



SURNAME: White no use

FORENAME(S): Jalte

12 Pages

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 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.**

1	Student Number	2406098
2	Title of Examination Paper	Computer Architecture and Operating Systems
3	Module Code	ACCA4022
4	Date and Time of Examination	9:00AM 11/05/25
5	Examination Venue	310
6	Seat Number	31
7	Number of Answer Books handed in	0

List the numbers of the questions you have attempted	Office Use
Q1, ^{A, B, C, D} ~~E, F, G~~	25
Q2, 4, 2	9
Q3, ^{A, 1, 2, 3} ~~B, 1, 2, 3~~	6
Q4, ^{A, B, C, D,} E, F	10
Total	50%

(Gweler yr ochr arall am y fersiwn Cymraeg)

50

A.

1. 62

$$62 \div 2 = 31^0$$

$$31 \div 2 = 15^1$$

$$15 \div 2 = 7^1$$

$$7 \div 2 = 3^1$$

$$3 \div 2 = 1^1$$

$$1 \div 2 = 0^1$$

$$0 \div 2 = 0^0$$

$$= 0111110$$

33

2. 125

$$125 \div 2 = 62^1$$

$$62 \div 2 = 31^0$$

$$31 \div 2 = 15^1$$

$$15 \div 2 = 7^1$$

$$7 \div 2 = 3^1$$

$$3 \div 2 = 1^1$$

$$1 \div 2 = 0^1$$

$$0 \div 2 = 0^0$$

$$= 1011110$$

33

b. 76543210
 1. 10011001

$$2^7 = 128$$

$$0^6 = 0$$

$$0^5 = 0$$

$$2^4 = 16 +$$

$$2^3 = 8$$

$$0^2 = 0$$

$$0^1 = 0$$

$$2^0 = 1$$

$$\underline{153}$$

2. 43210
 11110

$$2^4 = 16$$

$$2^3 = 8$$

$$2^2 = 4 +$$

$$2^1 = 2$$

$$0^0 = 0$$

$$\underline{30}$$

c. 2F

$$= 00101111$$

2. 36

$$= 00110110$$

e. ~~12~~ = 32

$$1 = 2$$

$$1111 = 32$$

$$11 = 4$$

$$111 = 8$$

$$1111 = 16$$

F.1 12 megapixels ✓

2. 3.6 MB ✓

g.

~~$$80 \text{ Mb} = 80 \times 100 = 8000 \text{ b}$$~~

~~$$36 \text{ MB} = 36 \times 1000 = 36000 \text{ b}$$~~

~~$$1 \text{ B} = 8 \text{ b} \quad 36 \text{ B} = 360 \div 66 = 243$$~~

~~$$1 \text{ MB} = 800 \text{ b}$$~~

~~$$36 \text{ MB} = 29300 \text{ b}$$~~

~~$$24000 \text{ b} \div 800 \text{ b} = 45$$~~

~~$$29300 \text{ b} \div 8000 \text{ b} = 2$$~~

~~$$32000 \text{ b} \div 8000 \text{ b} = 5.15$$~~

~~$$8 \times 0.1 = 0.8$$~~

~~$$= 4.8315$$~~

g.

~~$$80 \text{ Mb} = 8000 \text{ b}$$~~

$$80 \text{ Mb} = 80000 \text{ b}$$

$$36 \text{ MB} = 360000 \text{ b} \quad ?$$

~~$$360000 \div 80000 = 4.5$$~~

~~$$80000 \div 360000 = 0.22$$~~

$$360000 \div 80000 = 4.5$$

$$4 \times 8 = 32$$

$$4 \div 8 = 0.5$$

$$= 4.5/5$$

Q.

1. The CPU is the Central Processing Unit for the Computer. It does all the calculations and heavy work with the data.

2 2

the memory is where data is stored.

1 1

Input and Output is the devices the user interacts with and also the data that comes in and goes out (For example a mouse clicks a page and the monitor shows the page).

2 2

The Control bus is how the CPU, memory and I/O interact and communicate.

?

The Address bus communicates with the CPU, memory and I/O to enable each to know where data is stored.

2 2

The data bus holds the data for it to be used. This is a temporary/working volatile state.

x

2. The keyboard communicates with the CPU using the Control bus to store the text in the data bus so that it can be read. At this point, when saving permanently, the CPU asks the Address bus for where on the memory to store the data. Once found, the data is written onto the attached non-volatile hard disk.

2 2

a.

1. 64 MB x2. 1 TB 1/23. 256 MB 1b. 1. ~~16 GB/s~~ 16 GB/s x2. 16 MB/s x3. ~~128 MB/s~~ 64 MB/s x

c.

Pros	Cons
Faster ✓	Less Security ?
easy to set up	Can fail more ✓

Pros	Cons
Slower	more Security ✓
only fails	hard to set up ?

4.

1. i7. This is up to standard and cost effective.

2. 16GB Ram. As you are dealing with lots of 4K Footage, 16GB ram will allow you to do this with less slow - issues.

3.

~~1TB~~

1TB SSD. As 4K imagery is quite large, 1TB is very useful. And using an SSD allows you to maintain speed and ease of access.

4. 4K monitor, Speakers, mouse, keyboard.

4K monitor to see the 4K imagery in the right standard. Speakers so you can hear the videos and ~~and~~ mouse and keyboard to type and click.

5. Fast Processing with little to no issues with processing the graphics.

6. Photoshop. ^x

One of the best for photo or video ^x editing.

10
60

