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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 can either ignore 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 back of the 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.

1	Student Number	1804424
2	Title of Examination Paper	Micros Peripherals in Interfaces
3	Module Code	ACDA4004
4	Date and Time of Examination	20th May 3 p.m.
5	Examination Venue	10310
6	Seat Number	6019
7	Number of Answer Books handed in	

Complete, fold and seal
(see note 2 below)

SURNAME:

Matela

FORENAME(S):

Krzysztof
Sylwester

List the numbers of the questions you have attempted	Office Use
1	10 10
2	2 2
3	2 2
4	3 3
5	4 4
6	5 5
7	7 7
Total	33 33



Question 1.

a) CLRF - Clear File

load register with 0×00 (zero's)

(2) 2

b) BTFSS - Bit Test File Skip if Set
if bit is set (1), skip next instruction

(2) 2

c) ~~Return~~ RETURN - exit subroutine
subroutines can be used using CALL instruction

(2) 2

d) MOVLW - MOVE Literal to W
register

(2) 2

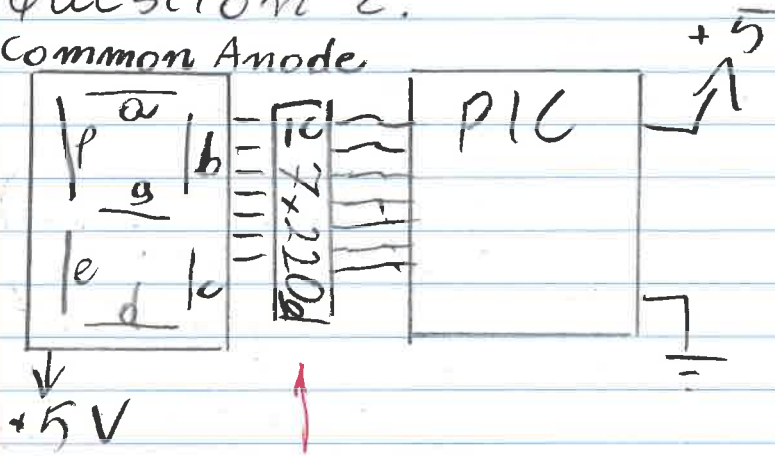
loads Working with given value

e) INCF - ~~INC~~ INCREMENT File
adds 1 to file.

(2) 2

Question 2.

Common Anode



How DID YOU ARRIVE AT 220Ω?

How?

②



Question 3.

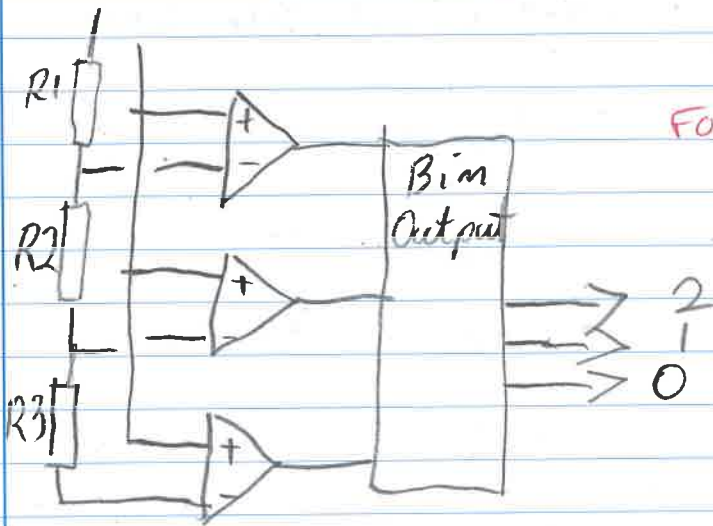
Source Current - digital pin will provide forward current (+)

Sink Current - digital pin will act as ground (-)

2

2

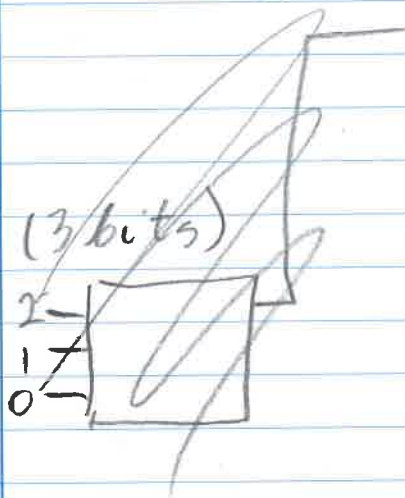
Question 4.



FOR 3 BIT BINARY THERE
SHOULD BE 7 COMPARATORS.

Agree
Yes, there should!

Using comparator and reference voltage such device can give 0 or 1 with pass across each comparator. the amount of comparators that give 1 is then translated to binary



3

3

Question 5

table to aid binary translations:

Deci	Bin	Hex	2nd Hex
0	0000	0	0
1	0001	1	16
2	0010	2	32
3	0011	3	48
4	0100	4	64
5	0101	5	80
6	0110	6	96
7	0111	7	112
8	1000	8	128
9	1001	9	144
10	1010	A	160
11	1011	B	176
12	1100	C	192
13	1101	D	208
14	1110	E	224
15	1111	F	240

a) 0110 0111 - 67 ✓ ✓

① ①

b) 1001 1010 - 9A ✗ QUESTION = 1001 1011 = 0x9B

① ②

c) 1110 1010 - EA ✓ ✓

① ①

d) 0010 1100 - 2C ✓ ✓

① ①

e) 1011 1000 - B8 ✓ ✓

① ①

Question 6.

(Aid with table from Q5)

$$\begin{aligned}
 a) 237 &= 224 + (237 - 224) \\
 &= 224 + 13 \\
 &= \underline{1110\ 1101} \quad \text{✓} \quad (1)
 \end{aligned}$$

$$\begin{aligned}
 b) 125 &= 112 + (125 - 112) \\
 &= 112 + 13 \\
 &= \underline{0111\ 1101} \quad \text{✓} \quad (1)
 \end{aligned}$$

$$\begin{aligned}
 c) 198 &= 192 + (198 - 192) \\
 &= 192 + 6 \\
 &= \underline{1100\ 0110} \quad \text{✓} \quad (1)
 \end{aligned}$$

$$\begin{aligned}
 d) 247 &= 240 + (247 - 240) \\
 &= 240 + 7 \\
 &= \underline{1111\ 0111} \quad \text{✓} \quad (1)
 \end{aligned}$$

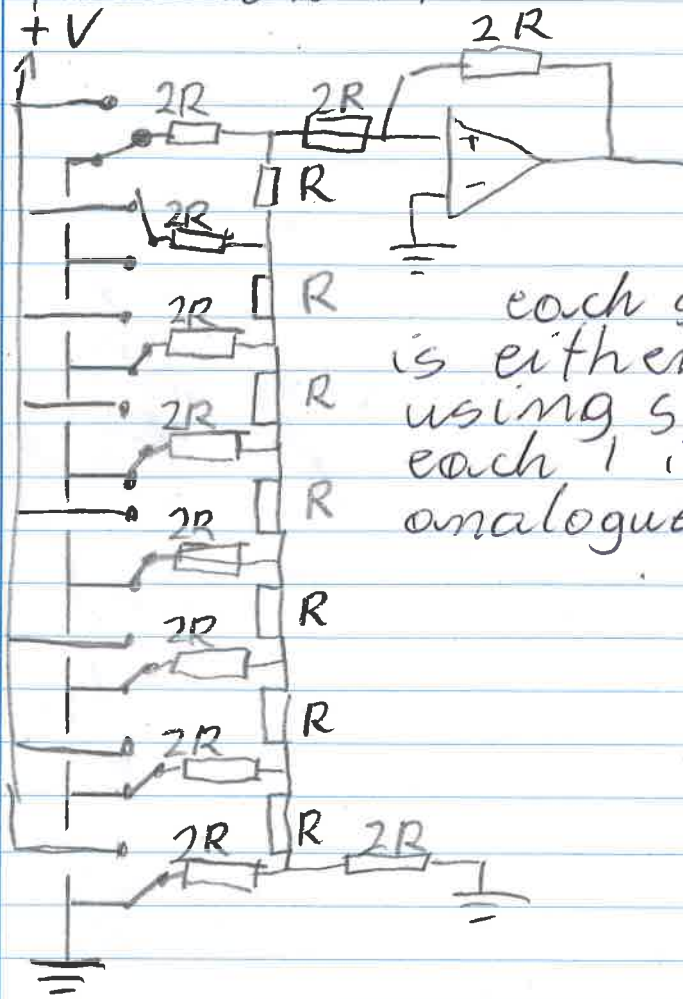
e) 312

512	256	128	64	32	16	8	4	2	1
0	1	0	0	1	1	1	0	0	0

1.	2.	3.	4.
312	56	24	8
~~256~~	~~32~~	~~16~~	~~0~~
<u>056</u>	<u>24</u>	<u>8</u>	<u>0</u>

$$e = \underline{0001\ 0011\ 1000} \quad \text{✓} \quad (1)$$

Question 7.



each switch (switch symbol) is either 0 or 1 and using summing amplifier each 1 is adding to analogue output

7

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