Date: / /

Mon Tue Wed Thu Fri Sat

Name: Dawood Saffray

Roll no: 20P-0153

Section: BSCS #2B

Assignment: DLD

Submitted to: Sir Shakir Ullah

Q# 01

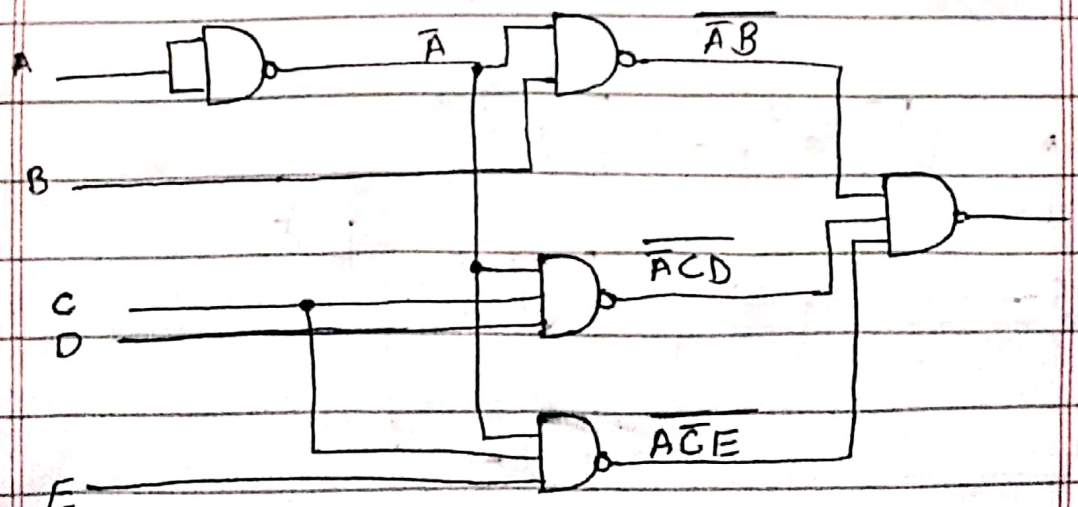
$X = A' [B + C(D+E)]$

Solution:-

$A' [B + C(D+E)]$

$A'B + A'CD + A'CE$

By NAND:



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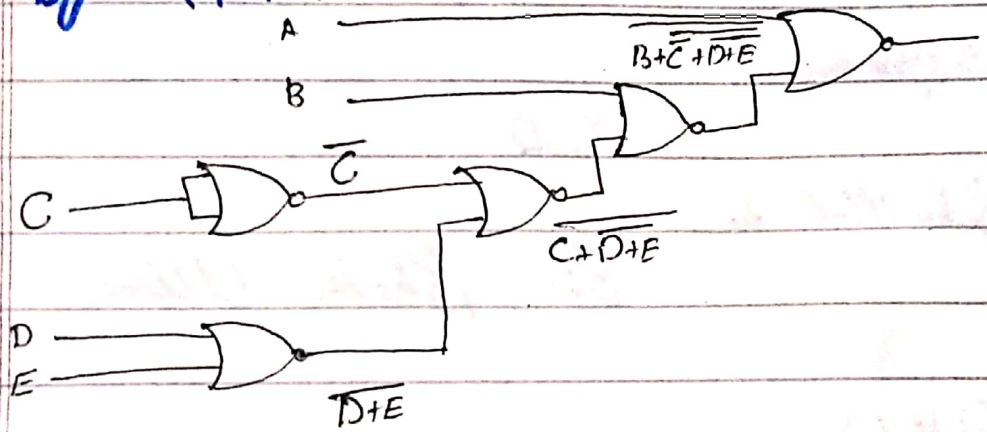
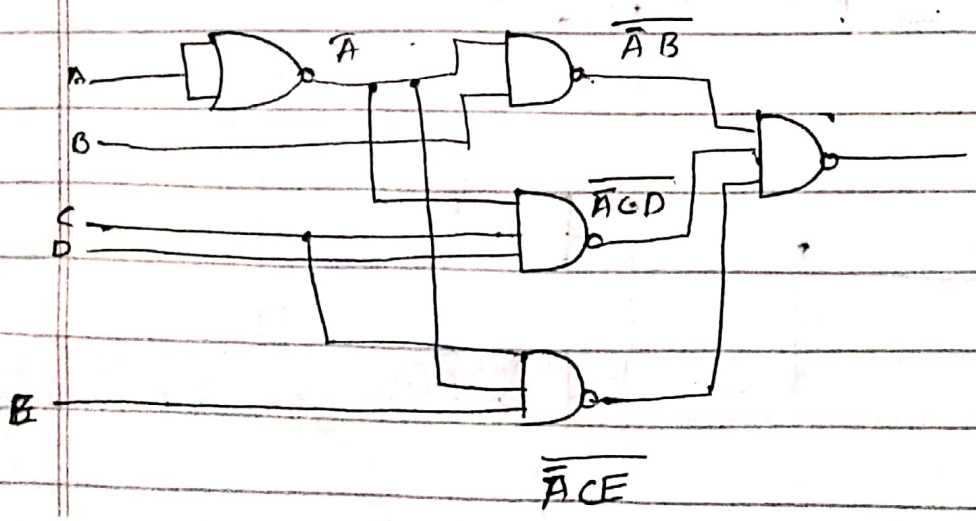
$$= \overline{\bar{A}B} \cdot \overline{\bar{A}CD} \cdot \overline{\bar{A}CE}$$

$$= \bar{A}B \; \bar{A}CD \; \bar{A}CE$$

By NOR:



Both



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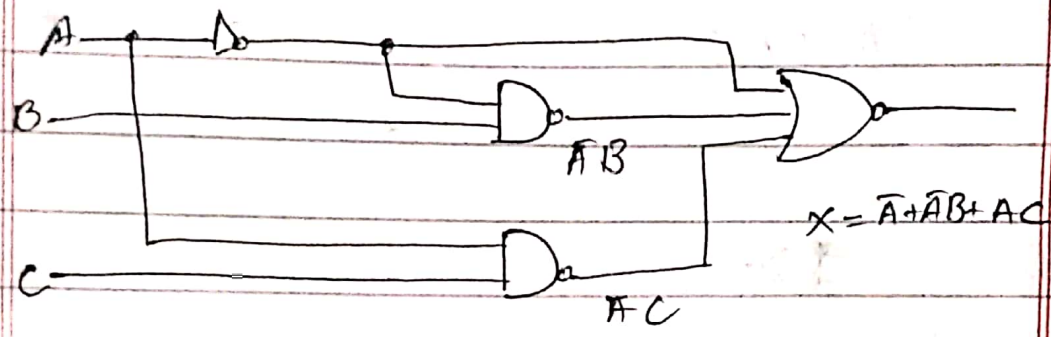
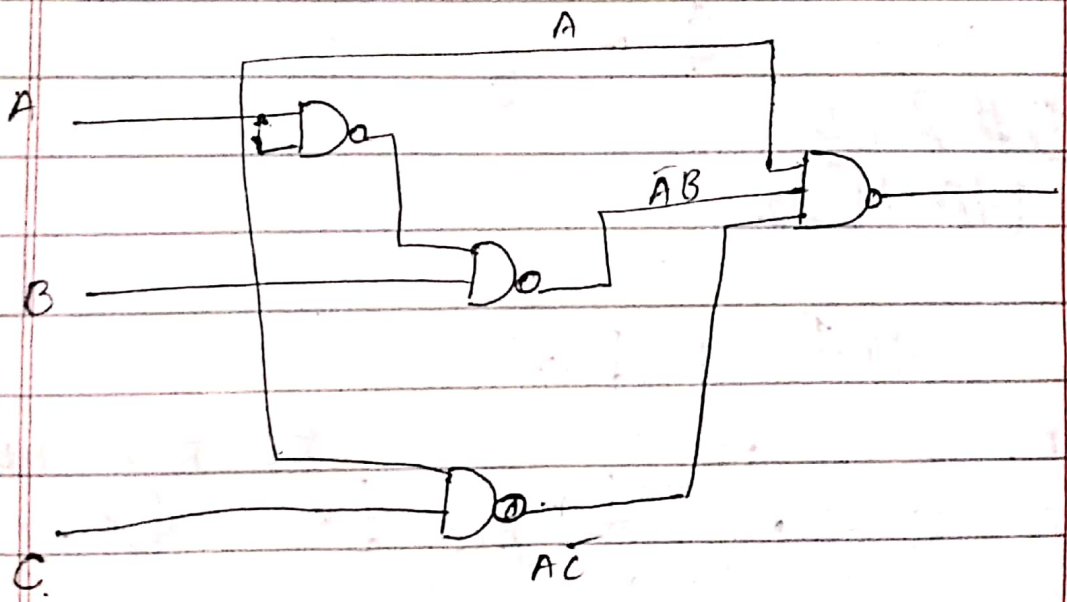
$\bar{A}B + \bar{A}CD + \bar{A}CE$

Q#02



Solution NAND:



$$X = \overline{A + \bar{A}B \cdot \bar{A}C}$$

$$= A + \bar{A}B + AC$$

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NOR:-

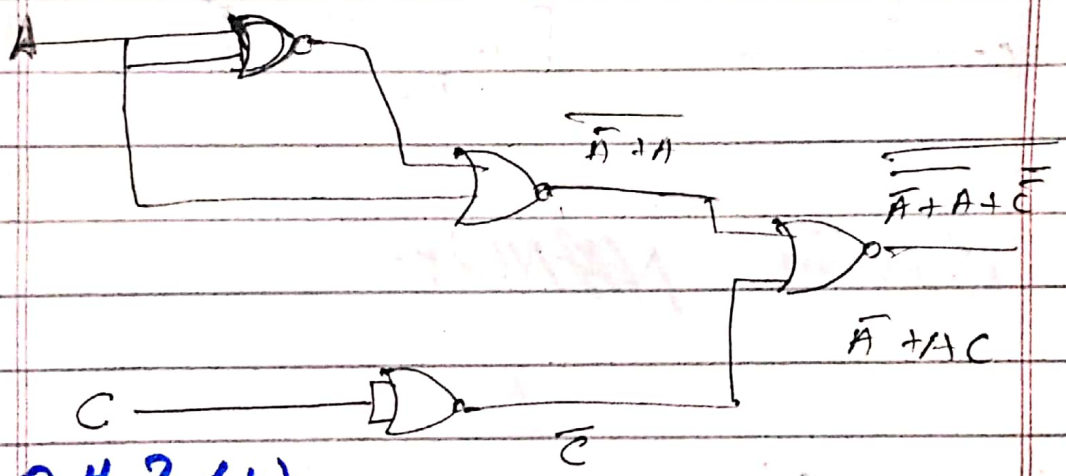
Simplifing the Equation

$\bar{A} + \bar{A}B + AC$

$\bar{A}(1+B) + AC$ $\quad \because 1+B = 1$

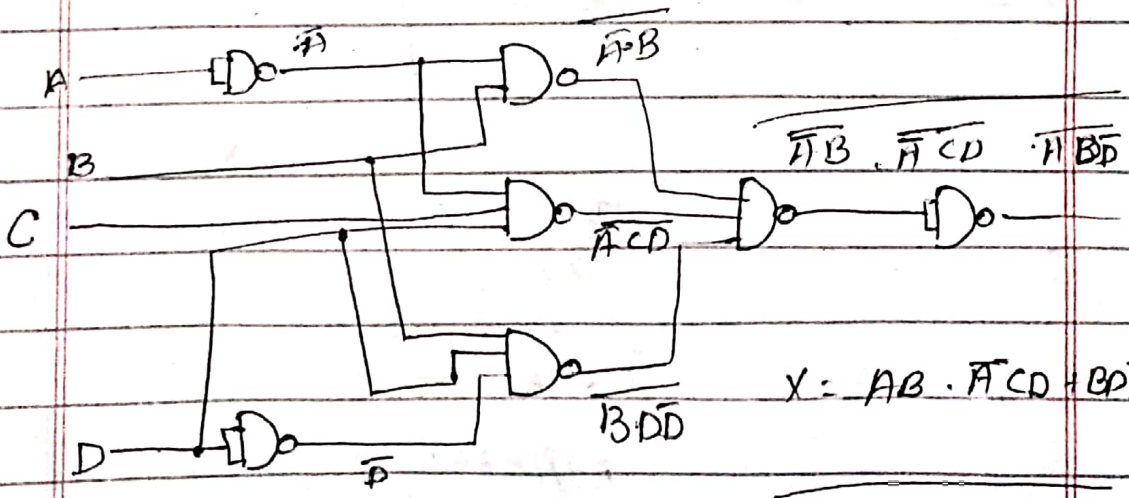
$\bar{A}(1) + AC$

$\bar{A} + AC$



Q# 2 (b)

NAND$_2$



$X = AB \cdot \bar{A}CD + B\bar{D}$

$= \overline{\bar{A}B + \bar{A}CD + B\bar{D}}$

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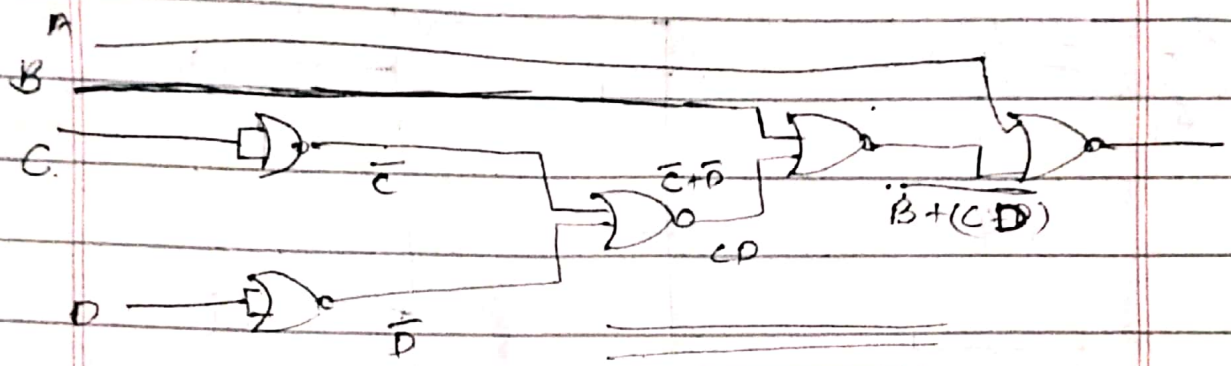
NOR :



$$X = A + \overline{B} + (C\overline{D})$$

$$X = A + \overline{B}\,(\overline{C+D})$$

Q# 3

if flip flop is modified of S-R ~~latch~~ flipflop with no "invalid" state output & its done by addition of clock input with SR flipflop ~~and~~ occurs in S-R ~~latch~~ flip flop both inputs are 1.

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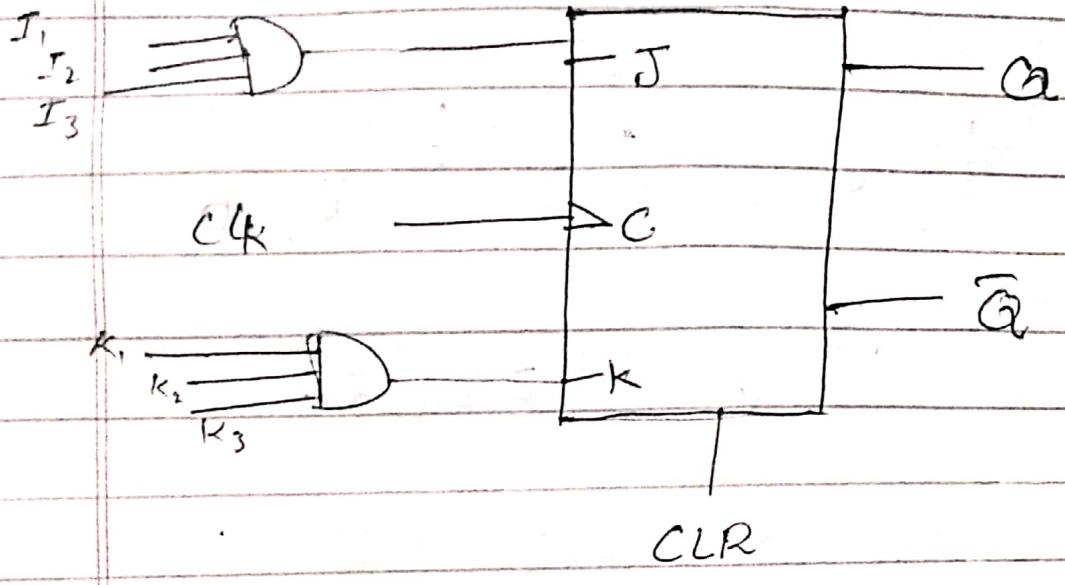
Q#4(a)



First of all we have to determine J the resultant J_1, J_2, J_3 from the AND gate

J_1	1 0 1 0 0 1 1
J_2	0 1 1 1 0 1 0
J_3	1 1 1 1 0 0 0
J	0 0 1 0 0 0 0

doing same thing for k. the k_1, k_2, k_3

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K_1 0 0 0 1 1 1 0

K_2 1 1 0 1 1 0 0

K_3 1 0 1 0 1 0 1

K 0 0 0 0 1 0 0

Now

J 0 0 1 0 0 0 0

K 0 0 0 0 1 0 0

Q 0 0 1 1 0 0 0

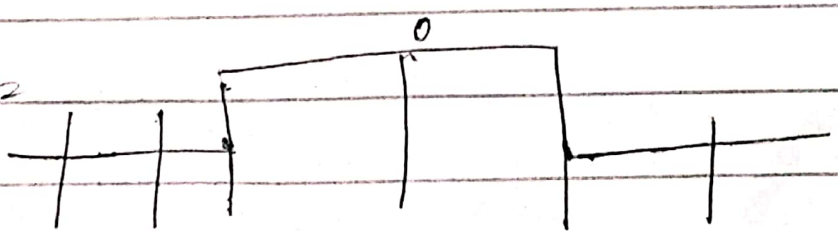
So

Out put is

Q = 0 0 1 1 0 0 0

Q# 4 (b)

Q =



K