 0$

(e) $A\bar{B} + A\bar{B}C = A\bar{B}$

$\Rightarrow$ Rule 10: $X + XY = X$

(f) $ABC + \overline{A\bar{B}} + \overline{A\bar{B}C}D = ABC + \overline{A\bar{B}} + D$

$\Rightarrow$ Rule 11: $X + \bar{X}Y = X + Y$

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