1. Bill needs to send a document across a network to Ben. Write an algorithm to show how packets are used to send the document, starting from when Bill clicks send (sending), and finishing when Ben reads the document (receiving).

[6]

2. A house has computers in each room and a central router. Every room allows both Ethernet and WiFi connections to the router.

A user enters a uniform resource locator (URL) into a web browser on one of the computers in the house.
A system is then used to find the IP address of the web server associated with the URL.

i. Name the system which matches URLs to IP addresses on the web.

[1]

ii. The following statements describe what happens after the IP address has been found and returned to the user's computer.

There are **five** missing statements in the table.

Write the letter of the missing statements from the table in the correct place to complete the description.

1 The request is put into packets
2
3 The packets are sent across the network
4
5
6 If they have not arrived:
7 A timeout is sent to request the packets are resent
8 If they have arrived:
9
10

iii.

Letter	Statement
A	The server checks if all the packets have arrived
B	The packets are put in order
C	The request is processed by the web server
D	The packets are received by the host server
E	Each packet is given the address and a number

iv.

END OF QUESTION paper

Mark scheme

Question			Answer/Indicative content	Marks	Guidance
1			Sending; ● Bill's computer splits data into equal sizes packets (1) ● Each packet is given the address of Ben's computer (1) ● Each packet is given a number (1) ● Each packet is given error checking data (1) ● The packets are sent across the network (1) Receiving; ● Ben's computer checks if all packets have been received? (1) ● If No… ● …Check again (1) ● …Increment timer (1) ● …If timer > max wait (1) ● …Send timeout to Bill's computer (1) ● If Yes… ● …Reorder packets based on their number (1) ● …Display the document (1) ● …Send receipt confirmation (1) ● …Each packet is checked for errors (1)… ● … if corrupt a message is sent back to sender (1)	6	Answers must be a recognisable algorithm. Candidates can use a flow chart or any form of pseudocode. Candidates can only be awarded a maximum of 4 mark for sending or receiving.
			Total	**6**	
2		i	Domain Name Server / DNS.	1 AO1 1a (1)	Allow Server/service/system **Examiner's Comments** This question required an understanding of a Domain Name Server/System to convert URLs to IPs. Few candidates were able to identify this system, with many making guessing such as HTTP. Many candidates did n attempt to answer this question.
		ii	1 mark for each letter in the correct place 1 The request is put into packets 2 **E** 3 The packets are sent across the network 4 **D** 5 **A** 6 If they have not arrived: 7 A timeout is sent to request the packets are resent 8 If they have arrived: 9 **B** 10 **C**	5 AO1 1b (5)	**Examiner's Comments**

					This question required an understanding of how packet data are sent across a network. Candidates were requir to read through the statements and order them logically The more able were able to identify the appropriate sequence. Less able candidates confused some of the statements, such as identifying the request as being processed before the packets were received.
			Total	**6**	