



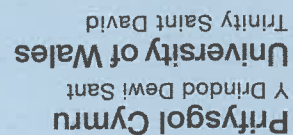
12 Pages

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.**

FORENAME(S): JAMES CONNOR

List the numbers of the questions you have attempted	Office Use
1	12 12
2	18 16
3	15 15
4	14 14
6	11 11
Office Use	70 70

(Gweler yr ochr arall am y fersiwn Cymraeg)



12 Tudalen

ENW(AU) CYNTAF:

Llenwch, plygwh a selwch (gweler nodyn 2 isod)

- | | | |
|----|---|--|
| 1. | Rhowch yr holl wybodaeth y gofynnir ardan i yn y blychau isod. | |
| 2. | Rhowch eich enw yn y lle a ddarparwyd ar y dde, plygwch ef a'i seilio i lawr (gan ddefnyddio'r label a ddarparwyd) i guddio'ch enw. | |
| 3. | Rhaid i'r atebion fod mewn llawysgrifen ddarlennadwy. Gall yr Arholwyr naill ai anwybyddu sgrïpt annarllennadwy, 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 llinnell drwyddynt. | |
| 6. | Ni ddylid rhwgo 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 gwylwyr/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. | |

[illegible]

(See the other side for English version)

1a.

Raid 0 is when the data is striped between even of the disks. This version of RAID is good in regards to storage as all of the storage space between the hard disk drives is used. The main problem with Raid 0 however is disk failure. If one of the drives fail then the whole system fails.

Raid 1 is when the data stored on one hard disk drive is mirrored to another disk. This version of Raid ~~the~~ surpasses its predecessor Raid 0 in regards to 1 disk fails the system can still run on the mirrored disks. There are several problems with Raid 1 however. The cost of all of these drives can be seen as a big disadvantage for Raid 1. As well as this only having the storage potential of half the disks you have bought often deter people from buying Raid 1.

Raid 0+1 is when data is striped and mirrored between disks. An example is with 4 disks. The data would be striped/spread between 2 disks and then mirrored onto the other 2 disks. This version of Raid is very as very

Raid 5 requires a minimum of 3 disks. The data is spread between all of the disks with a small section being reserved with how to rebuild a disk is one bit. If a disk fails break with Raid 5 then the disk just needs to be repaired and then the system runs as normal. This version of Raid is the safest as even if a disk fails, the system

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Can still run as long as it is repaired.

I recommend that they should use RAID 5

as it is the safest and most cost effective option. Even if a disk fails then the system can still run if the disk is replaced.

Can still run if the disk is replaced.

16. Disk Cleanup is an essential part of preventive maintenance in regards to the health

of a hard disk drive. Disk Cleanup removes

clearing cache-files, temporary files that

act as a buffer, on a regular basis as well as removing programs/applications

that are not used at all/very often.

Disk Defragmentation is key when it comes to preventive maintenance of a hard disk

drive. Disk defragmentation is the when

files are reorganised into a better manner.

An example of disk defragmentation is

when one of the operating system files are grouped together and all of the micros-

oft office files are grouped together. Disk

defragmentation allows the hard drive

to work at a much faster and easier

rate as all of the files of an application are all grouped together.

SMART technology is ~~critical~~ critical when it comes to monitoring the health of a hard disk drive. SMART technology

allows us to assess the reliability of a hard drive as well as analysing if the drive will fail/break.

2a

firstly I would ask the user to check the motherboard of the system to see if it

can hold 32GB of RAM as only 8GB is usable.

AS the board can probably not hold 32GB

of RAM then I would advise the user to

buy a new motherboard which can hold the

32GB of RAM.

In addition, I would inform the user that

if they are using a 32 bit operating system

then a maximum of 4GB of RAM is usable.

In order to get more RAM I would advise

the user to upgrade the 32 bit operating

system and install a 64 bit operating

system in it's place.

* Another interrupt is a timer interrupt.

This interrupt is caused by the internal

clock of the computer

An interrupt is when a signal is sent from

a device attached to a computer or a

program installed on the computer requires

the operating system to stop and focus on

what it should do next. An example of an

interrupt is a restart interrupt. A restart

interrupt often occurs after an update is

done on a piece of software e.g. windows

that prompts the user to restart their

computer.

Another interrupt is a hardware error

interrupt. A hardware error interrupt is

Arholwr yn unig

Question No.		When the operating system is interrupted by a power failure for example and needs to think about what to do next. * see previous page	3a.i. A Data Bus carries data through various elements of a PC system.	3b. The Data Bus and Control Bus are both bi-directional buses. The Data Bus sends and receives data and the control bus sends and monitors signals. The Address Bus only assigns the address.	3c. USBs are very versatile and can support up to 127 devices. They are not susceptible and are very portable. Moreover each version of the USB is backwards compatible. As well as this bandwidth is shared equally through each USB.*	USBs can also hold a lot of data and can now come with cages to prevent them from breaking. However as USBs are very small it is very easy to lose them. A lot of USBs do get stolen and they can get damaged. Also people tend to get lazy in regards to backing up their work when they have a USB which can lead to losing data. Loss if it gets missing or is stolen. * As USBs are also very cheap which is one of the reasons they are very popular.	3a.i. There will be a maximum of 30 hosts per segment	P.E.C.	Rhify Cwestiwn	Arholwr yn unig
3c.	Process managing software also allows us to identify problematic processes and gives us the chance to terminate them. Furthermore, we can see what processes are taking up the most of the CPU's power and stop them in order to prevent the CPU from overheating. Task manager also allows us to identify processes that are still running from a program that has crashed so that we can end them with hopes of restarting the program.	3c. USBs are very versatile and can support up to 127 devices. They are not susceptible and are very portable. Moreover each version of the USB is backwards compatible. As well as this bandwidth is shared equally through each USB.*	3b. The Data Bus and Control Bus are both bi-directional buses. The Data Bus sends and receives data and the control bus sends and monitors signals. The Address Bus only assigns the address.	3c. USBs are very versatile and can support up to 127 devices. They are not susceptible and are very portable. Moreover each version of the USB is backwards compatible. As well as this bandwidth is shared equally through each USB.*	USBs can also hold a lot of data and can now come with cages to prevent them from breaking. However as USBs are very small it is very easy to lose them. A lot of USBs do get stolen and they can get damaged. Also people tend to get lazy in regards to backing up their work when they have a USB which can lead to losing data. Loss if it gets missing or is stolen. * As USBs are also very cheap which is one of the reasons they are very popular.	3a.i. There will be a maximum of 30 hosts per segment	P.E.C.	Rhify Cwestiwn	Arholwr yn unig	
3a.i.	An Address Bus is a ^{one} bi-directional bus that generates addresses from the CPU. The width of an Address Bus determines how much RAM can be installed on a computer.	3a.i. A Control Bus is a bi-directional bus that sets and monitors signals on the system.	3a.i. There will be a maximum of 30 hosts per segment	P.E.C.	Rhify Cwestiwn	Arholwr yn unig				

44ii. 192.168.74.0 - 192.168.74.31

192.168.74.32 - 192.168.74.63

192.168.74.64 - 192.168.74.95

192.168.74.96 - 192.168.74.127

192.168.74.128 - 192.168.74.159

192.168.74.160 - 192.168.74.191

192.168.74.192 - 192.168.74.223

192.168.74.224 - 192.168.74.255

44iii. A gateway address is the address of the router needed to access the outside world.

46. Dynamic Host Configuration Protocol (DHCP) is essential when it comes to networking. Firstly it makes the network managers job a lot easier. DHCP servers auto assign IP addresses to nodes on the network. This helps us avoid human error when entering IP addresses and also stops IP conflict.

DHCP also allows us to determine what systems can connect to the network. A network manager could make a rules on the DHCP server to stop people from connecting and then any time they try to access the network they would be denied.

As well as this bonding can be established on a DHCP server. Bonding is where is an IP address isn't used for a set time frame then it would be removed from it's device ready to be reassigned

to a new device.

DHCP servers also support us in regards to problem solving. The server can locate and solve the problem therefore reducing the workload and resources used.



A bus topology was a commonly used

network topology in the past decades now it is mainly used in small companies.

One of the main advantages of a bus topology is that it is very quick and easy to setup. The bus topology is also very cheap to setup with ^{very little} setup cost is still used in small companies and businesses

However a bus topology can be very costly to maintain. In addition if there was a problem on the network then the whole network would go down until the problem was fixed.

Furthermore the main problem with a bus topology is that only one packet can be sent at a time. This means that the bus topology is not very expandable as the more nodes that are on a network ^{people} means that there are more people

who need to communicate with each other and a bus topology is simply not fast enough.

In addition, security is not very good in a bus topology. Every node has access to the packets being sent and as the network were to crash then a lot of work could be wasted.

Sent.

6c.

The session layer of the OSI is responsible for creating a clear session between two or more nodes on a network. The transport layer of the OSI is responsible for ensuring the transparent transfer of data over a network.

Start	Source	Destination	Number of packet	Type of packet	Data	Check
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Firstly we start with the creation of the packet. Next we store the source address of the packet, where it came from / who sent it. The next thing stored is the destination address, where you want the packet to go. Next to go to the packet is the number of the packet.

After this we need to add what type of packet we are sending for example an FTP packet, a packet with a document or an attachment. The next step is the actual payload, the main purpose of the packet.

Next is the checksum. The checksum checks if everything has been added in and if it was then it is all correct. If everything is OK then the packet is