1   A coffee company has coffee shops located across the country. Each shop has its own Local Area Network (LAN). The company wants to connect the shops in a Wide Area Network (WAN).

   (i) Describe **two** characteristics of a LAN.

   1

   2

   ----

   [2]

   (ii) Describe **two** characteristics of a WAN.

   1

   2

   ----

   [2]

2   Elegant Bags is a company that makes designer handbags. It has decided it wants to sell its products online.

Elegant Bags puts its website on its servers which are given a public IP address. It also purchases the domain name `elegantbagsonline.co.uk`.

Explain the automated process that takes place that allows customers to access the site when they enter the domain name into their browser.

---**[3]**

3(a) TCP/IP uses packet switching.

Explain what is meant by packet switching.

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[4]

(b) Zuhair wants to create a Local Area Network (LAN) for himself and his family, in his home.

Describe what is meant by a LAN.

----

[2]

4   The protocol TCP/IP uses a 4-layer stack.

(i) Complete the table below to show the 4 layers in the TCP/IP stack.

Application
Link

[2]

(ii) Explain **one** advantage of using layers in the protocol TCP/IP.

----
[2]

5   The internet uses a set of protocols referred to as the TCP/IP stack. The TCP/IP stack consists of four different layers, each with its own set of protocols.

(i) Explain why protocols are important on a network.

---**[2]**

(ii) State the name of the **four** layers of the TCP/IP stack.

1 ---

2 ---

3 ---

4 ---

[4]

6   A company releases an Internet connected fridge. Users can email messages to the fridge and it puts them on its display.

The fridge uses the TCP/IP stack.

Explain what is meant by the term 'TCP/IP stack'.

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[3]
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7   Modern computer systems use networking in order to share hardware, software and data.

Networking uses protocols such as TCP/IP.

State what is meant by the term 'protocol'.

----

[1]
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8   The office workers of a large company each use a standalone computer.

The company is considering networking the machines.

(i) Describe what is meant by a LAN.

---[2]

(ii) State **two** advantages of having a LAN instead of a set of stand-alone machines.

---[2]

9   Explain **two** advantages of using packet switching instead of circuit switching to send a message between two computer on a network.

1

2

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[4]

END OF QUESTION PAPER