



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 read in any 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.**

Complete, fold and seal
(see note 2 below)

SURNAME: LutfORTH

FORENAME(S): Lawrence

1	Student Number	PL46632
2	Title of Examination Paper	wide area networks
3	Module Code	M6X1113
4	Date and Time of Examination	14/5/18
5	Examination Venue	Gym
6	Seat Number	G048
7	Number of Answer Books handed in	1

List the numbers of the questions you have attempted	Office Use
1	9/5
2	9
4	8 1/2
Office Use	27

(Gweler yr ochr arall am y fersiwn Cymraeg)

36%

Q 1

Extended ACL
Standard

A

i. Extended ACL - should be set up at the source of the network traffic $\frac{1}{2}$

 $\frac{3}{2}$

Standard ACL - has no destination ~~setting~~ filter
so it should be set up ~~at the~~ destination

ii

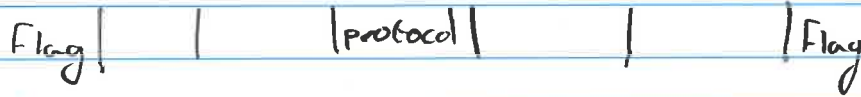
iii. ~~access list~~ ~~on~~ ~~the~~ ~~FEED~~
~~on~~

iv (1,2) "Forwarded or Discarded" "permit or Deny"
 (3) "pathway" $\times$
 (4) "S:8" $\times$
 (5) "Before" $\times$
 (6) "After" $\times$
 (7) "Discarded" $\times$
 (8) "interface" $\times$
 (9) "protocol" $\times$

6

9/2

Q2



a

Flag: small identifier packet, used to show source and destination of the frame

2 1/2

protocol: Identifies the ^{transmission} protocol used for the frame
e.g. PPP

b

~~Security~~: Basic user name and password
Security, the authentication is sent plain face. This means that the username and password are not encrypted and shown completely when sent into packet
e.g. "user" "password"

1/2

Q2 C on next page

Q2
C~~Negotiate~~ ~~Rep~~

i NCP

x

ii NCP

✓

iii LCP

✓

iv LCP

✓

v NCP

✓

vi LCP

✓

vii NCP

✓

6

9

Q4

Internet of Things (IoT)

The Internet of Things (IoT), is the Idea and realization that at some point every Device and Technology will have networking capabilities at some point. Currently we are in the ^{early} stages of achieving an IoT centric society, meaning that IoT is heavily relied on Wireless Technology that is slowly becoming a main stream solution to the ever increasing Demand of Networking on the go. An example of IoT Being used is a university's wireless network. This allows students to use their mobile phones to access the university's Network and Download power points or PDFs for their work. Another example of IoT is the Apple Smart Watch. This Device is a Digital watch that is openly an Apple OS and is used to access the internet, watch videos, make phone calls and so work. This is the perfect of an IoT Device as it is known internet carry day.

cloud computing

cloud computing is the idea that through the use of off site services and equipment, any networking solution can be sold as a Service. Originally only used for off site Storage, 3rd parties renting off storage space, cloud computing has also branched out into Software as a Service, Renting out applications such as windows office 2016, which requires internet logins for full function ability.

Infrastructure as a service, Leasing out hardware, such as fiber cables to other ISPs allowing them coverage in an area. Platform as a service,

Q4

Virtualisation

Virtualisation is the act of creating a simulation of something in a virtual space. For example a computing device can be used to run multiple different types of OS. This is done with a tool called Hypervisors. There are two types of Hypervisors:-

Type 1: as so known as "Baremetal" Hypervisors, they are connected directly to the machine's hardware. The advantage of this type, is the speed in which it can run the virtual software. The disadvantage of this type is the limited amount of virtualised applications it can store

3 1/2

Type 2: or software based Hypervisors are installed in the device as an application. For example Oracle VMware. The advantage of this is that it can run multiple virtual environments ^{for example} on the same machine. ^{it} can run multiple OS on a device. The down side is ^{their} speed is limited by the amount of Disk and RAM storage the device has.

Software Defining Networking (SDN)

SDN is the idea of having networks designed around the use of specific software. An example of this is online multiplayer ~~games~~ games, such as World of Warcraft, where an entire company's network architecture is designed around the software they provide.

1

8 1/2