higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NASIENRIGLYN

NASIONALE SERTIFIKAAT

SYFERELEKTRONIKA N4

29 November 2019

Hierdie nasienriglyn bestaan uit 8 bladsye.

Kopiereg voorbehou

VRAAG 1

1.1
1.1.1 A
1.1.2 C
1.1.3 D
1.1.4 D
1.1.5 A

(5 × 1) (5)

1.2
1.2.1 C
1.2.2 D
1.2.3 F
1.2.4 B
1.2.5 A

(5 × 1) (5)

1.3
1.3.1 Waar
1.3.2 Waar
1.3.3 Onwaar
1.3.4 Waar
1.3.5 Waar

(5 × 1) (5)

1.4
1.4.1 100111 = 011000
~~+1~~
011001
11001

1.4.2 10011 = 11010Gray

1.4.3 $D_{16} = 1101_2$
$B_{16} = 1010_2$

1101
+1010
10111

(3 × 2) (6)
[21]

VRAAG 2

2.1 D, 7_{16} = 1101, 0111

3, 6_8 = 0011, 1100 = 1100, 0011

1101, 0111
1100, 0011
1001, 1010
+1
1001, 1011
=9, 6875_{10}

2.2 7C, B_{16} = 01111100, 1011

$6,5_8$ = 110, 101

10010,110
1101010√11111001011000
-1101010
10010101
-1101010
10101110
-1101010
10001000
-1101010
111100
=22, 6_8

2.3 86,E_{16} = 10000110, 1110

7, 5_{10} = 111, 1

100001101110
1111
100001101110
100001101110
100001101110
100001101110
1111110011, 10010
= 3F3, 9_{16}

(3 × 6) **[18]**

VRAAG 3

3.1 $F = A B \overline{C}\ \overline{} + A \overline{B}\ \overline{C} + ABC + A \overline{B}\ \overline{C}$

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

$A \overline{(B \oplus C)} + \overline{A}\ (B \oplus C)$

LET $B \oplus C = K$

$A \overline{K} + \overline{A}\ K$

$A \oplus K$

$A \oplus B \oplus C$

3.2 $F= \overline{\overline{A}\ \overline{B} + \overline{A}B + A\ \overline{B}}$

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

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

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

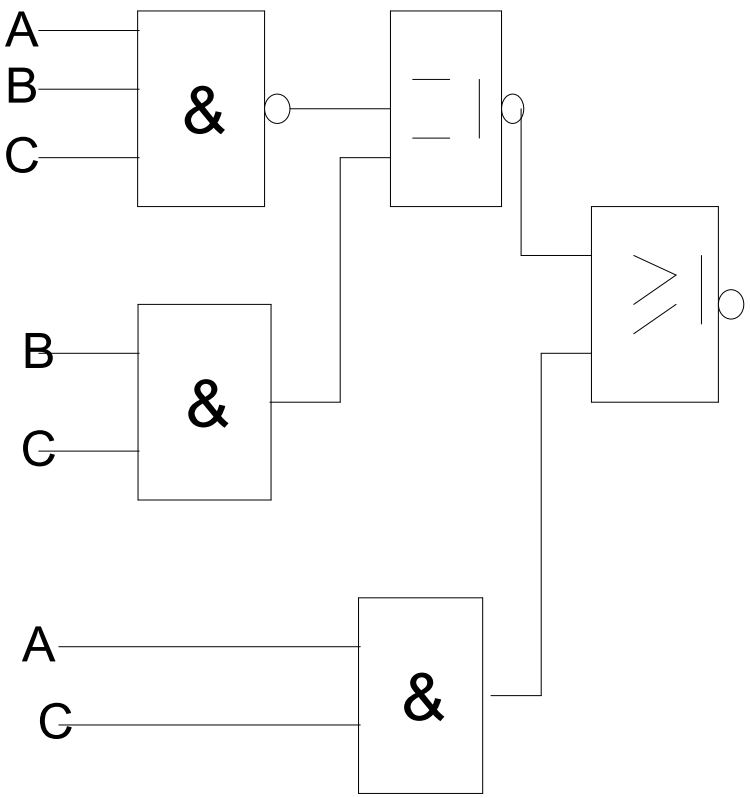
$A (1 + \overline{B} + \overline{B}\ ) + \overline{B}\ (\overline{A} + B)$

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

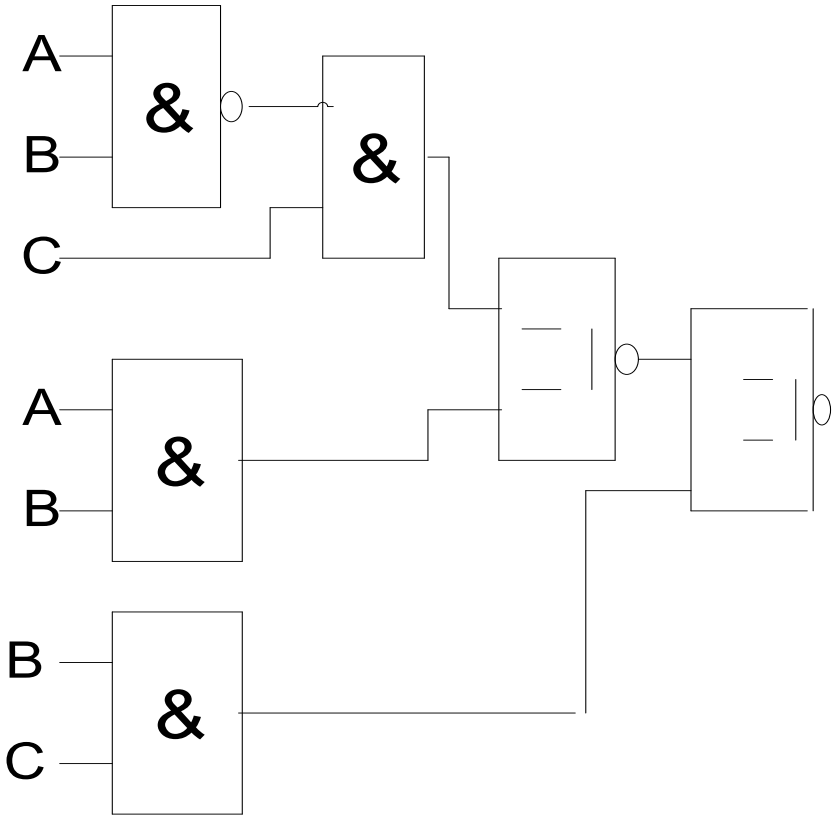
$A \overline{A} + A B + \overline{A}\ \overline{B} + B \overline{B}$

AB

3.3



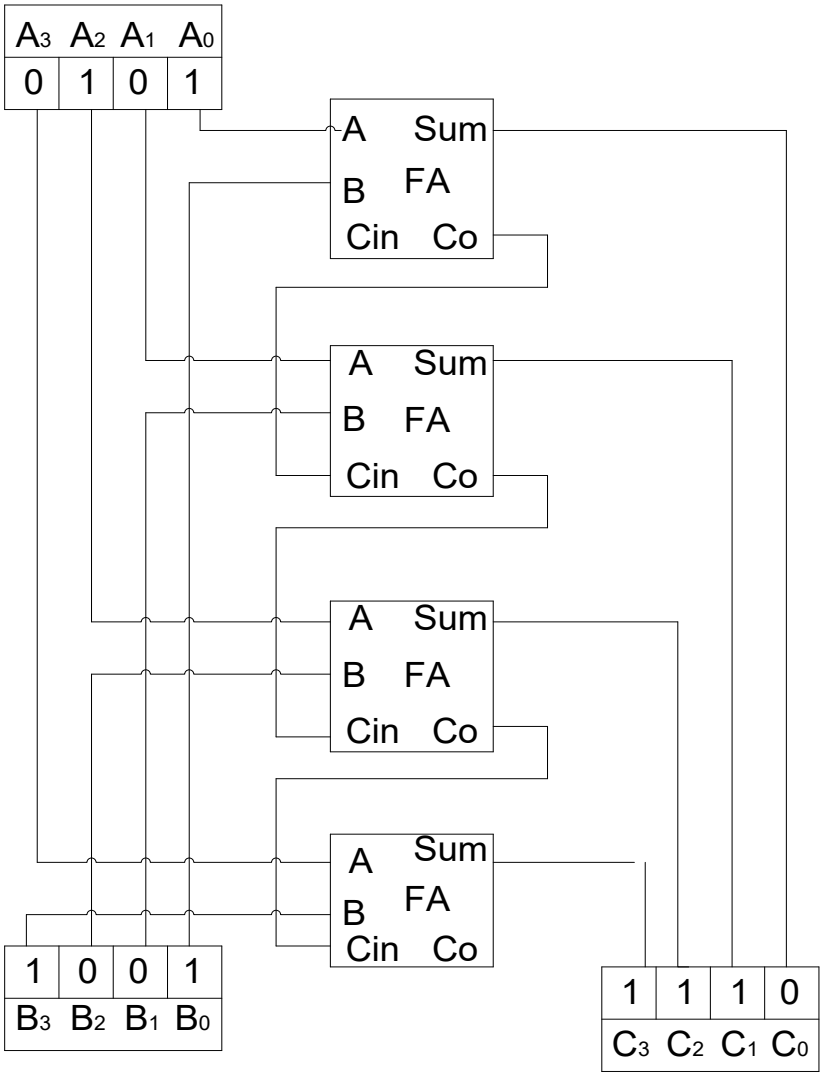
3.4



(4 × 6) **[24]**

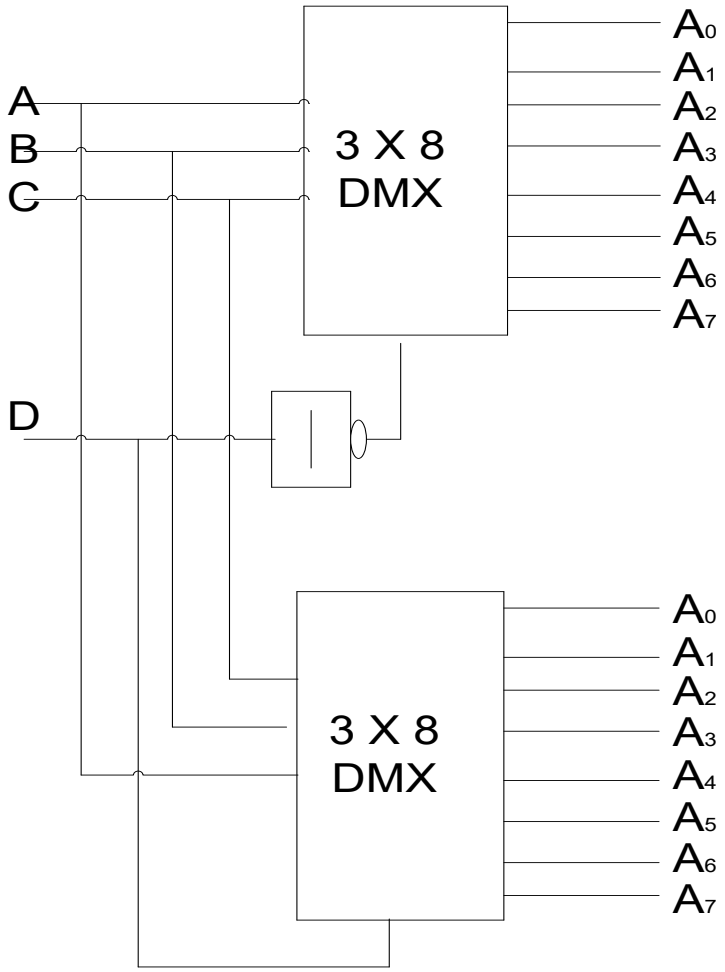
VRAAG 4

4.1


A3 A2 A1 A0
0 1 0 1
A Sum
B FA
Cin Co
A Sum
B FA
Cin Co
A Sum
B FA
Cin Co
A Sum
B FA
Cin Co
1 0 0 1
B3 B2 B1 B0
1 1 1 0
C3 C2 C1 C0

(10)

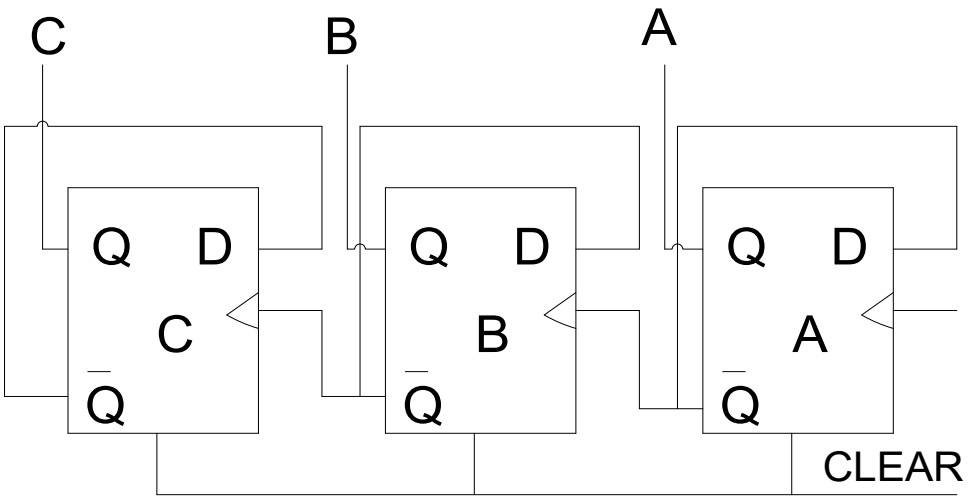
4.2



(9)
[19]

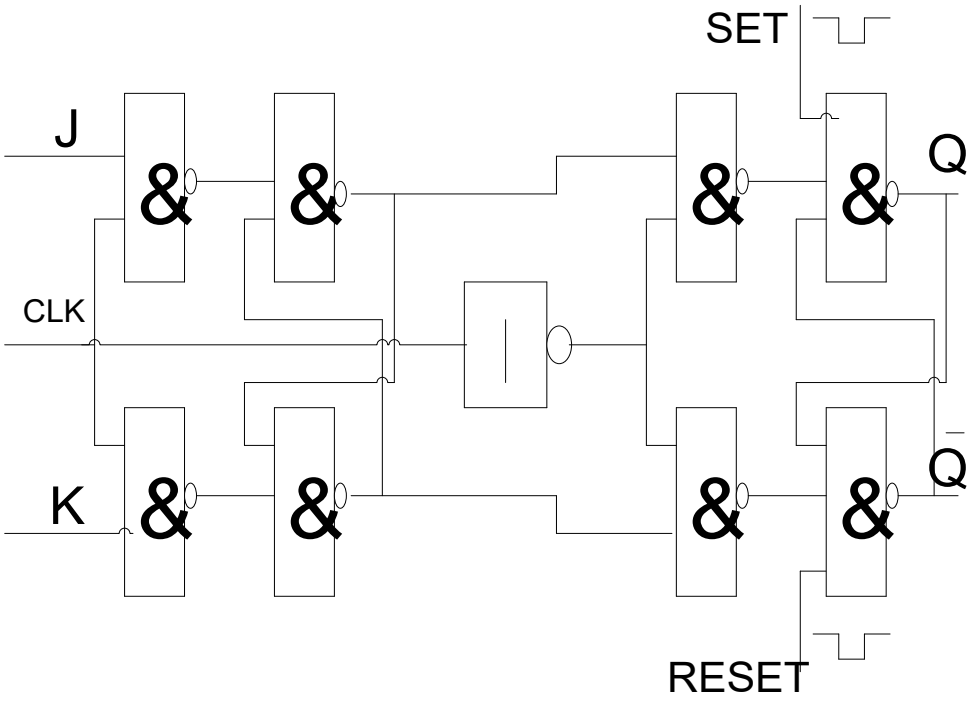
VRAAG 5

5.1



(8)

5.2



(10)
[18]

TOTAAL: 100

Kopiereg voorbehou