higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

NASIENRIGLYN

NASIONALE SERTIFIKAAT

LOGIKASTELSELS N5

6 APRIL 2018

Hierdie nasienriglyn bestaan uit 5 bladsye.

Kopiereg voorbehou

VRAAG 1

A	B	C	J_A	K_A	J_B	K_B	J_C	K_C	
0	0	0	0	Ø	0	Ø	1	Ø	
0	0	1	0	Ø	1	Ø	Ø	0	
0	1	1	1	Ø	Ø	0	Ø	0	∧
1	1	1	Ø	0	Ø	0	Ø	1	
1	1	0	Ø	0	Ø	1	0	Ø	
1	0	0	Ø	1	0	Ø	0	Ø	
0	1	0	0	Ø	Ø	1	0	Ø	∧
1	0	1	Ø	1	0	Ø	Ø	1	

$Q_n \rightarrow Q_n + 1$	J	K
0 → 0	0	Ø
0 → 1	1	Ø
1 → 0	Ø	1
1 → 1	Ø	0

	00	01	11	10	
0	0	0	Ø	Ø	∧
1	0	1	Ø	Ø	

$J_A = BC$ ∧

	00	01	11	10	
0	Ø	Ø	0	1	∧
1	Ø	Ø	0	1	

$K_A = /B$ ∧

	00	01	11	10	
0	0	Ø	Ø	0	∧
1	1	Ø	Ø	0	

$J_B = /AC$ ∧

	00	01	11	10	
0	Ø	1	1	Ø	∧
1	Ø	0	0	Ø	

$K_B = /C$ ∧

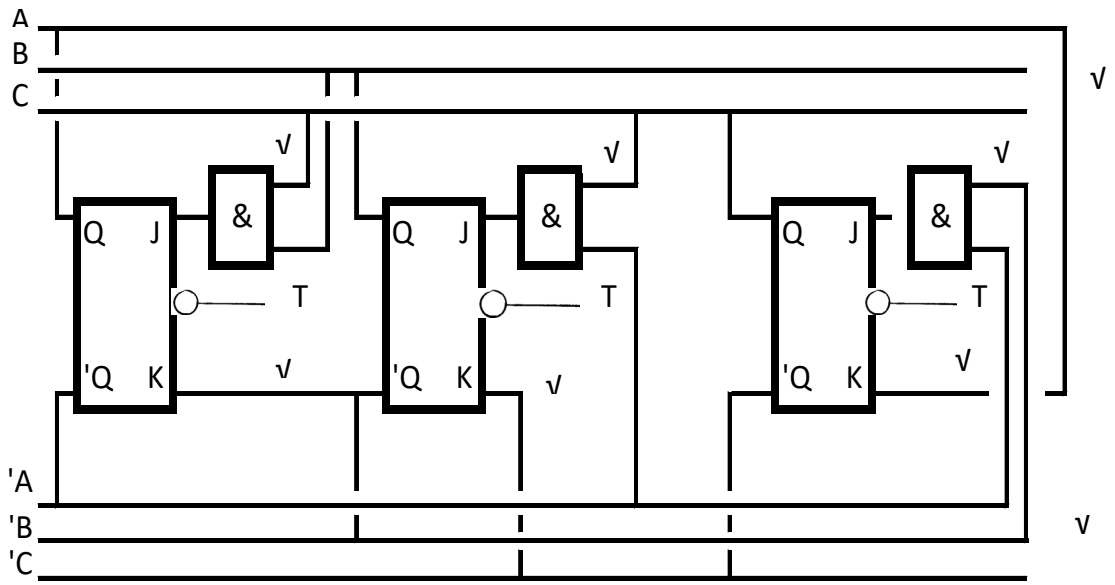
	00	01	11	10	
0	1	0	0	0	∧
1	Ø	Ø	Ø	Ø	

$J_C = /A/B$ ∧

	00	01	11	10	
0	Ø	Ø	Ø	Ø	∧
1	0	0	1	1	

$K_C = A$ ∧

(7)

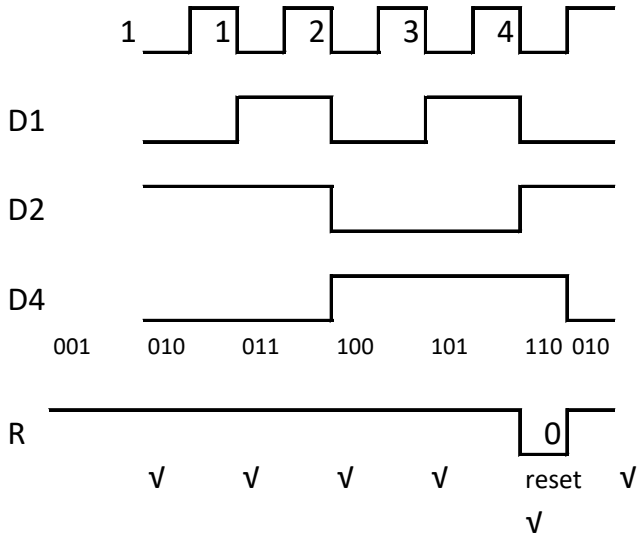


(8) (8)

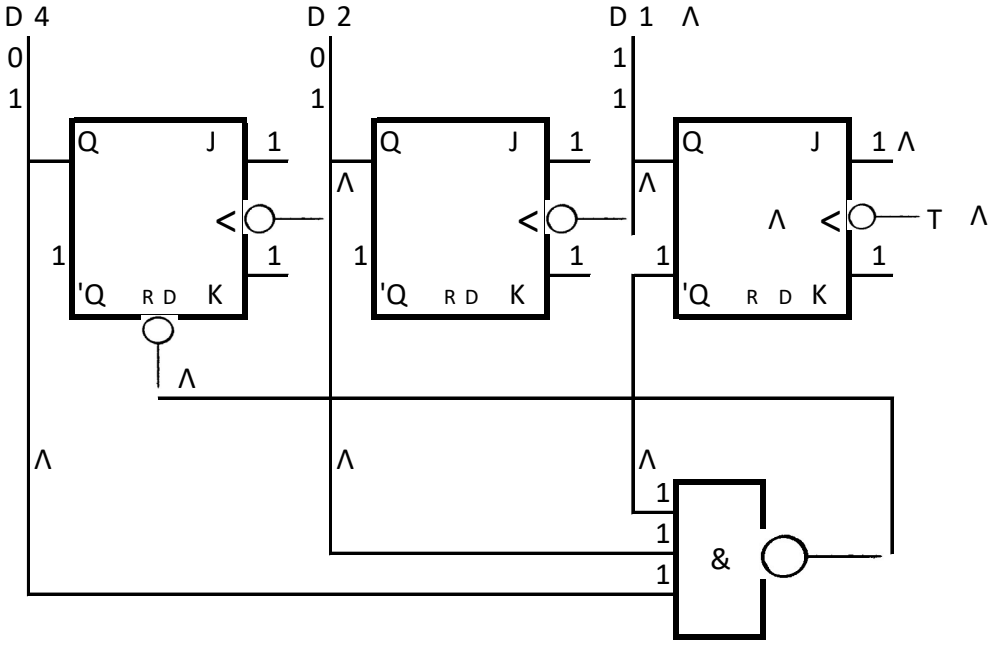
[15]

VRAAG 2

	D4	D2	D1	T	
	0	1	0	0	T
	0	1	1	1	√
	1	0	0	2	√
	1	0	1	3	√
Reset	1	1	0	4	√
	0	1	0		



(10)



Λ= 1/2 mark 10 * 1/2 = 5 marks (5)

[15]

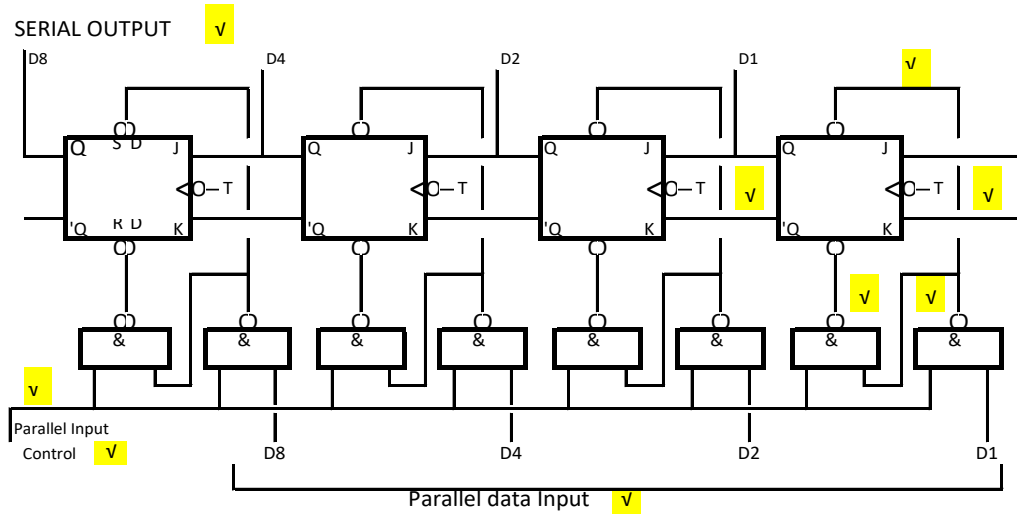
VRAAG 3

3.1 Waar
3.2 Waar
3.3 Waar
3.4 Onwaar
3.5 Onwaar
3.6 Waar
3.7 Onwaar
3.8 Waar
3.9 Onwaar
3.10 Onwaar
3.11 Waar
3.12 Waar
3.13 Waar

(13 × 1) **[13]**

VRAAG4

4.1



(9) (9)

4.2 Sinchrone (1)

4.3 Vier (1)

4.4 Een (1)
[12]

VRAAG 5

5.1	K
5.2	M
5.3	O
5.4	N
5.5	I
5.6	J
5.7	L
5.8	F
5.9	C
5.10	G
5.11	A
5.12	H
5.13	E
5.14	B
5.15	D

(15 × 1) **[15]**

VRAAG 6

6.1	A, B, C	(2)
6.2	B, C	(2)
6.3	A, D, E, F, G,	(5)
6.4	C	(1)
6.5	A, B	(2)
6.6	E, F	(2)
6.7	C	(1)
		[15]

VRAAG 7

7.1	D, H		(2)
7.2	D, F, H		(3)
7.3	A, B, C, E, G		(5)
7.4	B, C, F, G	(Enige 3 × 1)	(3)
7.5	C		(1)
7.6	G		(1)
			[15]

TOTAAL: 100

Kopiereg voorbehou