



Complete, fold and seal
(see note 2 below)

FORENAME(S): Elhan

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 and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can accept a handwritten 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	Office Use
Q1	11
Q2	14
Q3	8
Total	33

(Gweler yr ochr arall am y fersiwn Cymraeg)



Q1

a i) Performance - Bandwidth, throughput, redundancy what is the performance and how do you maintain a high level of performance 1 ✓

Configuration - correct configuration is needed for the network. configuration is ~~the~~ backed up in case of - device failure. ✓ 1 1/2

fault - fault detection - when an error occurs can it be with fault correction - ^{detected} can the fault be corrected ✓ 3
fault prevention - put in measure to prevent faults from occurring i.e.

accountability - this is who is accessing the network, why are they accessing the network, what services are they using and when are they using them 2

security - who gets access to the data centre who gets ~~external~~ ~~as~~ ~~external~~ external access i.e. other companies. ✓ 1 1/2

a ii) Some basic features in a network management platform are the ability to access the devices remotely. and allow for the network to maintain a log of all events including ~~errors~~ errors in a ^{log} file for the admin. allows the admin to be notified in the network management software GUI. 1

11

Q2

a) no redundancy - if the central router/hub went down or got damaged the whole network would fail

F block uses udp - all other internal connections in the network use fibre, while F block uses udp connection this will reduce access speeds for F block.

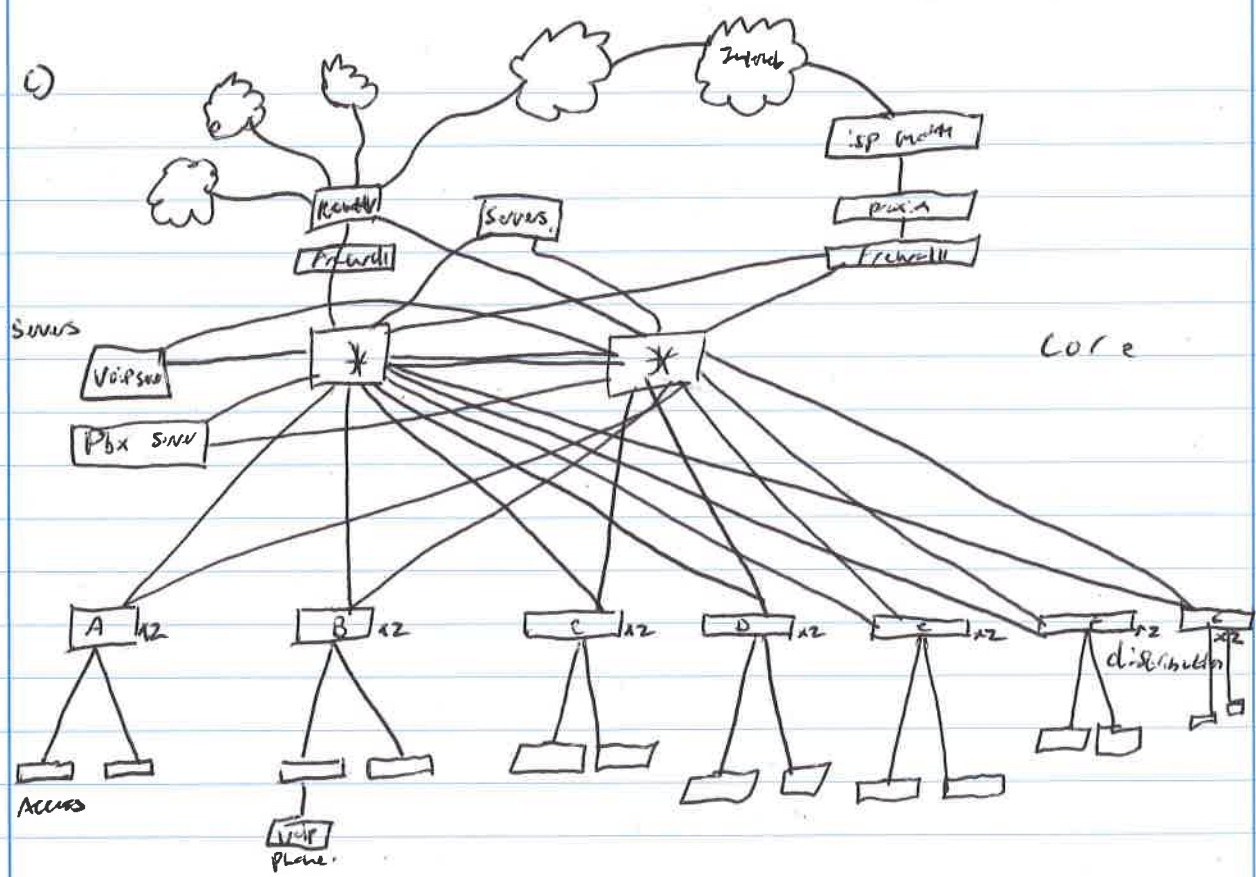
no security between the ~~proxy~~ and the switch - this is a big error as it might allow unauthorised access.

Subnetting is inconsistent.

Numerous unaddressed issues on the network.

- b) network manager - designs new network changes both physical and config response to device upgrade and maintenance.
- network administrator - implements suggested changes and maintains the day to day running of the network with configs.

c) with 2 core layer 3 switches (allows for more features and routing) which would have redundant fibre links (2 links) between the core switches ~~allowing~~ and can use fibre etherchanneling for faster link speed. can the blocks have to be separated into distribution layer switches and will have 2 for redundancy. this cuts down on the number of devices needed for each block. for F block which requires a switch for each floor this is a big change as well for F block. Continued →



→ to solve the inconsistent addresses each block will have its own VLAN ^{to prevent address overlap} in the network as a whole will have a management VLAN for remote access and have a voip VLAN so voip traffic doesn't affect the rest of the network performance.

14

Q3

type-1 hypervisor - a type 1 hypervisor interacts with the hardware on a software level, it has to run through an operating system and have software such as virtual box or VMware installed.

2

type-2 hypervisor - a type 2 hypervisor requires no software layer and can interact directly with the hardware and allows for hardware monitoring and a performance increase.

2

i) virtual machines, - a collection of a server hardware dedicated to running a virtual operating system but numerous users can access over a network. a server can have numerous virtual machines.

iii) virtual switching - allows virtual machines to communicate with each other as if they were networked physically.

iv) management tools - allows for the management of VM hardware on the network and monitoring of active VM issues or faults.