

5 A computer is connected to a network.

- (a) The computer has a network interface card (NIC) that has a media access control (MAC) address.
- (i) One purpose of the NIC is to provide the computer with a MAC address.

Describe the other purposes of the NIC.

[2]

- (ii) Identify **three** characteristics of a MAC address.

1

2

3

[3]

- (b) The network allocates an internet protocol (IP) address to the computer.

- (i) Tick (✓) **one** box to identify a valid IPv4 address.

A

110:255:2:1

B

1.30.2FF.A9

C

3.162.74.3

D

8.0.257.6.8

[1]

(ii) Identify the device in a network that can automatically assign an IP address to a computer, each time the computer connects to the network.

..... [1]

(c) A user accesses the world wide web using a web browser.

(i) Define the term world wide web.

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..... [1]

(ii) The uniform resource locator (URL) for a website includes the protocol hypertext transfer protocol secure (HTTPS).

Explain how HTTPS makes the transmission of data secure.

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..... [4]

(iii) The protocol is one part of a URL.

Give the other **two** parts of a URL.

1
.....
2
.....
..... [2]

7 A computer has both a media access control (MAC) address and an internet protocol (IP) address.

(a) Tick (✓) **one** box to show which of the statements is correct about the MAC address.

- A

It is assigned by the manufacturer.

☐
- B

It is assigned by a router.

☐
- C

It can be static or dynamic.

☐
- D

It is made up of three different parts.

☐

[1]

(b) An IP address can have an IPv4 or IPv6 format.

(i) Give an example of an IP address that has an IPv4 format.

..... [1]

(ii) Give **two** characteristics of the IPv6 format.

- 1

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- 2

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[2]

6 A user wants to connect their computer to a network.

(a) (i) Identify the component in the computer that is needed to access a network.
..... [1]

(ii) Identify the type of address that is allocated to the component by the manufacturer, which is used to uniquely identify the device.
..... [1]

(b) A dynamic internet protocol (IP) address is allocated to the computer when it is connected to the network.

(i) Identify the device on the network that can connect multiple devices and automatically assign them an IP address.
..... [1]

(ii) Describe what is meant by a dynamic IP address.
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..... [3]