



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Examination Answer Books

12 Pages

Instructions to Candidates

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners will not accept illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

Complete, fold and seal
(see note 2 below)

SURNAME: Evans

FORENAME(S): Nathan

1	Student Number	2110613
2	Title of Examination Paper	Micros, Peripherals and Interfaces
3	Module Code	ACDA4004
4	Date and Time of Examination	12/05/23
5	Examination Venue	SA1
6	Seat Number	004

7	Number of Answer Books handed in	1
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[illegible]
$$x_2 = 47\%$$

(Gweler yr ochr arall am y fersiwn Cymraeg)

Q1

- a bit Set F - ~~Set~~ assign bit to F
- b bit F Set Count - Set a Count to F register $\times$
- c ~~And the Literal with W~~ And ~~the~~ Literal with $\checkmark$ W - AND the Literal to walking reg $\textcircled{1}$
- d Move W to F - move the W register to the S register $\textcircled{1\frac{1}{2}}$
- e Increment F - Increment F Count $\textcircled{1\frac{1}{2}}$

$\textcircled{1\frac{1}{2}}$
 $\textcircled{1\frac{1}{2}}$
 $\textcircled{3\frac{1}{2}}$

Q2)
$$\text{Res} = \frac{V_{\text{REF}}}{2^n - 1} = \frac{2.5}{2^{10} - 1} = 2.4 \text{ mV} \checkmark$$

$\textcircled{4}$

Q3 A ADC is an analogue to digital converter, converting an analog signal to a digital using a DAC, binary counter and an ~~analog~~ comparator

b

The analog signal is fed into the positive pins of the comparator which then send a Analog $\times$ signal through a clock input into a binary bit counter which count the number of bits before sending the signal through its output pins, Q0, Q1 etc. ~~The DAC also creates a binary weighted DAC~~ with providing a digital output

waffle!

Q4

NAND



A	B	Q
0	0	1
0	1	1
1	0	1
1	1	0

4

Q5

Not, 2x AND, 1 OR

AND

A	B	Q
0	0	0
0	1	0
1	0	0
1	1	1

~~AND~~

~~A~~	~~B~~	~~Q~~
~~0~~	~~0~~	~~0~~
~~0~~	~~1~~	~~0~~
~~1~~	~~0~~	~~0~~
~~1~~	~~1~~	~~1~~

2

OR

A	B	Q
0	0	0
0	1	1
1	0	1
1	1	1

~~OR~~

~~A~~	~~B~~	~~Q~~
~~0~~	~~0~~	~~0~~
~~0~~	~~1~~	~~1~~
~~1~~	~~0~~	~~1~~
~~1~~	~~1~~	~~1~~

?

Q5

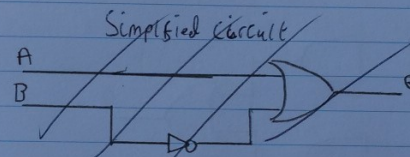
NOT

A	B	Q
0	1	1
1	0	0

AND

A	B	Q
0	0	0
0	1	0
1	0	0
1	1	0

Final out put is 0 as the not gate makes B 0
 meaning the other gates stay at 0 because none of
 them invert a signal



Q26

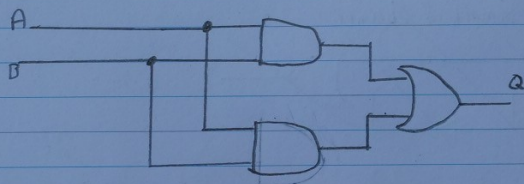
Q5

48 DC

A	B	Q
AND		1
AND 2		0
NOT		0
OR		1

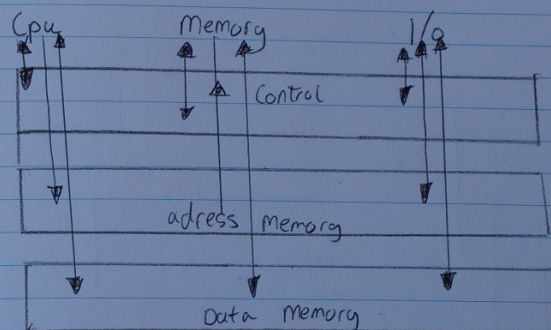
= XNOR Gate

The Signal output is 1



Excluding the NOT gate provides the same output overall

Q7

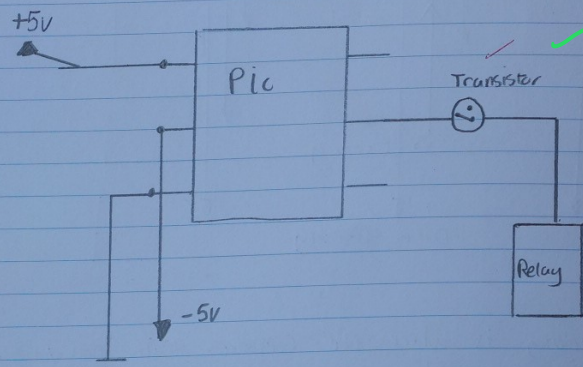


① Data memory is where the computer's main non-volatile storage is kept. This bus sends constant bits of data to the computer, CPU, memory and input/output.

The address memory tells the computer where specific bits of memory is located. For example, the CPU will call for the address bus to send a signal to the main memory which then sends a signal to the input/output.

The control busses are constantly operating back and forth between the CPU, main memory and input/output.

Q6



The +5 V is the input voltage, this must be placed with a -5V to create potential, the voltage then feeds to a transistor which amplifies the voltage before finally entering the relay?