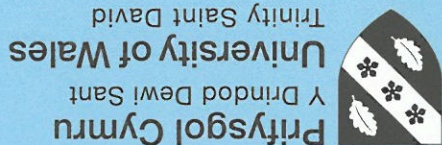


Complete, fold and seal
(see note 2 below)

SURNAME: Rimmel

FORENAME(S): Cai

Examination Answer Books



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 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.

List the numbers of the questions you have attempted	10	3
	9	6
	8	3
	7	3
	6	3
	5	4
	4	3
	3	3
	2	3
	1	3
	0	3
	9	3
	8	3
	7	3
	6	3
Total	41	

1a

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

$64 + 16 + 1 = 81$

$81 = 01010001$

2ba

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

$128 + 16 + 8 + 4 + 1 = 29$

$$\begin{array}{r} 11 \\ 22 \\ \hline 29 \end{array}$$

7bb

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

$16 + 2 = 18$

1ab

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

$64 + 32 = 96, 96 + 16 = 112, 112 + 8 = 120, 120 + 2 = 122$
 $122 + 1 = 123$

$123 = 01111011$

7ca

8 4 2 1 8 4 2 1
0 1 1 0 0 1 0 0
 $4 + 2 = 6$
 $6 = 0110$
 $A = 10$
 $A = 0110$

$6A = 01101010$

1CB

8 4 2 1
0 0 1 1
2+1=3
3=0011
C=12
8+4=12
C=1100

$3C = 0011100$

8 4 2 1
1 0 1 1
8+2+1=11
3=0011
B=1011

1Da

128 64 32 16 8 4 2 1
0 0 0 0 1 1 1 1
B3=10110011

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

128+32=160
160+16=176
2+1=3
176+3=179

$B3 = 179$

8 4 2 1
0 1 0 1
0 0 1 1
8+2+1
128 64 32 16 8 4 2 1
0 1 1 1 0 1 0 0

4=0101
21=8+8
21=08
C=1100
4C=01011100

$4C = 82$

28=70+8+08
08=91+670

1e

8421

$$8+4+2+1=15$$

4 bit Number = 15 unique values

1f

$$200 \times 300 = 60000$$

$$60000 \times 8 = 480000$$

4.2 MB

1g

$$200MB/8 = MB$$

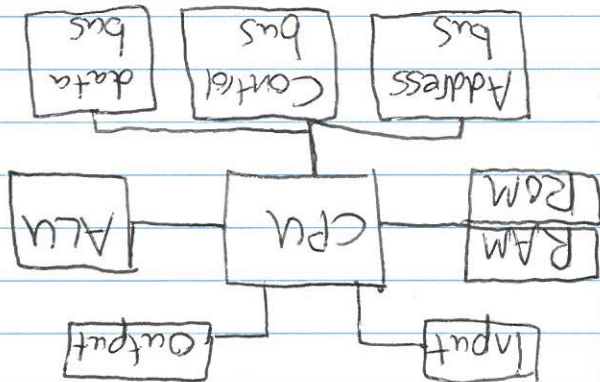
$$\begin{array}{r} 200 \\ 8 \overline{) 1600} \\ \underline{160} \\ 0 \end{array}$$

$$200 \times 8 = 1600$$

$$200MB = 1600MB$$

$$80 \overline{) 1600} = 20 \text{ seconds}$$

2a



2b

Cache is virtual memory that the CPU uses to improve processing speeds. This is achieved by temporarily storing data within the cache memory and then being able to call/load this data at better speeds. This is achieved by allocating a small amount of the RAM's storage to cache memory.

3a

- i) 8GB 8 gigabytes
- ii) 3Terabytes
- iii) 1Terabyte

3b

- i) 128MB/s
- ii) 64MB/s
- iii) 64MB/s

3c

DHCP, or domain host control protocol is a crucial element in a LAN, the DHCP will allocate IP addresses for all devices connected to that server. This will then allow any devices ~~not~~ connected to the server to now send/receive data from ~~one~~ each other. It also adds a layer of security as no outsider can send or receive data on this LAN.

4

To start this medium specification PC, I would suggest an Intel i7, this CPU has 6-8 cores, support hyperthreading and is a good choice for our PC as it can ~~also~~ support gaming whilst also allowing multitasking and word processing. 16GB of RAM would be sufficient for this PC, it offers plenty to be able to play games, however the higher quality games might struggle a little, so the user could opt for 32GB of RAM if they wish. There's not much need for an SSD as that will increase the price more, however it will also keep our processing speeds higher, and therefore could be a better option. So I would suggest a 4 terabyte SSD to keep our processing speed higher and a

4

terabyte is plenty to download videogames. The PC will need access to wifi, this can be done either with an ethernet port or with-dongles, however for gaming I would suggest an ethernet port. The PC will also need a HDMI port so that the user can connect to external devices such as a TV or monitor. A Suitable graphics card will need to be have high processing speeds and preferably 2 fans as to avoid overheating. To conclude, I chose an i7 core over a i9 as a i9 would be overkill for a medium Specification PC and a i5 has does not support multi-threading/hyperthreading or have as many cores. I chose 16GB of RAM over 32GB as 16GB is enough for our user and 32GB would add even more money on. I also chose a 4terabyte SSD over a HDD as an SSD is more efficient for our processing speeds whilst only a little more money. We also ensured that we have an ethernet port for wifi ~~port~~ and a HDMI port to connect to external devices.

