

# Networks

1 In an office there are six computers, a scanner and a router connected together in a Local Area Network (LAN).

a) Define the term Local Area Network (LAN).

..... [1]

b) State **two** advantages of connecting the computers together into a Local Area Network.

1 .....

2 .....

c) Each computer is connected with a wireless keyboard and mouse in a PAN using Bluetooth®. Explain **one** difference between a PAN and a LAN.

..... [2]

[Total 5 marks]

2 Explain the risks of using computer networks rather than standalone machines.

.....

[Total 4 marks]

3 Dishley Academy is connected to other schools in the area using a Wide Area Network (WAN).

a) Describe what is meant by a Wide Area Network (WAN).

Hint: WANs connect LANs.

..... [2]

b) Explain **two** of the potential benefits of using a WAN to connect the Academy to other schools.

1 .....

2 .....

[4]

[Total 6 marks]



# Networks — Wired and Wireless

**Warm-Up**

Draw a line between each type of cable and its description.

Coaxial cable

Contains twisted pairs of copper wires.

Fibre optic cable

A type of copper cable that consists of a central wire protected by a metal shield.

CAT5e Ethernet cable

A type of cable that uses light to carry signals.

1 Suggest a type of network cable that would be appropriate for these businesses.

a) A bank who want the fastest possible connection between their offices at different sites.

..... [1]

b) A hotel who want to put wired Internet access in every hotel room.

..... [1]

[Total 2 marks]

2 Jane works from home. She wants to connect her laptop and television to her home Local Area Network (LAN). Jane is going to use a router to connect her LAN together.

a) Jane's router also performs the functions of a switch and a Wireless Access Point (WAP). Which of these statements about network devices are true? Shade **two** ovals only.

- A Routers are used to transmit data between networks.
- B Switches are used to change the network from wired to wireless.
- C Routers that also include a WAP are always faster than routers that don't.
- D You can set up a LAN without using a router.

[2]

b) Discuss the benefits and drawbacks of Jane using a wireless network rather than a wired network to connect her devices to the router.

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[6]

[Total 8 marks]



# Network Topologies

1 A leisure centre has a Local Area Network (LAN) consisting of five computers and a central server connected in a star topology.

a) Draw a diagram of the leisure centre's star network.

You don't need to draw each device accurately as long as it's labelled.

[2]

b) Give **three** advantages of the star topology.

- 1 .....
- 2 .....
- 3 .....

[3]

[Total 5 marks]

2 In a bus topology, all of the devices are connected directly to a bus (main backbone cable) and a terminator is placed at either end of the bus.

a) State the purpose of a terminator.

..... [1]

b) Draw a diagram showing a printer, three computers and a router connected in a bus network.

[2]

c) Explain **one** advantage and **one** disadvantage of bus topologies compared to star topologies.

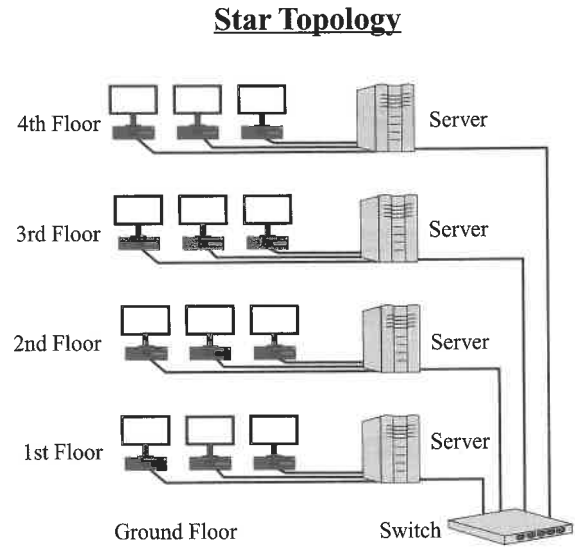
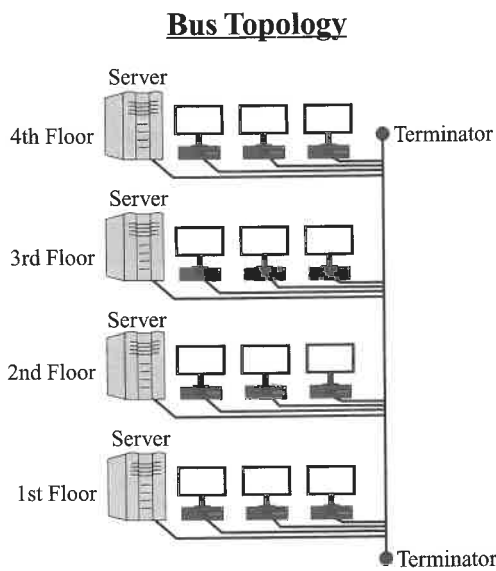
Advantage .....

Disadvantage .....

[4]

[Total 7 marks]

- 3 A company has its employees' computers spread across four floors. They are looking at two different ways they can connect the computers and servers in a network.



- a) In the bus topology, describe the effect that a break in the main cable would have on the rest of the network.

.....  
 ..... [2]

- b) In the star topology, describe the effect that a failure of the ground floor switch would have on the rest of the network.

.....  
 ..... [2]

- c) The company will be expanding their network in the future and want to make sure that their network does not become too slow. Shade **one** oval to show the network topology that they should use. Explain your answer.

Bus Topology  Star Topology

.....  
 .....  
 .....  
 ..... [4]

[Total 8 marks]

**Exam Practice Tip**

Make sure you get to grips with what the different network topologies look like. Having a clear picture in your mind of the layout of each network topology will help you to identify their strengths and weaknesses.