



1.2.1 Networks

Oct/NOV 2002. P1

8. Explain the importance of bit rates to communication. Refer to the characteristics of two types of data file which may need to be transmitted around a network system. [6]

May/June 2004. P3

8. Explain the part played in network systems by

- (i) switches;
- (ii) routers;
- (iii) bridges;
- (iv) modems.

[8]

May/June 2005. P3

5. (b) LANs are used to help communication around the company. Explain the purpose of

- (i) routers,
- (ii) bridges,
- (iii) modems

as parts of the company computer networks.

[6]

Oct/NOV 2006. P1

Authors send books to a publishing company. At this stage books are text documents with any illustrations being added at the end of the publishing process.

6. When a book is sent to the company by an author, it is sent in hard copy form as well as on a disk. It is read and, if accepted, is then sent electronically to a person called a copy editor. The copy editor reformats the text to make it suitable for publication.

(c) All copy editors are expected to have a stand-alone computer.

Copy editors need to communicate with head office. State what extra hardware and software the company would have to supply to each copy editor to allow this communication. Give reasons for your answers. [4]

May/June 2007. P1

A garage sells cars and also has servicing and parts departments.

Details of customers who purchase cars are stored in a file.

Details of cars for sale are stored in another file.





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Some computers are used in the offices for clerical tasks like word processing and accounting. Some are in the showroom so that customers can see details of cars and videos of them being driven. The computers used at the garage are networked and all data is stored on a central server.

10. (b) (i) Use examples from this application to explain the relationship between bit rates and the way that the data in the files is used. [4]

Oct/NOV 2008. P1

6. (a) State two extra pieces of hardware and one piece of software which would be necessary to create the network. [3]

Oct/NOV 2008. P3

5. A company introduces a new computer system in its headquarters building.

Each of the offices has a network of computers. The individual networks are joined together to allow communication throughout the building.

(a) Explain the purpose of the following network components and how they would be used in the company's offices.

- (i) Bridges
- (ii) Routers
- (iii) Modems

[6]

May/June 2009. P1

A company specialises in creating websites for customers.

11. A finished website will be made available across the internet or on a local area network or both.

Explain the relationship between the bit rates available on the network and the types of output format used on the website. [4]

Oct/NOV 2009. P12

4. (a) (ii) Explain the relationship between bit rates and the use of data content in a network. [2]

(b) Describe the additional hardware required when a LAN is connected to a WAN. [4]

May/June 2010. P13

1. (b) (i) Explain why a NIC is used when a computer is to communicate with other computers. [2]

(ii) State one other piece of hardware which is needed for successful communication to take place. Justify your answer. [2]





1.2.1 Networks

Oct/NOV 2010. P12/P13

6. (a) State two items of hardware and one item of software used to create a local area network (LAN) with a number of computers. [3]

Oct/NOV 2010. P31/P32

1. A company employs five sales assistants in an office. The sales assistants all use stand-alone computers. The company decides to network the computers in a local area network (LAN).

(b) The accounts department is in an office on a different floor of the building. It has a star network to allow access to the data required by the workers in the accounts department. It is decided to link the two networks so that there can be communication between them.

The chief accountant also needs access to the Internet.

Describe how each of the following network components would be used in this example:

- (i) switch
- (ii) bridge
- (iii) modem

[6]

Oct/NOV 2011. P11

8 The computers in a school classroom are networked. It is decided that this network should be linked to the Internet.

(a) State two items of hardware and one type of software which would be necessary to connect this network to the internet. [3]

(b) When a video file is accessed on a network it can be watched as it is downloading or it can be stored for watching at a later date.

Explain the relationship between the required bit rates and the data being transmitted. [4]

Oct/NOV 2011. P12

8 A building firm has a main office with stand-alone computers for the workers to use.

It is decided to link these stand-alone computers to make a network.

(a) State two items of hardware and one type of software which would be necessary to create the network. [3]

Oct/NOV 2011. P13

8 A factory specialises in making components for cars.





1.2.1 Networks

The offices of the factory have a number of stand-alone computers. The decision is taken to link these machines in a network.

(a) (i) State two items of hardware which would be necessary to network the computers. [2]

(ii) State one extra item of hardware which would be required if the network was to be linked to the Internet. [1]

May/June 2014. P31/P32

6 A business has a customer services section. The business is considering a new Local Area Network (LAN) for this section.

(c) *“I understand if the network is to be a wired network, there is a choice about the type of cabling used.”*

Name and describe two types of cabling. Suggest a benefit for each cable type. The benefits should be different. [6]

(d) *“Many customer enquiries will be dealt with over the World Wide Web; so each computer in the LAN needs access to the Internet”.*

Name the additional hardware needed to provide access to the Internet. [1]

(e) *“With the Internet connection, I am concerned that we will get unauthorised access to our LAN.”*

Name the hardware and/or software needed to prevent unauthorised access. [1]

(f) *“Customer Services staff must be able to get access to a centralised store of customer data. Our business deals with thousands of customers. They produce millions of transactions.”*

Explain what hardware and software will be needed to enable this. [3]





1.2.1 Networks

Computer Science (9608)

May/June 2015. P11/ P12

5 (a) Telephone calls can be made by using:

- conventional telephones (using the Public Service Telephone Network (PSTN) system) over a wired network
- a computer, equipped with speakers and microphone, connected to the Internet)

Put a tick in the correct column to match each description to the appropriate communication method.

Description	Conventional telephone using PSTN	Internet-based system
connection only in use whilst sound is being transmitted		
dedicated channel used between two points for the duration of the call		
connection maintained throughout the telephone call		
encoding schemes and compression technology used		
lines remain active even during a power outage		

[5]

(b) Distinguish between the Internet and the World Wide Web (WWW).

[3]

(c) Name the hardware device that is being described:

- A device that transfers data from one network to another in an intelligent way. It has the task of forwarding data packets to their destination by the most efficient route. [1]
- A device used between two dissimilar LANs. The device is required to convert data packets from one protocol to another. [1]
- A device or software that provides a specific function for computers using a network. The most common examples handle printing, file storage and the delivery of web pages. [1]

Oct/Nov 2015. P11/P13

1 (a) Explain the term bit streaming.

[2]





1.2.1 Networks

(b) A person watches a film streamed from a website on a tablet computer.

(i) Give two benefits of using bit streaming for this purpose. [2]

(ii) State two potential problems of using bit streaming for this purpose. [2]

(c) Explain the terms on-demand bit streaming and real-time bit streaming. [4]

6 A company operates a chemical plant, which has a number of processes. Local computers monitor these processes and collect data.

The computers transfer these data to a central computer 50 km away. A telecommunications company (telco) provides cables.

Engineers at the telco had to decide which type of cable to use. They considered the use of either copper cable or fibre optic cable.

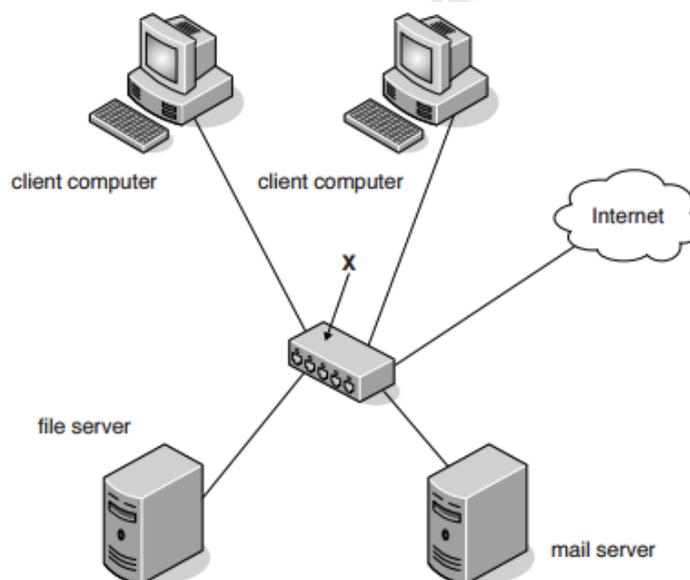
State two benefits of each type of cable.

Each benefit must be clearly different. [4]

7 (a) (i) Describe what is meant by a client-server model of networked computers. [2]

(ii) Give two benefits of using the client-server model. [2]

(b) The diagram shows a computer network with connection to the Internet.



Name the hardware device labelled X. [1]

May/ June 2016. P11/ P12

5 (a) Telephone calls can be made by using:



03-111-222-ZAK



OlevelComputer
AlevelComputer



@zakonweb



zak@zakonweb.com



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www.zakonweb.com



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- conventional telephones (using the Public Service Telephone Network (PSTN) system) over a wired network
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Put a tick (☑) in the correct column to match each description to the appropriate communication method.

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May/ June 2016. P13

6 (a) Explain the difference between the World Wide Web (WWW) and the Internet.

[2]

(b) Three methods of connecting devices include fibre-optic cables, copper cables and radio waves. The table below gives descriptions relating to these connection methods.

Tick (✓) one box on each row to show the method that best fits each description.

Description	Fibre-optic cable	Copper cable	Radio waves
Wireless medium			
Twisted-pair is an example			
Uses light waves			
WiFi			
Fastest transmission medium			

[5]





1.2.1 Networks

(c) Bit streaming is used for both real-time and on-demand services.
Describe **one** difference between real-time and on-demand bit streaming.

[2]

Oct/Nov 2016. P11/P13

6 A user watches a video available on a website. The website uses on-demand bit streaming.
Describe how it is possible to watch the video without it continually pausing.

[4]

May/June 2018. P11

1 Four communication media and five features are shown.
Draw one or more lines from each communication media to the appropriate feature(s).

Communication media

Fibre-optic cable

Radio waves

Copper cable

Satellite

Feature

Can be twisted pair or co-axial

Transmits light pulses

Large range of wavelengths

Least likely to have interference

Wireless transmission

[6]

5 A college has a client-server network.

(a) The college has a file server and other servers.
State the purpose of **two** other servers in the college network.

[2]

(b) The students use the network to access the Internet.
One student stated, 'The Internet and the World Wide Web are the same thing'.





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Tick (✓) **one** box to indicate whether this statement is true or false.

True	False

Justify your choice.

[5]

