



MARKSCHEME

May 2009

INFORMATION TECHNOLOGY IN A GLOBAL SOCIETY

Higher Level

Paper 3

*This markscheme is **confidential** and for the exclusive use of examiners in this examination session.*

*It is the property of the International Baccalaureate and must **not** be reproduced or distributed to any other person without the authorization of IB Cardiff.*

Examiners should be aware that in some cases, candidates may take a different approach, which if appropriate should be rewarded. If in doubt check with your Team Leader.

In the case of an “identify” question read all answers and mark positively up to the maximum marks. Disregard incorrect answers. In the case of a “describe” question, which asks for a certain number of facts *e.g.* “describe two kinds”, mark the **first two** correct answers. This could include two descriptions, one description and one identification, or two identifications.

1. Define the following terms:

(a) *hotspot*

[2 marks]

- a place that offers internet access
- (a place that provides public) wireless LAN/WiFi
- accessible by laptop/WiFi phone/PDA *etc.*
- short range of access.

[1 mark] for each point up to a maximum of ***[2 marks]***.

(b) *https.*

[2 marks]

- Hypertext Transfer Protocol (Secure)
- used to encrypt and decrypt data
- ... passing between the user and the server
- operates at transport layer
- suitable application for sending sensitive information, such as bank details.

[1 mark] for each point up to a maximum of ***[2 marks]***.

2. (a) “Hector is considering creating a home network” (*lines 35-36*). Explain the purposes of the following in the home network:

(i) **SSID**

[2 marks]

- Service Set Identifier
- name used to identify a wireless LAN
- 32 character unique identifier
- used to select correct network
- there may be others in range
- allows use of virtual access points from same physical access point.

[1 mark] for each point up to a maximum of [2 marks].

(ii) **router**

[2 marks]

- used to connect different networks together
- receives data packets from a wide area network
- can connect to an Internet Service Provider
- device that forwards data packets along a network
- selects optimum route (for data packets).

[1 mark] for each point up to a maximum of [2 marks].

(iii) **switch.**

[2 marks]

- network device that is used to connect segments of a LAN
- useful when connecting within various parts of a building
- network segments are isolated from each other
- sometimes called a bridge
- filters and forwards data packets to another segment of a network
- reduces the incidence of data collisions.

[1 mark] for each point up to a maximum of [2 marks].

- (b) **Examine *two* methods that Hector can use to ensure the security of the wireless network he intends to use in his home.** [8 marks]

*The question asks for **two** methods. Please annotate the script with M1 and M2, etc. to indicate the start of each method. Do not credit further methods if given. Do not treat brief erroneous comments as a “method”.*

Answers may include:

- use of firewall
- use of anti-virus/anti-spyware/other malware protection
- secure your wireless router or access point
- set up admin rights
- set up admin password/settings
- don't use default password
- don't use default settings for the device connected to the network
- don't broadcast SSID
- change the default SSID
- this should prevent sniffers
- enable WPA or WEP encryption
- WPA is more secure than WEP
- use long keys
- change keys often
- use MAC filtering for controlling access to your WLAN
- only designated computers can access the network
- reduce your WLAN transmitter power
- disable remote administration.

[1–2 marks]

A limited response that indicates very little understanding of the topic and uses little or no appropriate subject terminology.

[3–5 marks]

A reasonable explanation that demonstrates some understanding of the topic. Some relevant examples are used to support explanations within the response. There is some use of appropriate subject terminology in the response. At the bottom end of the band the answer may be descriptive and lack detail.

[6–8 marks]

To enter this band, there must be some reference to wireless configuration. A clear, detailed explanation of the issue which demonstrates a thorough understanding of the topic. Relevant examples are used to support explanations within the response. There is appropriate subject terminology throughout the response.

3. Betty “has been provided with a laptop computer by her local office. Unfortunately, Hector has found that her laptop has different specifications and uses different versions of software. Hector and Betty are both concerned as this will potentially cause problems in sharing and editing documents” (lines 46-49).

Evaluate *two* possible strategies that *N&Q Investments* could adopt in order to reduce the problems with sharing and editing documents. [12 marks]

The question asks for two strategies. Please annotate the script with S1 and S2, etc. to indicate the start of each strategy. Do not credit further strategies if given. Do not treat brief erroneous comments as a “strategy”.

Answers may include:

- centralized control over purchasing
- policy on hardware purchase
- policy on software purchase
- policy on operating systems
- version control of software throughout company
- examples of software incompatibilities
- standardize file formats used
- check for backward compatibility issues
- insist on simple/standard document layouts
- provide templates
- provide macros
- use of pdf files
- web-based applications / cloud computing
- references to companies/organizations that they have researched.

If the candidate only offers one strategy, then award a maximum of [8 marks].

<p>Opinion discuss, evaluate, justify, recommend and to what extent</p>	<p>0</p>	<p>No knowledge or understanding of relevant IT issues and concepts or use of IT terminology.</p>
	<p>1–3 marks</p>	<p>A brief and generalized response with very little knowledge and understanding of relevant IT issues and concepts with very little use of relevant IT terminology.</p>
	<p>4–6 marks</p>	<p>A response that may include opinions, conclusions and/or judgments that are no more than unsubstantiated statements. The response will largely take the form of a description with a limited use of relevant IT terminology and some knowledge and/or understanding of IT issues and/or concepts. If no reference is made to the information in the stimulus material, award up to [4 marks]. At the top end of this band the description is sustained. At the bottom of the band a tendency towards fragmentary, common sense points with very little use of IT terminology.</p>
	<p>7–9 marks</p>	<p>A response that demonstrates opinions, conclusions and/or judgments that have limited support. The response is a competent analysis that uses IT terminology appropriately. If there is no reference to IT terminology the candidate cannot access this markband. There is evidence that the response is linked to the information in the stimulus material. At the top end of the band the response is balanced, the response is explicitly linked to the information in the stimulus material and there may be an attempt to evaluate it in the form of largely unsubstantiated comments. There is also evidence of clear and coherent connections between the IT issues. At the lower end of the band the response may lack depth, be unbalanced or tend to be descriptive. There may be also implicit links to the information in the stimulus.</p>
	<p>10–12 marks</p>	<p>There must be evidence of independent research for candidates to reach this markband. A detailed and balanced (at least one argument in favour and one against) response that demonstrates opinions, conclusions and/or judgments that are well supported and a clear understanding of the way IT facts and ideas are related. Thorough knowledge and understanding of IT issues and concepts. Appropriate use of IT terminology and application to specific situations throughout the response. If there is no reference to IT terminology candidates cannot access this markband. The response is explicitly linked to the information in the stimulus material. At the bottom end of the band opinions, conclusions and/or judgment may be tentative.</p>