Deltakarar:
Breisnes, Fred Rune
Valvik Yttri, Thomas

Gruppe: G70/4 32
Fagkode: DAT103
Innlevering: Obligatorisk

Obligatorisk innlevering – DAT103

OPPGAVE 1

2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
128	64	32	16	8	4	2	1

$34 + 32 = 66$

	0	0	1	0	0	0	1	0
+	0	0	1	0	0	0	0	0
=	0	1	0	0	0	0	1	0

Two's complement:

$34 + (-32) = 2$

	0	1	0	0	0	1	0
+	1	1	0	0	0	0	0
=	0	0	0	0	0	1	0

$34 - 32 = 2$

	0	1	0	0	0	1	0
-	0	1	0	0	0	0	0
=	0	0	0	0	0	1	0

$34 - (-32) = 34 + 32 = 66$

	0	1	0	0	0	1	0
+	0	1	0	0	0	0	0
=	1	0	0	0	0	1	0

Et flyttall er en formelbasert tallrepresentasjon. Det er et kompromiss mellom presisjon og rekkevidde i tallsammenheng.

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I et flyttall representeres bitsene som er til rådighet med et fortegn, en eksponent og en mantisse.

OPPGAVE 2

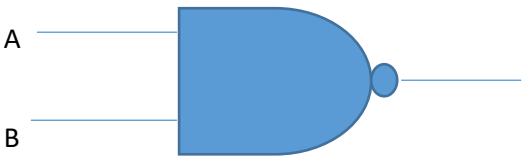
A)

Sannhetstabell:

A	B	A NAND B
0	0	1
0	1	1
1	0	1
1	1	0

Boolsk uttrykk:

$\overline{A * B}$



B)

Sannhetstabell:

A	B	$\bar{A}$	$\bar{B}$	$(\bar{A} + \bar{B})$
0	0	1	1	1
0	1	1	0	1
1	0	0	1	1
1	1	0	0	0

Boolsk uttrykk:

$\overline{(\bar{A}) + (\bar{B})}$

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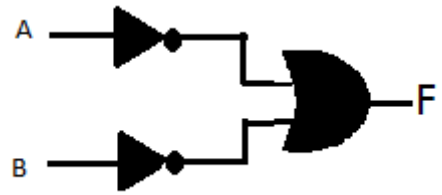
Krets:



C)

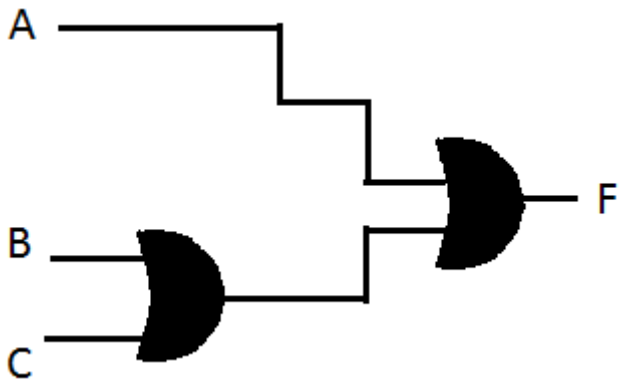
Sannhetstabell:

A	*B*	*C*	*(B + C)*	*A + (B + C)*
0	0	0	0	0
0	0	1	1	1
0	1	0	1	1
0	1	1	1	1
1	0	0	0	1
1	0	1	1	1
1	1	0	1	1
1	1	1	1	1

Boolsk uttrykk:

$A + (B + C) = F$

Krets:



d)

Sannhetstabell:

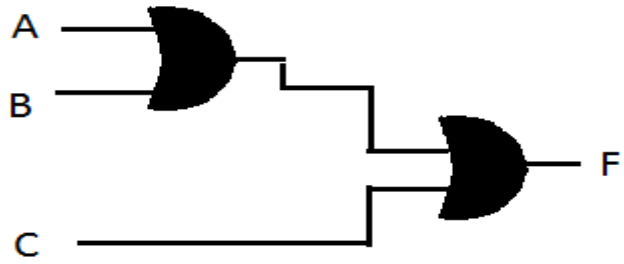
A	*B*	*C*	*(A + B)*	*(A + B) + C*

0	0	0	0	0
0	0	1	0	1
0	1	0	1	1
0	1	1	1	1
1	0	0	1	1
1	0	1	1	1
1	1	0	1	1
1	1	1	1	1

Boolsk uttrykk:

$(A + B) + C = F$

Krets:



e)

Sannhetstabell:

A	*B*	*C*	*(B * C)*	*A * (B * C)*
0	0	0	0	0
0	0	1	0	0
0	1	0	0	0
0	1	1	1	0
1	0	0	0	0
1	0	1	0	0
1	1	0	0	0
1	1	1	1	1

Boolsk uttrykk:

$A * (B * C) = F$

Krets:

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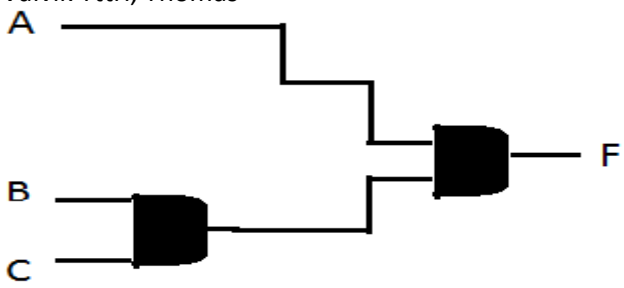


f)

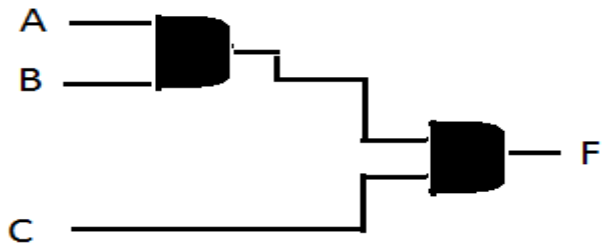
Sannhetstabell:

A	*B*	*C*	*(A * B)*	*(A * B) * C*
0	0	0	0	0
0	0	1	0	0
0	1	0	0	0
0	1	1	0	0
1	0	0	0	0
1	0	1	0	0
1	1	0	1	0
1	1	1	1	1

Boolsk uttrykk:

$(A * B) * C = F$

Krets:



g)

Sannhetstabell:

A	*B*	*F*
0	0	0
0	1	1
1	0	1
1	1	1

Boolsk uttrykk:

Deltakarar:
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$A + B = F$

Gruppe: G70/4 32
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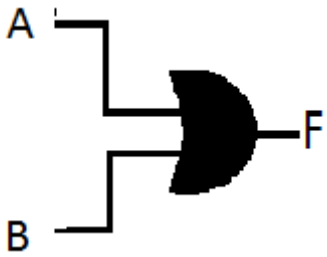
Krets:



h)

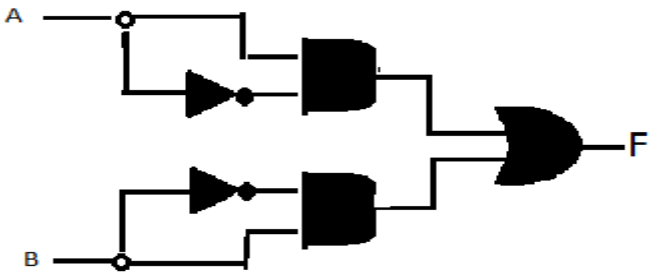
Sannhetstabell:

A	*B*	$\bar{\bar{A}}$	$\bar{B}$	$A\bar{B} + B\bar{B}$
0	0	1	1	0
0	1	1	0	0
1	0	0	1	0
1	1	0	0	0

Boolsk uttrykk:

$(A * B) * C = F$

Krets:



i)

OPPGAVE 3

A)

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Binær verdi | Posisjon til aktiv diode

C	***B***	***A***		***a***	***b***	***c***	***d***	***e***	***f***	***g***
0	0	0		X	X	X	X	X	X	X
0	0	1		0	0	0	0	0	0	1
0	1	0		1	0	0	0	0	1	0
0	1	1		1	0	0	0	0	1	1
1	0	0		1	0	1	1	0	1	0
1	0	1		1	0	1	1	0	1	1
1	1	0		1	1	1	1	1	1	0
1	1	1		X	X	X	X	X	X	X

B)

Karnaughdiagramm for a

C/BA

	00	01	11	10
0	X	0	1	1
1	1	1	X	1

Karnaughdiagramm for b

C/BA

	00	01	11	10
0	X	0	1	0
1	0	0	X	0

Karnaughdiagramm for c

C/BA

	00	01	11	10
0	X	0	0	0
1	1	1	X	1

Karnaughdiagramm for g

C/BA

	00	01	11	10
0	X	1	1	0
1	0	1	X	0

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C)

Enklest mogleg Boolsk uttrykk:

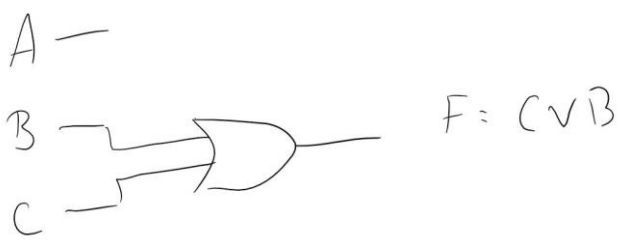
a: C V B

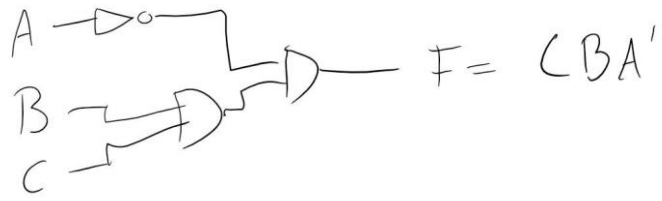
b: CBA’

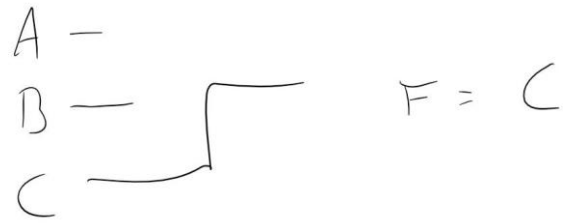
c: C

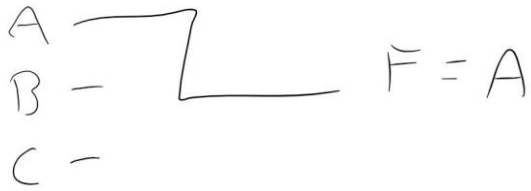
g: A

D)









Oppgave 4

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