

7 Web browsers use Internet Protocol (IP) addresses.

(a) Complete the table by describing the following types of IP address.

Type of IP address	Description
Static	
Public	

[2]

(b) Consider the following IP address:

256.0.0.A

Circle whether this IP address is IPv4, IPv6 or an invalid IP address.

IPv4

IPv6

Invalid

Justify your choice.

[2]

(c) A user types a Uniform Resource Locator (URL) into the address bar of a web browser to access a web page.

Explain how the web browser uses the URL to access the web page.

(d) A bitmap file is downloaded. The image has a maximum of 256 colours and measures 512 pixels wide by 2048 pixels high.

(i) Calculate an estimate of the file size of the bitmap in kibibytes.

Show your working.

Working
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.....
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File size of bitmap kibibytes [2]

(ii) Explain why the actual file size may be larger than the one calculated in (d)(i).

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..... [2]

(iii) Explain how a bitmap image is compressed using run-length encoding (RLE).

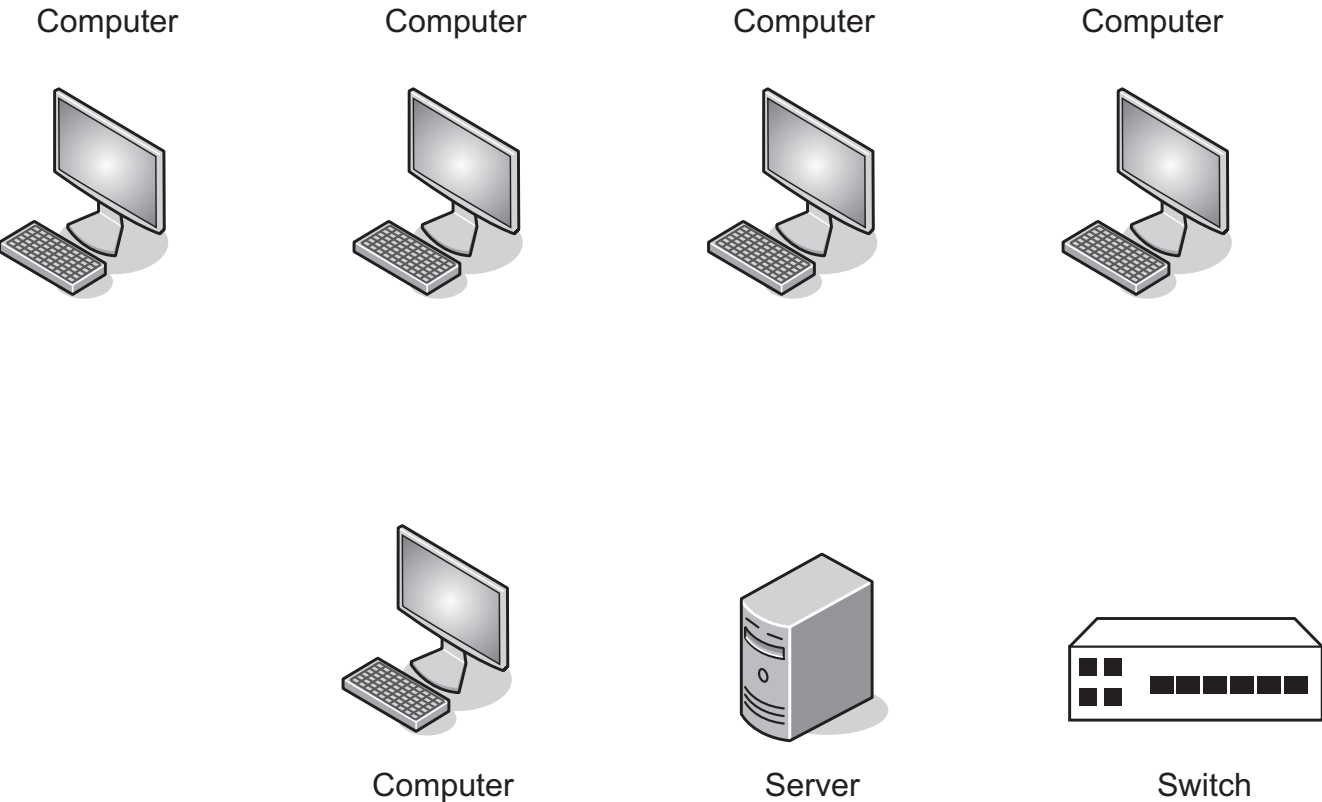
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..... [2]

5 A local area network (LAN) has five computers, one switch and one server.

(a) Describe the characteristics of a LAN.

[2]

(b) Complete the following diagram to show how these devices are connected in a star topology.



[2]

(c) Describe how packets are transmitted between two hosts using a star topology.

[3]

(d) Another type of network is a bus network.

Ethernet is used to transmit and receive data between the devices on the bus network.

Describe how collisions are detected and managed on this network.

[3]

(e) Complete the table by identifying **one** threat to computer and data security posed by networks and the internet.

Describe the threat and give a method of prevention.

Threat	Description	Prevention

[3]

8 A restaurant accesses software and stores data using cloud computing.

(a) (i) Give **two** benefits of storing data using cloud computing.

1

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2

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[2]

(ii) Give **two** drawbacks of using cloud computing.

1

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2

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[2]

(b) The restaurant uses touchscreens as input devices to allow staff to select items from a menu.

(i) Explain how a touchscreen converts the point of touch to a selection from the menu.

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[4]

(ii) The image files that are displayed on the touchscreen have been corrupted.

Identify **two** examples of utility software that could be used to recover the images.

1

2

[2]