

12 Tudalen

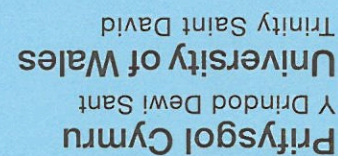
1. Rhwch yr holl wybodaeth y gofynnir amdani yn y blychau isod.
2. Rhwch eich enw yn y lle a ddarparwyd ar y dde, plygwch ef a'i selio i lawr (gan ddefnyddio'r label a ddarparwyd) i guddio'ch enw.
3. Rhaid i'r atebion fod mewn llawysgrifen ddarllenadwy. Gall yr Arholwyr naill ai anwybyddu sgript annarllenadwy, neu drefnu iddi gael ei theipio a chael yr ymgeisydd i dalu.
4. Ysgrifennwch eich atebion mewn inc.
5. Dechreuwch bob ateb ar dudalen newydd. Gwnewch unrhyw fras nodiadau yn y llyfr atebion a thynnu llinell drwyddynt.
6. Ni ddylid rhwygo unrhyw ran o'r llyfr hwn; rhaid ei gyflwyno yn gyfan.
7. Os defnyddir mwy nag un llyfr, rhwymwch hwy gyda'i gilydd gan ddefnyddio'r tagiau sydd ar gael oddi wrth y gwyliwr/gwylwyr.
8. Rhaid dychwelyd pob llyfr. Ni chaniateir mynd â llyfrau atebion, wedi eu defnyddio neu heb eu defnyddio, allan o'r lleoliad arholi o dan unrhyw amgylchiadau.

(See the other side for English version)

[illegible]

CYFENW: _____

ENW(AU) CYNTAF: _____



Instructions to Candidates

12 Pages

FORENAME(S):

SURNAME:

Complete, fold and seal
(see note 2 below)

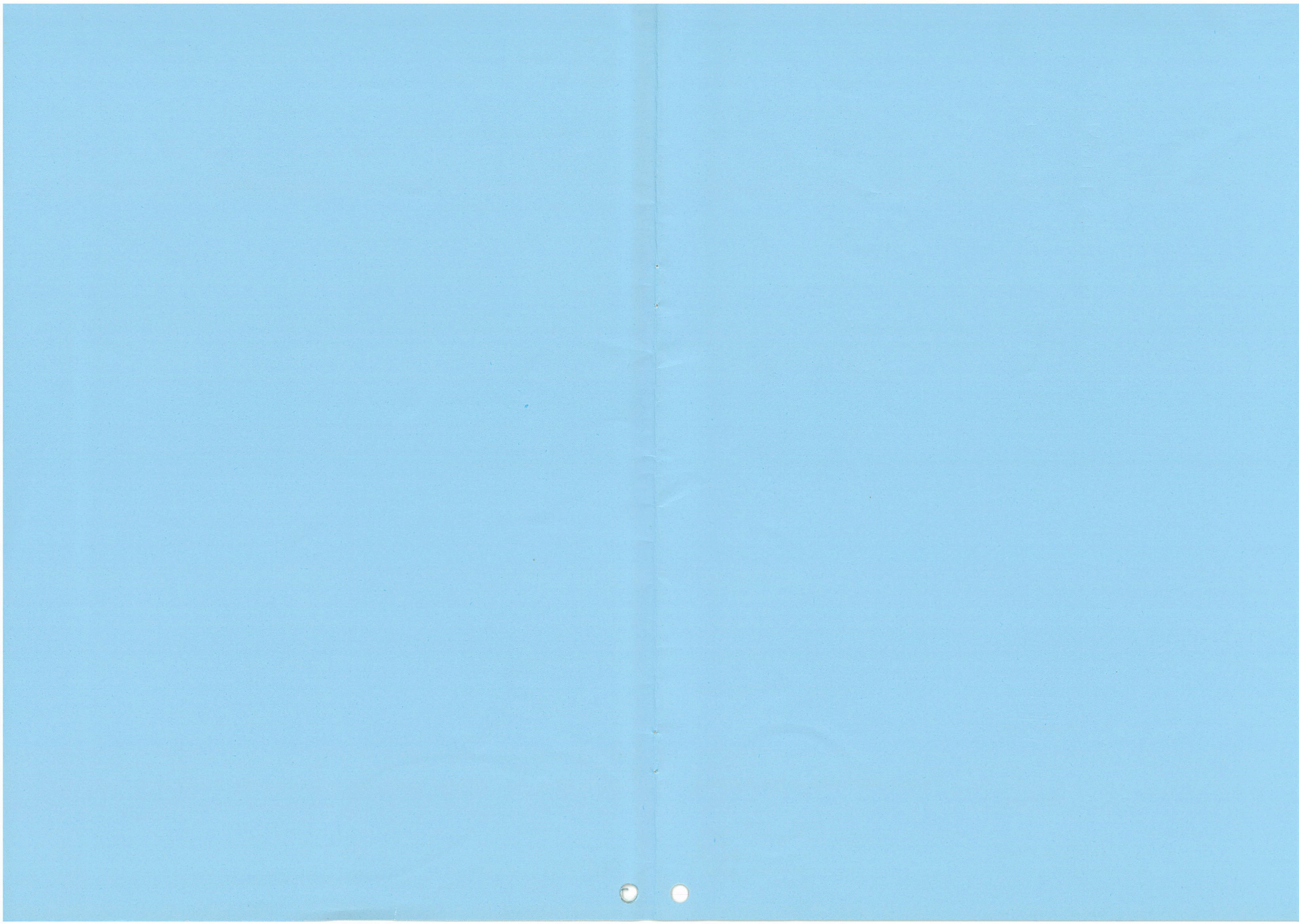
1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over, and seal down (using the label provided) to hide your name.

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	2	Title of Examination Computer Architecture and operating system	3	Module Code ACC4022	4	Date and Time of Examination 19th May, 9:30 AM	5	Examination Venue Tongsh, Main Hall	6	Seat Number E4	7	Number of Answer Books handed in 1
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[illegible]

(Gweler yr ochr arall am y fersiwn Cymraeg)



1a) ~~10~~ $8 \div 2 = 4$ r0

$$1 \div 2 = 0$$
 r1

$$81_{10} = 10_2$$

1a) ~~10~~ $1 \div 2 = 0$ r1

$$2 \div 2 = 0$$
 r0

$$3 \div 2 = 1$$
 r1

$$123_{10} = 101_2$$

1b) a)

$$(1 \times 2^7) + (1 \times 2^6) + (0 \times 2^5) + (1 \times 2^4) + (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$$

$$(1 \times 128) + (1 \times 64) + (0 \times 32) + (1 \times 16) + (1 \times 8) + (1 \times 4) + (0 \times 2) + (1 \times 1)$$

128	2	1
64	5	3
32	4	
16	2	
8	1	
4		
2		
1		

$$11011101_2 = 254_{10}$$

$$188) (1 \times 2^4) + (0 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (0 \times 2^0)$$

$$(1 \times 16) + (0 \times 8) + (0 \times 4) + (1 \times 2) + (0 \times 1)$$

$$\begin{array}{r} 16 \\ 2 \\ \hline 18 \end{array}$$

$$10010_2 = 18_{10}$$

1(a) ~~$(11 \times 16) + (10 \times 16)$~~ $96 + 160$

96
 $+ 10$

 106

$1 \div 2 = 0.1$
 $0 \div 2 = 0.0$
 ~~$0 \div 2 = 0.0$~~ $6 \div 2 = 3.0$

$6A_{16} = 100_2$

1(a) $(3 \times 16) + (12 \times 16)$
 $48 + 192$

45
 $+ 12$

 57

$5 \div 2 = 2.5$
 $7 \div 2 = 3.5$

$3C_{16} = 11_2$

d a) $(11 \times 16) + (3 \times 16)$
 $176 + 48$

176
 $+ 3$

 179

$B3_{16} = 179_{10}$

$$* (1 \text{ kb}) (4 \times 16) + (12 \times 16)$$

$$64 + 12$$

$$64$$

$$+ 12$$

$$\underline{76}$$

$$4 C_{16} = 76_{10}$$

(a) 16 different language names can be represented by a 4 bit number

$$1 \text{ kb} = 200 \times 300 = 60,000$$

$$60,000 \times 16,000,000 = 960,000,000,000$$

Uncompressed. BMP format = 960,000,000,000 Mb

$$1 \text{ fix} \quad 960,000,000,000 \div 10 = 96,000,000,000$$

50% compression ratio 10:1 = 96,000,000,000 Mb

$$1 \text{ g} \quad 80 \text{ Mb} = 0.8 \text{ Mb}$$

$$0.8 \times 100 = 80$$

$$0.8 \times 200 = 160$$

+

$$0.8 \times 50 = 40$$

$$250$$

Time for 200 Mb file = 250 seconds

- 3a.i) 50 GB
- 3a.ii) 2 TB
- 3a.iii) 1 TB
- 3b.i) 10 MB/s
- 3b.ii) 100 MB/s
- 3b.iii) 10 MB/s

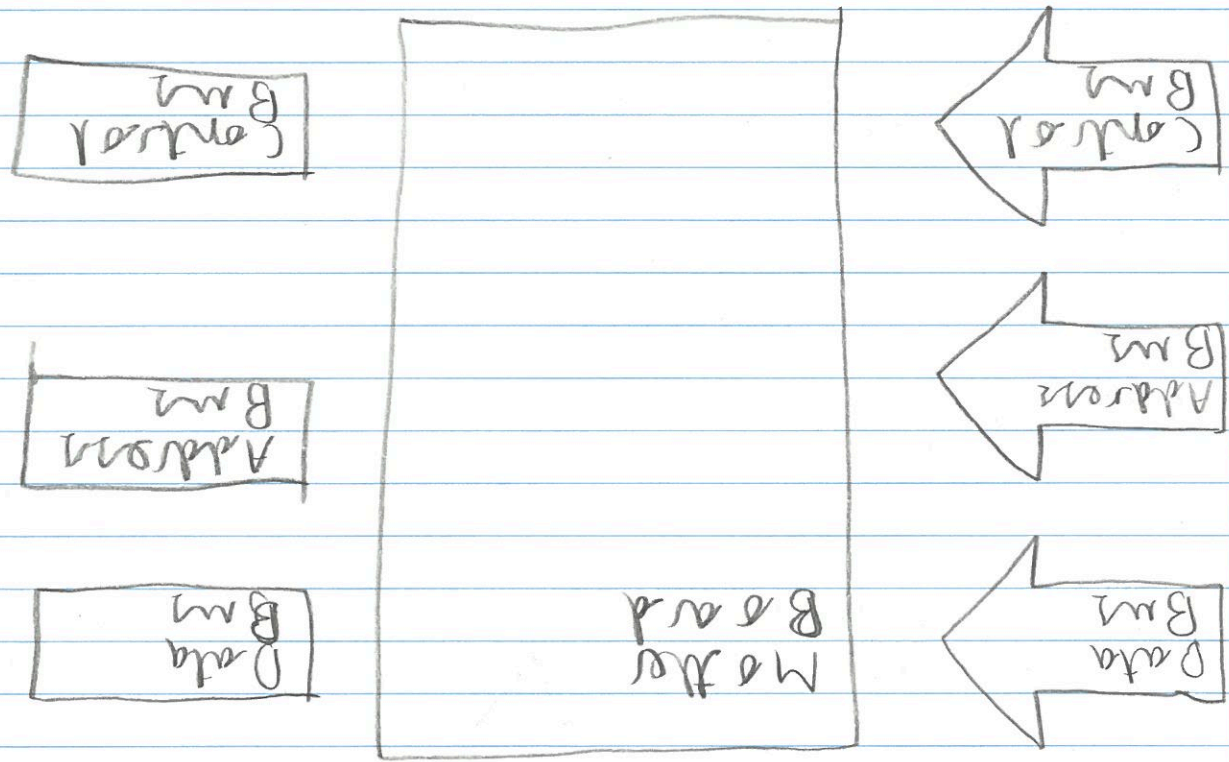
I feel as if I've never been performing all the things they want as effectively and efficiently as possible. However anything more I would be a waste as the user would not be performing enough intensive tasks to justify.

3c) The purpose of DHCP is to allocate IP addresses. It helps in eliminating most human error when allocating IP addresses.

4a) A good core CPU would allow for a great amount of instructions to be simultaneously. Always the user to game and also have memory.

4b) 16 GB of RAM would be a possible amount. Having 16 GB of RAM would allow for the user to play many modern games at most times. ~~Some~~ modern games require a minimum of 16 GB of RAM to run the game smoothly. Anything more is unnecessary as the load times were on a PC 2 RAM is not great enough to need any amount higher as it would RAM will become protest. Any 16 GB and →

2a)



2b) Cache is ~~not~~ holding data that prior information and data ~~transfers~~ information and data from the CPU. Cache allows data to be communicated from the CPU to other components. The CPU places data and places it a designated cache and places it a designated place to be. The cache either forwards through a data, address or control bus depending on the type of information and data if needed.

4c)

Having a 2TB SSD would be a suitable option. Allowing for the best experience ~~with~~ while gaming and being simple tasks. The SSD will allow for games to be run as fast as possible. Saving on load times and the very tasks. Having the 2TB of storage has become the standard due to games needing upwards of 500GB of storage space to install. Having 2TB will allow for the user to keep their games installed without the need to constantly delete and re-install games and also to keep their games ~~work~~ stored as well. However, I also think a Blue-Ray storage device is needed as the user wants to have their purchased disks at full HD. Blue-Ray will allow for the user to install their purchased disks able to be played at full HD. Finally, I feel as if having a HDD would not be as suitable as the SSD, due to it being slower. Adding on what times for loading speeds and other waiting times. Also, I feel as if anything other than ~~Blue-Ray~~ Blue-Ray for example DVD would not give the →

you could start to experience issues when running games that require higher levels of RAM. Also, the 16GB of RAM is more than enough to do simple tasks as they put other less data onto the RAM

Full HD movie experience the more want.

Question No.

4d) The user will need a keyboard and mouse for basic input such as typing for ~~the~~ and selecting for simple tasks and also for ~~the~~ to interact with the game and play it. If the 42" TV ~~does not~~ is not installed with speakers, a better set of desktop speakers, good bar or headphones will allow for audio to be outputted ~~to~~ from games and any other simple ~~tasks~~ that output audio. The listed 42" television is order to output what is going on in a game or simple task or movie. A server will be needed if connected to the PC either by W-Fi or through an ethernet port in order to play online games, in simple tasks that require an internet connection also to stream movies and TV shows through streaming services. Either Bluetooth or USB ports will be needed to connect peripherals such as the keyboard and mouse and also the ~~Bluetooth~~ for ~~server~~ output devices. A audio port ~~could~~ also be an option in order I would connect the sound output device through audio ports rather than Bluetooth as there will be no need to constantly change devices and cables can be kept to a minimum. Ethernet would be my choice of way to connect to

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the internet as it's faster than Wi-Fi and also more secure from others. A display port to connect to the PC to the TV ~~is the~~ in going on ~~the~~ my option as the display port is better with games compared to HDMI.

4e)

The graphics card should be able to run games at 1080p with a steady 60FPS. This would give the user a great experience when playing games in order to process a good level of graphics and frame rate. Anything else higher would be nice but is not needed in order to enjoy a game. However, once you start going lower than 1080p, 60FPS games start to not feel and look very poor anymore, making the experience worse.

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Examiner Only