End of Unit Quiz – Unit 1.4 Wired and Wireless Networks

1. What are **two** advantages of networking computers?

2. What does **WAN** stand for?

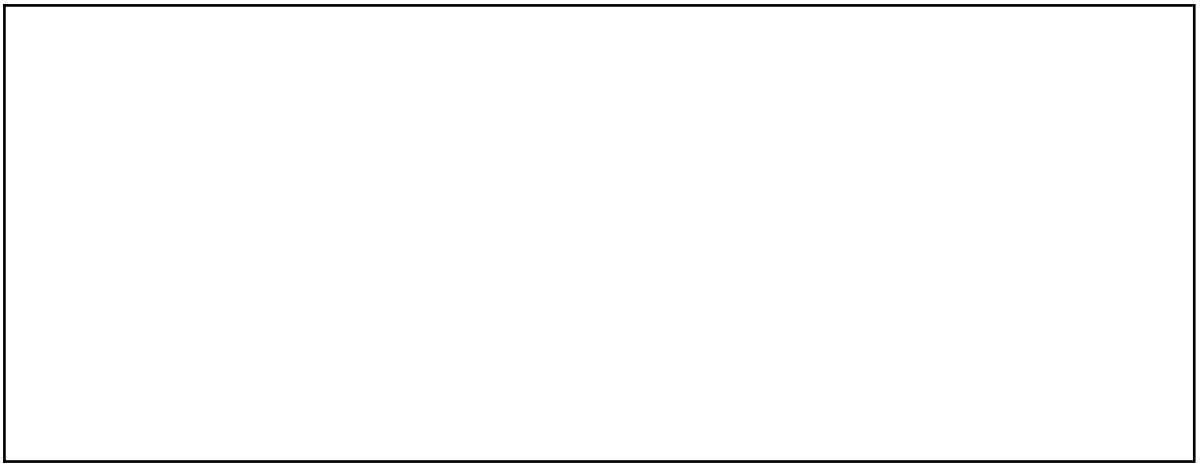
3. What is the definition of 'bandwidth'?

4. What does the acronym **mbps** stand for?

5. Using the LOR framework, write about the impact that bandwidth can have on the performance of a network.

   In your answer you might consider:

   - The speed of the network
   - The type of media being accessed.
   - The number of users.



6. What are the differences and similarities between a **LAN** and a **WAN**?

7. A large supermarket chain is setting up a new client server network. What is meant by the term ‘client server network’?

8. You plan to use a peer network model for a business. Describe **two** reasons why you have chosen this network model.

9. You have connected your laptop to your home network using wireless technology. Label the different devises stated below:

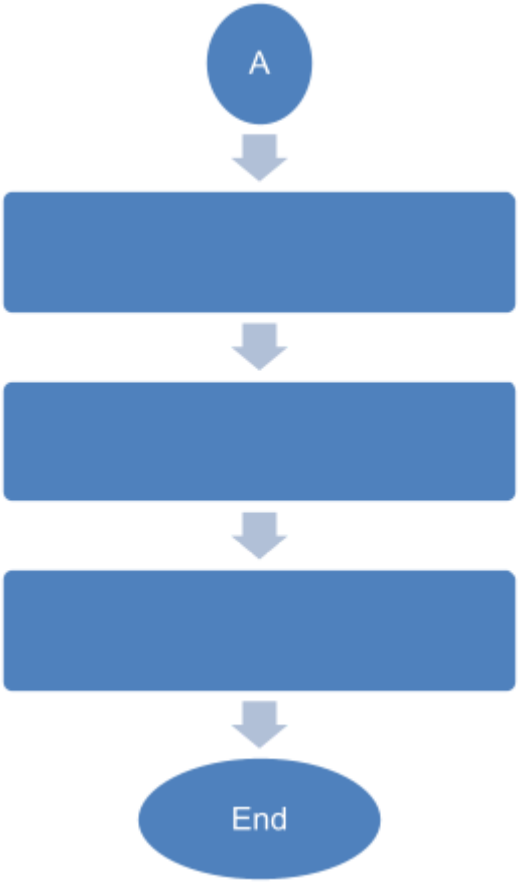
Router **WNIC** **Modem**

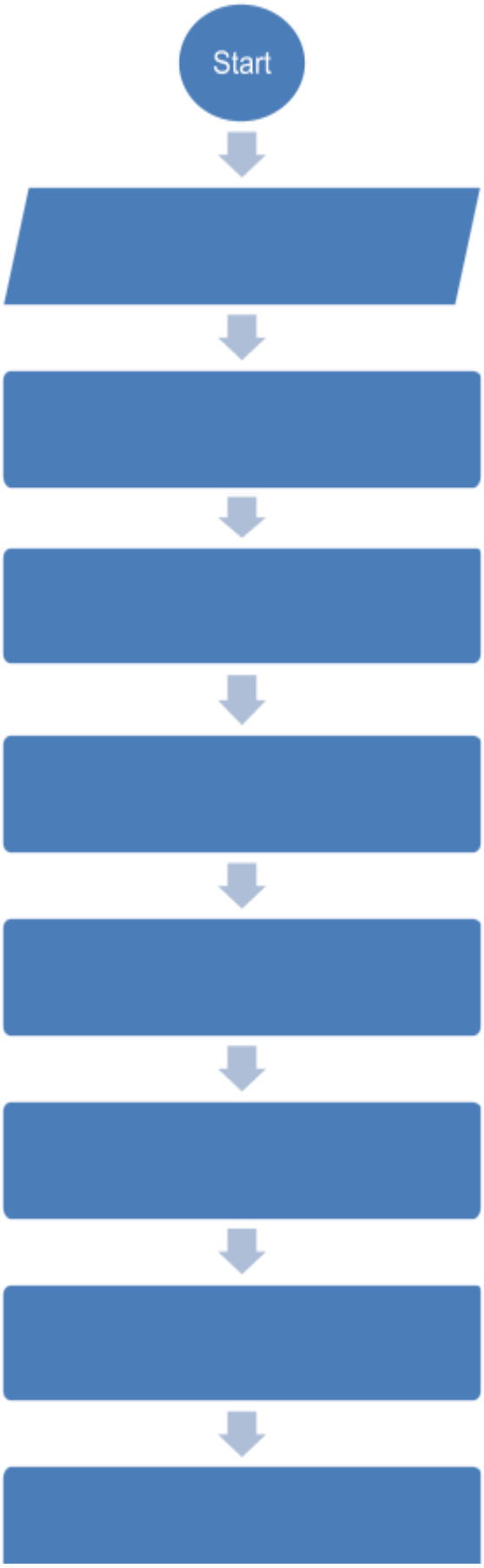
10. What is the purpose of a router?

11. What does **DNS** stand for?

12. You want to check out the latest team news for your favourite football club www.soccerfc.com. When you type the address into a browser, the page loads. The main steps that take place during this process are detailed below. Place these steps in order in the flow chart:

- Enter URL into browser
- DNS responds with details of the name server
- Name server responds with IP address of the host
- Server hosting the site sends across content
- ISP sends IP address to the browser
- Browser requests IP address of site from ISP
- Website displayed to the user
- ISP asks name server for site IP address
- Browser receives website content
- Browser sends request to the server hosting the site
- ISP requests IP address from DNS server





13. Many fast broadband connections use fibre optic cable instead of copper. What are **two** reasons why fibre optic cable is the preferred choice?

14. Why is using cloud computing useful to some businesses?

15. What is meant by the term 'virtual network'?

16. What is meant by the tern **VPN**?

17. You have a games console in your bedroom and a video streaming device in your lounge. You use both devices to watch movies. The Wireless Access Point is located in the lounge. You have found that you are able to stream movies at a far higher quality in the lounge than in your bedroom. Why is this?

18. Place the following types of cables into order of speed, from slowest to fastest.

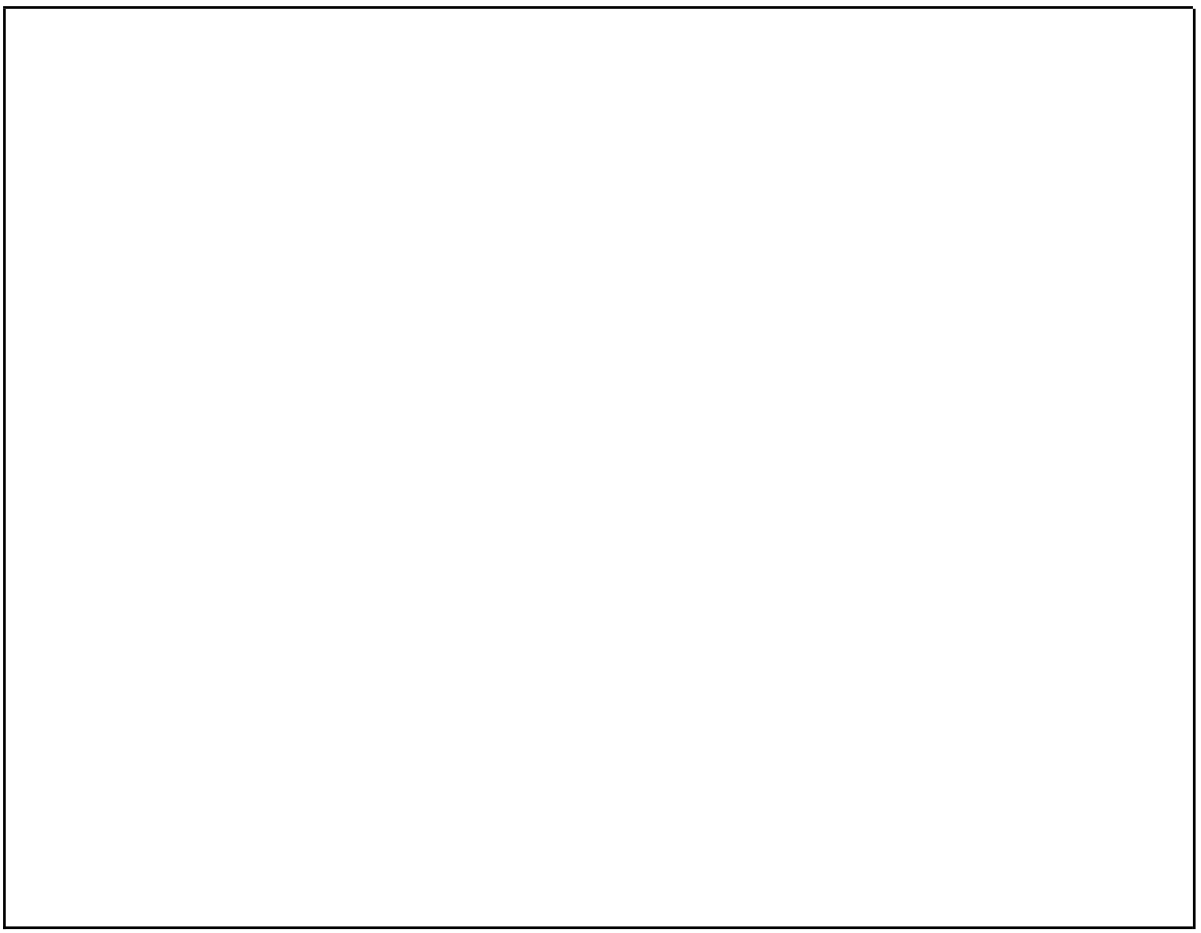
- Cat 5e
- Cat 6
- Fibre Optic
- Cat 5

19. Fill in the table with whether each of the statements are true or false.

Statement	**True / False**
A peer-to-peer network has one central controlling computer.	
Peer-to-peer networks are easier to set up than client-server networks.	
Peer-to-peer networks allow individual devices to share files between each other.	
Peer-to-peer networks are commonly used in large organisations.	
It is easier to implement security procedures throughout a client server network than a peer to peer network.	

20. Using the following components, draw how a client server network may be set up.

- Server
- 2 x workstations
- Switch
- Printer



Answers

1. What are **two** advantages of networking computers?

- It is easy to share documents. Different users are able to work on the same document at once.
- Only one internet connection is required as it can be shared between every device connected to the network.
- Centralised backups can be carried out automatically.
- Software updates / patches can be automatically pushed out by the server to ensure that all devices are up to date.
- Users can log in to any machine connected to the LAN as accounts are stored centrally on the server.

2. What does **WAN** stand for?

Wide Area Network.

3. What is the definition of 'bandwidth'?

Bandwidth is the amount of data that can be transmitted
…in a given period of time.

4. What does the acronym **mbps** stand for?

Megabits Per Second.

5. Using the LOR framework, write about the impact that bandwidth can have on the performance of a network.

In your answer you might consider:

- The speed of the network
- The type of media being accessed.
- The number of users.

Indicative Content:
The amount of available bandwidth has a major impact on the performance of a network. The larger the amount of available bandwidth that is available the more data that can be transmitted in a given period of time.

If there are a large number of users on the network the amount of bandwidth available to each user may be limited. This will result in data being transmitted at a slower rate which will slow down the performance of the network.

Where large media files are being streamed the amount of available bandwidth is particularly important. Should a number of users be watching streaming HD content demand on bandwidth will be high. If there is insufficient bandwidth this could result in a reduction of quality in the video.

6. What are the differences and similarities between a **LAN** and a **WAN**?

A LAN covers a small geographical area whereas a WAN covers a wide geographical area.
All of the telecommunications equipment used in a LAN is owned by the organisation whereas a telecommunications company provides infrastructure for a WAN.

7. A large supermarket chain is setting up a new client server network. What is meant by the term 'client server network'?

All devices are connected to a central server.
The central server receives and processes requests from 'clients'.
The server stores user account details and files.

8. You plan to use a peer network model for a business. Describe **two** reasons why you have chosen this network model.

- All devices have equal status, there is no central server which makes them relatively easy to maintain.
- There is no dependence on the server. If one device fails only the information stored on that device will be inaccessible. The network will still operate without that node.
- They are relatively easy to set up without the need for a network manager.

9. You have connected your laptop to your home network using wireless technology. Label the different devises stated below:

Router **WNIC** **Modem**

10. What is the purpose of a router?

To transmit data …between at least two different networks.

11. What does **DNS** stand for?

Domain Name System.

12. You want to check out the latest team news for your favourite football club www.soccerfc.com. When you type the address into a browser, the page loads. The main steps that take place during this process are detailed below. Place these steps in order in the flow chart:

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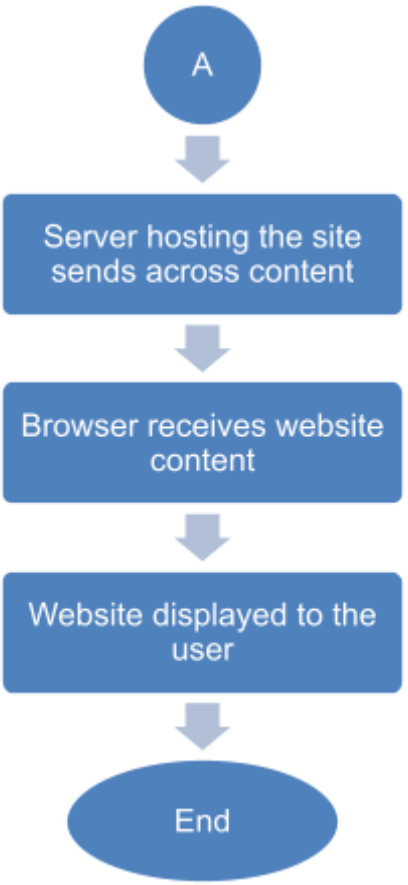
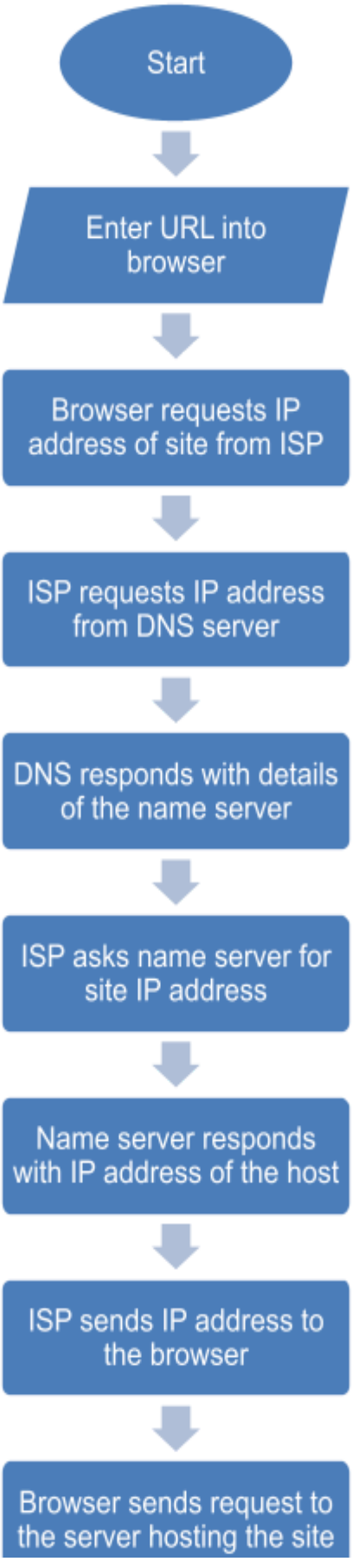

A
Server hosting the site sends across content
Browser receives website content
Website displayed to the user
End


Start
Enter URL into browser
Browser requests IP address of site from ISP
ISP requests IP address from DNS server
DNS responds with details of the name server
ISP asks name server for site IP address
Name server responds with IP address of the host
ISP sends IP address to the browser
Browser sends request to the server hosting the site

13. Many fast broadband connections use fibre optic cable instead of copper. What are **two** reasons why fibre optic cable is the preferred choice?

- Fibre optic cables transmit data through light so do not suffer from electrical interference.
- Data can be transmitted over very large distances without any loss of signal quality.
- They are able to transmit data at a higher bandwidth.

14. Why is using cloud computing useful to some businesses?

- Any user within the business will be able to load up the files on any device in any location as long as they have a data connection and the necessary permission.
- If they runs out of storage capacity it is easy to increase.
- All of the hardware and maintenance tasks will be performed by the cloud provider, they will not have a pay for specialist staff.
- The data will be automatically backed up.
- There is no large upfront cost, They will just have to pay a regular fee for the cloud services.

15. What is meant by the term 'virtual network'?

A virtual network is part of a LAN or WAN
….which is configured so that only certain devices can see each other
….and is implemented using network virtualisation methods.

16. What is meant by the tern **VPN**?

A Virtual Private Network
….that can be used to send data securely over a WAN.

17. You have a games console in your bedroom and a video streaming device in your lounge. You use both devices to watch movies. The Wireless Access Point is located in the lounge. You have found that you are able to stream movies at a far higher quality in the lounge than in your bedroom. Why is this?

The further the device is from the WAP the weaker the signal will be
….so the lower the bandwidth will be.
Objects such as walls and doors will reduce the signal strength.
Other electrical devices could reduce the signal strength and interfere with the signal.

GCSE (9–1)

COMPUTER SCIENCE

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Peer-to-peer networks are commonly used in large organisations.	False
It is easier to implement security procedures throughout a client server network than a peer to peer network.	True

20. Using the following components, draw how a client server network may be set up.

- Server
- 2 x workstations
- Switch
- Printer

Server connects to switch
Both workstations connect to Switch
Printer connects to switch