

1. A school has three independent computer networks.

One for student use.

One for teacher use.

One for use in the administration offices.

The three networks are going to be combined to allow data to be stored in one location. The data will be accessible at any computer if the correct access codes are used.

Explain how the following devices may be used in the above situation.

(i) A bridge

----- [2]

(ii) A gateway

----- [2]

2. An architect firm specialises in designing skyscrapers.

The computers in the architect firm's office are connected to a LAN which is connected to the Internet.

(i) The LAN is set up in a client-server network.

Give **one** advantage and **one** disadvantage to the architects' firm of a client-server set up rather than a peer to peer setup.

Advantage -----

Disadvantage -----

----- [2]

(ii) The LAN is connected to the Internet via a firewall. Describe the term 'firewall'.

----- [1]

(iii) State why the architects' firm would use a firewall.

----- [1]

END OF QUESTION PAPER

Question			Answer/Indicative content	Marks	Guidance
1		i	<ul style="list-style-type: none"> -Provides a link between (local area) networks -To connect the student and / or teacher and / or administration networks together. 	2	<p>2nd mark must be in context.</p> <p>Examiner's Comments</p> <p>This question was poorly attempted by most candidates with many candidates not contextualising their response.</p>
		ii	<ul style="list-style-type: none"> -Provides a link between two dissimilar networks -Links the school networks to the Internet 	2	<p>Accept connect a LAN to a WAN for 1st bullet point 2nd mark must be in context.</p> <p>Examiner's Comments</p> <p>As above, in general, candidates were not clear in their description of how this device would be used.</p>
			Total	4	
2		i	<p>Advantage:</p> <ul style="list-style-type: none"> - Centrally administered in one location. (1) - One location to back up. (1) <p>Disadvantage:</p> <ul style="list-style-type: none"> - Central point of failure. (1) - Can be expensive to maintain / set up (e.g. cabling costs, specialist staff.) (1) <p>(Max 1 Advantage, 1 Disadvantage)</p>	2 (AO1.2)	<p>Accept for MP1 better security</p> <p>Do not credit quick access as an advantage</p> <p>Examiner's Comments</p> <p>Many candidates offered advantages and disadvantages of networks in general as opposed to those of a client-server over a peer to peer setup.</p>

Question			Answer/Indicative content	Marks	Guidance
		ii	<p>A hardware device / piece of software that monitors (and filters / blocks) traffic / packets <u>going to and from</u> a network. (1)</p> <p>(Max 1)</p>	<p>1</p> <p>(AO1.1)</p>	<p>Accept 'content' for 'traffic / packages'</p> <p>Examiner's Comments To achieve this mark, candidates were required to show an understanding that firewalls monitor traffic going to and from a network, many only discussed one-way traffic.</p>
		iii	<p>Prevent unauthorised access to a network. (1)</p> <p>To restrict applications that are used internally that have internet access. (1)</p> <p>To restrict websites that can be accessed from within the company. (1)</p> <p>To protect the company's data / intellectual property. (1)</p> <p>(Max 1)</p>	<p>1</p> <p>(AO 1.2)</p>	<p>Accept for MP1 malicious attacks / traffic</p> <p>Examiner's Comments Most candidates gave 'to stop malicious attacks' which was awarded as an interpretation of 'to protect company data'.</p>
			Total	4	