



Introduction to the World of Computers

QCF

Subject Examiner's Report

Unit Title: Introduction to the World of Computers
Unit Code: IWC
NQF Level: 3
Session: December 2015

Question 1 - Input and Output Devices

- (a) Explain the term 'input device'. Illustrate your answer with examples of input devices most commonly used with personal computers. **(6 marks)**
- (b) Explain the term 'output device'. Illustrate your answer with examples of output devices most commonly used with personal computers. **(6 marks)**

1. Comments on learners' performance

Most candidates were able explain both what input and output devices were as well as giving examples.

2. Mark scheme

(a) 1 mark for any 2 of the following or similar

A hardware device

1 mark

Used to input data or commands into a computer

1 mark

The input data can be in the form of text, images, sound or movement

1 mark

1 mark each suitable example maximum 4 marks

E.g. mouse/equivalent, keyboard, microphone, web cam, scanner, touch screen

1 mark each

(b) 1 mark for any 3 of the following or similar

A hardware device

1 mark

Used to output data from a computer

1 mark

The output can be in the form of images, video, sound or movement

1 mark

1 mark each suitable example maximum 3 marks

E.g. monitor, speaker, printer, data projector, plotter

1 mark each

3. Recommendations

Candidates need to make sure they give sufficient detail in their answers to achieve full credit, use the number of marks as a guide to how detailed the answer needs to be.

Examiner's tips

Learn what input, storage and output devices are as well as examples of each and their purpose.

Question 2 - Computing Hardware Terms

For each of the computing hardware abbreviations below, expand the term, give an explanation of the term and provide an example:

- | | |
|---------------|------------------|
| (i) DVD drive | (3 marks) |
| (ii) GB | (3 marks) |
| (iii) GHz | (3 marks) |
| (iv) USB | (3 marks) |

1. Comments on learners' performance

Most candidates achieved at least half of the available marks through knowing the abbreviations and outlining what each is but credit was often lost through providing insufficient detail in the explanation of what the term means or by failure to provide an example.

2. Mark scheme

Instructions to markers

- | | |
|--|---------------|
| (i) DVD drive | |
| expansion of the term - Digital Versatile Disk drive | 1 mark |
| explanation e.g. an optical disk drive capable of playing from and recording to DVDs | 1 mark |
| example e.g. DVD drives are often listed as a component part of a computer system specification | 1 mark |
| (ii) GB | |
| expansion of the term - Gigabyte | 1 mark |
| explanation e.g. a Gigabyte is a measure of memory or storage capacity size | 1 mark |
| example e.g. a computer's memory size is usually quoted in GB typically 4GB or larger | 1 mark |
| (iii) GHz | |
| expansion of the term - Gigahertz | 1 mark |
| explanation e.g. a measure of a processor's speed | 1 mark |
| example e.g. processor speeds in 2015 were typically around 2.5 GHz | 1 mark |
| (iv) USB | |
| expansion of the term - Universal Serial Bus | 1 mark |
| explanation e.g. an industry standard used for connecting computers and electronic devices for the provision of power and the transfer of data | 1 mark |
| example e.g. most electronic devices have USB sockets enabling them to be connected to computers for the purpose of transferring data and in the case of tablets and smartphones for charging the device's battery | 1 mark |

3. Recommendations

Candidates need to ensure that they provide answers to each element of a question to get full marks.

Examiner's tips

Learn the expansion of all key hardware terms e.g. Gb, GHz, USB, DVD and what each refers to.

Question 3 - Types of Computer

Give four examples of distinctly different categories of computers and for each different category describe its typical physical size, and give an example of how this category of computer is used.

1. Comments on learners' performance

Most answers achieved at least half of the marks but credit was lost for vagueness in reference to the typical physical size or usage. A number of answers stated whether the computer type is smaller than one previously mentioned or gave a vague size such as 'big' rather comparing it to an object of a known size e.g. a super computer can be as big in size as a football pitch.

2. Mark scheme

See table below for further guidance

1 mark per appropriately distinct type - up to a maximum of 4 marks

1 mark per corresponding size description (no points for vague descriptions e.g. big, small without further context) - up to a maximum of 4 marks

1 mark per corresponding unique usage - up to a maximum of 4 marks

Computer Type	Physical Size	Application
Super Computer	Very big – the size of a football pitch	Research, Military, Weather forecasting
Main Frame	Medium size – the size of a room [often air conditioned]	Customer database storage, banking
Server	Small – similar size to a desktop computer	Network file storage, network printing, network internet access
PC/Mac desktop/tower	Small – sits on [desk top] or by a desk [tower]	letter creation, report production etc.
PC/Mac/ Chromebook Laptop	Small – fits on a lap is easily moved	Office, Mobile, Sales related tasks, quotation generation etc.
Tablet	Smaller than a laptop usually between 7-11”	Using E-mail, web browsing and using 'apps' for business or entertainment purposes
Smartphone/ PDA	Very small - fits comfortably in one hand	SMS, phone, personal information management, social networking

3. Recommendations

When contrasting different types of computers, it is important for answers to be specific about size and usage. For example supercomputers are used for weather forecasting.

Examiner's tips

Keep abreast of changes in computer hardware technology, particularly portable computers.

Question 4 - Connecting to the Internet

- (a) State what the letters in the abbreviation ISP stand for and describe what an ISP does, illustrating your answer with an example of an ISP. **(6 marks)**
- (b) Describe three different methods of connecting to the Internet at home. Include in your answer details of any hardware, software or services needed. **(9 marks)**

1. Comments on learners' performance

Most candidates achieved at least half of the available credit because they correctly identified that ISP stands for Internet Service Provider and that an ISP enables their customers to connect to the internet. A number of answers did not identify an example of an ISP so lost credit.

Credit was lost when three distinctly different methods for connecting to the internet at home were not identified or there was insufficient detail was given about the hardware, software and services needed.

2. Mark scheme

- (a) 1 mark each for any two of the following, up to a maximum 2 marks

Internet	1 mark
Service	1 mark
Provider	1 mark

1 mark per suitable description point up to a maximum of 4 marks e.g.

An organisation that provides access to the internet for individuals/organisations **1 mark**

Usually for a monthly fee **1 mark**

Via a telecommunications network (fixed line, fibre, wireless, satellite or mobile) Suitable example **1 mark**

e.g. Botsnet, Broadband Botswana Internet (BBI), Department of Information Technology (GoB), Bytes Technology Group, Global Broadband Solutions, Mascom Wireless, Microtek, OPQNet, VBN Services, Verizonbusiness **1 mark**

- (b) See table for possible examples

1 mark per each suitable example up to a maximum of 3 marks

1 mark per corresponding unique hardware/software/service up to a maximum of 2 per connection method

So for each connection method a maximum of 3 marks is available - 1 for method and 2 for other unique items

Connection method	Hardware	Software	Services
ASDL broadband	Computer, cables and Modem/router	Software for modem/router	Contract with an ISP
Wireless	Wireless enabled device e.g. laptop + wireless router if own wireless network,	Software for wireless connection	Possibly contract with ISP unless 'free' wireless connection
Mobile broadband	Mobile device with access to mobile phone network e.g. smartphone or tablet	Software for mobile device	Contract including mobile broadband or pay as you go mobile broadband

3. Recommendations

Candidates need to provide sufficient detail for parts of questions with large mark allocations in order to achieve maximum credit.

Examiner's tips

Learn details of different methods that can be used to connect to the internet as well as complete details of the hardware, software and services needed for each

Question 5 - Storage Media

Give three examples of data storage media. For each example you give, outline one advantage and one disadvantage of this medium and give one example of the type of data that this storage medium is particularly suited to.

1. Comments on learners' performance

Most candidates had no trouble identifying different storage media but marks were frequently lost because of lack of detail - full credit was only achieved for each media when a suitable advantage, a suitable disadvantage and a suitable type of data was identified and that there was no repetition of previous answers.

2. Mark scheme

Up to 4 marks per suitable storage medium answer (for suitable answers) - 1 mark for the example, 1 mark for an advantage, 1 mark for a disadvantage and 1 mark for a usage maximum 12 marks in total. See table below for example answers

Storage medium	Advantage	Disadvantage	Example use
USB drive	Portability - small size and weight	Easily lost	Transferring files between physical locations e.g. files required when delivering a work presentation
Optical disk - DVD or Blu-ray	Cheap	Prone to damage by scratching or snapping	Storage of large files such as videos
Cloud	Accessible from any internet enabled device	Usually only accessible when you have an internet connection	Storing documents that you are collaborating on with colleagues
Portable hard disk drive	Large storage capacity	Relatively expensive	Backing up a large amount of data

3. Recommendations

Candidates need to be sure that they understand the most widely used types of data storage (USB drive, optical disk, portable hard disk drive, memory card and cloud storage) as well as the distinct usages, advantages and disadvantages of each type.

Examiner's tips

Keep up to date with changes in data storage media in particular new formats, changes in capacity and data transfer rates.

Question 6

- (a) Distinguish between the Internet and the World Wide Web. (6 marks)
(b) Explain the advantages and disadvantages of e-mail. (6 marks)

1. Comments on learners' performance

(a) Almost all answers demonstrated an understanding of the fact that the internet is the network of connected computing devices and the World Wide Web is the information system of web pages and other digital resources stored on the internet devices. Marks were lost by candidates providing insufficient detail.

(b) Almost all answers showed a good understanding of some of the benefits and drawbacks of e-mail but again credit was lost because insufficient detail was provided.

2. Mark scheme

(a) 1 mark per suitable point up to a maximum of 3 about the internet e.g.
The internet is an international network of computers 1 mark
connected via cables, mobile and satellite communications 1 mark
that stores and exchanges data with each other 1 mark

1 mark per suitable point up to a maximum of 3 about the World Wide Web e.g.
The World Wide Web is an information system 1 mark
of interlinked web pages (hypertext documents) and other digital resources 1 mark
accessed through an internet connection 1 mark
via a web browser 1 mark
used for a range of purposes including online shopping, banking, social networking, research, broadcast media and education 1 mark

(b) 1 mark per valid advantage up to a maximum of 3 marks e.g.
Cheaper (accept free for some users) than post/courier 1 mark
Faster (messages are delivered almost instantly) than post/courier 1 mark
Can send files 1 mark
Can e-mail anyone with internet access, (almost) anywhere in the world 1 mark
1 message can be sent to a large number of people in one go 1 mark
Copies of messages are automatically kept 1 mark
Can have receipt of delivery and may have message opened notification 1 mark
Will be advised of delivery failure 1 mark
Can be good for marketing purposes particularly for small businesses 1 mark
Can contain links to content on web pages 1 mark
Can be accessed on a range of devices e.g. computers, tablets, phones etc. 1 mark
Can be configured to have a notification message and sound for new messages 1 mark

1 Mark per valid disadvantage up to a maximum of 3 marks e.g.
Spam/junk e-mail 1 mark
Viruses may be contained in attachments 1 mark
E-mail scams such as phishing 1 mark
Distraction from work 1 mark
Misuse by staff - sending inappropriate messages/personal e-mail, wrong communication method 1 mark
E-mail overload - puts people under pressure 1 mark
Storage problems related to large e-mail messages 1 mark
Important messages getting trapped in mail filters 1 mark
Possibility of messages being intercepted and content accessed 1 mark

3. Recommendations

Candidates need to ensure that they know the difference between the internet and the World Wide Web as well as the advantages and disadvantages of e-mail.

Examiner's tips

Make sure for each mark a question is worth that the answer provides at least one point e.g. if a question is worth 12 marks then the answer should include 12 different points

Question 7 - Browsers, Search Engines and Advanced Web Searches

- (a) Explain the term 'browser' in the context of computers and explain how a browser differs from a search engine. Illustrate your answer with examples of each. **(6 marks)**
- (b) Describe how to perform an advanced search on the World Wide Web. Illustrate your answer with examples. **(6 marks)**

1. Comments on learners' performance

(a) Most answers achieved little credit because they lacked of clarity about the difference between a browser being locally installed software on an internet enabled device that is used access web sites and a search engine which is web based software that is used to find information on the World Wide Web.

(b) Hardly any candidates achieved credit because their answers did not describe how to perform an advanced search.

2. Mark scheme

(a) 1 mark per suitable point about browsers up to a maximum of 3 marks e.g.
A browser is a software application installed on an internet enabled device **1 mark**
that is able to access internet services such as the world wide web **1 mark**
for example e.g. Firefox, Chrome, Safari, Opera, Internet Explorer etc. **1 mark**

1 mark per valid point about search engines up to a maximum of 3 marks e.g.
Software accessed via a web browser **1 mark**
Used to find information on the World Wide Web **1 mark**
By the input of a search term **1 mark**
For example Google, Yahoo, Bing, Ask etc. **1 mark**

(b) 1 mark for each suitable element of an answer up to a maximum of 6 marks e.g.
Description of how to access the Advanced Search web page such as http://www.google.com/advanced_search **1 mark**
Reference to the use of exact phrase or putting terms in quotes ("exact phrase desired") **1 mark**
Reference to excluding words or the use of - in the search string (bonnet -hat) **1 mark**
Reference to the use of OR in the advanced search or string (medium OR large) **1 mark**
Reference to the language/region/domain/last update/location on page etc. **1 mark each**

3. Recommendations

Candidates need to familiarise themselves with the difference between browsers and search engines how to perform an advanced search.

Examiner's tips

Investigate advanced search options for a range of search engines to improve the quality of web searches and to be able to achieve more credit in questions about advanced searches.

Question 8 - Data Protection

- (a) Explain the importance of keeping your personal information secure when using the World Wide Web. **(3 marks)**
(b) Identify and explain the five key principles of data protection. **(10 marks)**

1. Comments on learners' performance

- (a) Candidates generally new some key points about the importance of keeping personal information secure when using the World Wide Web but some credit was lost through lack of detail.
- (b) Very few answers achieved much credit because they lacked the expected detail.

2. Mark scheme

- (a) 1 mark for each suitable element of an answer up to a maximum of 3 marks e.g.
- | | |
|--|---------------|
| People are not always who they pretend to be online and they may try to defraud you | 1 mark |
| If a criminal finds out enough about you they may try to steal your identity | 1 mark |
| If you put contact details online you may be harassed with e-mails, phone calls or letters from people trying to sell you things or trying infect the computing device you use for criminal purposes | 1 mark |

- (b) 2 marks 1 for each suitable principle and 1 for the corresponding data protection measure up to a maximum of 10 marks e.g. see table below

Principle	Measures
Privacy	The data is safe and secure by being stored appropriately e.g. encrypted, only accessible to authorised staff. The data is not shared with other individuals or organisations without the customer's consent
Accuracy	To ensure that the data is up-to-date and accurate the customer is encouraged to give feedback about the accuracy of the data at least annually via an appropriate communication channel e.g. e-mail and then any required updates made in light of the feedback.
Adequacy	The organisation should have systems in place to ensure that only data required to efficiently serve the customer should be stored.
Access	The organisation should only have access to the data in relation to transactions with the customer and a system should be put in place to provide the customer with a copy of the data stored about them to ensure it is accurate and not excessive.
Local legislation	The organisation needs to put measures in place to ensure that they comply with any local data protection laws.

3. Recommendations

Candidates need to familiarise themselves with key data protection principles and their purpose, such as those in the UK Data Protection Act.

Examiner's tips

Research what measures are put in place to protect your personal data by the organisations you deal with.

Conclusions

Information for next sitting / Issues found / Difficult questions or topics

Candidates knew very little about data protection and advance search techniques.