



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE DIGITAL ELECTRONICS N5

8 July 2022

This marking guideline consists of 7 pages.

2.3 $7, 7_8 = 111, 111_2 \checkmark$
 $7, 7_{16} = 111, 0111_2 \checkmark$

2's complement

Ignore carry 1

1	1	1,	1	1	1	0	
1	1	1,	0	1	1	1	-
0	0	0,	1	0	0	1	✓
1	1	1,	1	1	1	0	+
0	0	0,	0	1	1	1	✓

Answer: $0, 0111_2 = 0, 4375_{10} \checkmark$

(6)
[18]

QUESTION 3

A	B	C	J_A	K_A	J_B	K_B	J_C	K_C
0	0	0	0	X	1	X	0	X
0	1	0	1	X	X	1	0	X
1	0	0	X	0	1	X	1	X
1	1	1	X	1	X	1	X	1

0 0 0 ✓ ✓

	$\bar{A}\bar{B}$	$\bar{A}B$	AB	$A\bar{B}$
\bar{C}		1	X	X
C	X	X	X	X

$J_A = B$

OR

	$\bar{B}\bar{C}$	$\bar{B}C$	BC	$B\bar{C}$
\bar{A}		X	X	1
A	X	X	X	X

$J_A = B$

	$\bar{A}\bar{B}$	$\bar{A}B$	AB	$A\bar{B}$
\bar{C}	X	X	X	
C	X	X	1	X

$K_A = B \text{ OR } C$

OR

	$\bar{B}\bar{C}$	$\bar{B}C$	BC	$B\bar{C}$
\bar{A}	X	X	X	X
A		X	1	X

$K_A = B \text{ OR } C$

	$\bar{A}\bar{B}$	$\bar{A}B$	AB	$A\bar{B}$
\bar{C}	1	X	X	1
C	X	X	X	X

$J_B = "1"$

OR

	$\bar{B}\bar{C}$	$\bar{B}C$	BC	$B\bar{C}$
\bar{A}	1	X	X	X
A	1	X	X	X

$J_B = "1"$

	$\bar{A}\bar{B}$	$\bar{A}B$	AB	$A\bar{B}$
\bar{C}	X	1	X	X
C	X	X	1	X

$K_B = "1"$

OR

	$\bar{B}\bar{C}$	$\bar{B}C$	BC	$B\bar{C}$
\bar{A}	X	X	X	1
A	X	X	1	X

$K_B = "1"$