



Introduction to the World of Computers

NQF

Subject Examiner's Report

Unit Title: Introduction to the World of Computers

Unit Code: IWC

NQF Level: 3

Session: December 2016

Question 1

When someone is looking to buy a new personal computer (PC), they will often try to compare what different shops have to offer in order to get best value for their money. To do so they need to understand PC specifications.

Describe the key components of a modern desktop PC. For each component, explain its importance to the effective functioning of the PC and give a typical value for that component. **(16 marks)**

Learning Outcome 1

1. Comments on learners' performance

30% of candidates achieved at least a pass score for this question with the average mark being 4.9 out of the 16 available marks. There was often confusion between the difference between a PC component and a peripheral – a number of candidates incorrectly made references to keyboard and mice.

2. Mark scheme

1 mark for each suitable element listed + up to 2 marks for each suitable corresponding description - 1 mark per element of the description. Maximum 12 marks

1 mark for each suitable value, including the unit of measurement

Refer to the table below for examples

Feature	Description	Typical value
Memory	The Random Access Memory (RAM) is the working memory of a computer and is a key factor that controls how quickly the computer can perform tasks. A PC's RAM is measured in gigabytes (GB) and up to a point 'the bigger the better'.	4GB or more
Processor speed	The Central Processing Unit (CPU) or more commonly called processor is the equivalent of the brain of the computer. A processor's speed is measured in gigahertz (GHz) and 'the faster the better'.	2GHz or more
Processor cores	More modern processors have multiple processor cores which make them act like multiple CPUs and enables the PC to more effectively handle multiple tasks at the same time. The more cores a processor has the faster it should perform.	Quad core or more
Hard disk drive size	The hard disk of a computer is where the operating system, program files and user generated content are usually stored. Modern PC hard drive storage space is measured in terabytes (TB)	1TB or more
Optical drive	A modern desktop PC is likely to have a Digital Versatile Disk (DVD) drive which enables the PC to access content on DVDs, CDs such as films, computer games and music. It also enables the user to 'burn' data to DVDs or CDs as a means of storage, file distribution or backup.	1 or more DVD drives
Monitor	A PC is usually connected to some kind of monitor in order to display what the PC is doing. Light Emitting Diode (LED) is the most common screen type and one of the key features of a monitor is the screen size which is measured in inches across the diagonal.	21" or more

3. Recommendations

Candidates should keep abreast of the latest developments in computer hardware in particular the typical values for processor speed, memory and hard disk drive size.

4. Model Answer

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Examiner's tips

Candidates need to provide sufficient detail to achieve full marks in their question answers. The number of marks should give a good indication of the level of detail expected.

Question 2

- (a) State four examples of software used in a typical office. **(4 marks)**
- (b) For each example given in (a) describe the kinds of business tasks the software is used to perform. **(8 marks)**

Learning Outcome 8

1. Comments on learners' performance

80% of candidates achieved at least a pass mark for this question. The average mark was 6.7 out of the available 12 marks. This is in line with similar questions in past sessions.

2. Mark scheme

(a) Any 4 suitable examples e.g.

E-mail management	1 mark
Word processing	1 mark
Spreadsheet	1 mark
Presentation	1 mark
Browser	1 mark
Desktop publishing	1 mark
Database	1 mark
Accounting	1 mark

Allow names of specific software e.g. Microsoft Excel, Sage etc. with 1 mark per different type of software but no additional marks for different examples of the same type of software e.g. Microsoft Outlook and Mozilla Thunderbird

(b) Any 4 suitable use examples 1 mark each + 1 mark for detail e.g.

E-mail management software - sending e-mails to clients with details of their orders	1 mark
	1 mark
Word processing software - produce letters by mail merge to update customers with statements of accounts/charges/offers	1 mark
	1 mark
Spreadsheet software - to create budgets/accounts/analyse cash flow to allow management to make informed financial decisions	1 mark
	1 mark
Presentation software - to create presentations to promote their products/services or for training purposes	1 mark
	1 mark

3. Recommendations

Candidates need to be familiar with types of office software and examples of each as well as examples of kinds of document each type of software can produce.

4. Model Answer

- (a)
E-mail management e.g. Microsoft Outlook
Word processing e.g. Microsoft Word
Spreadsheet e.g. Microsoft Excel
Presentation e.g. Microsoft PowerPoint
- (b)
E-mail management software – used for sending e-mails e.g. to clients with details of their orders
Word processing software – used produce letters e.g. mail merged letters to update customers with statements of accounts/charges/offers

Spreadsheet software – used to create budgets/accounts/analyse cash flow e.g. to allow management to make informed financial decisions

Presentation software – used to create presentations e.g. to promote products/services or for training purposes

Examiner's tips

Learn examples of alternatives to the Microsoft Office suite.

Question 3

For each of the tasks listed below give an appropriate example of a computing device that could be used to perform this task, along with details of its physical size. Please note each answer given needs to be different from the others.

- | | | |
|-------|--|------------------|
| (i) | Weather forecasting, through modelling the world's weather systems | (3 marks) |
| (ii) | Processing transactions in a bank | (3 marks) |
| (iii) | Producing insurance quotations, when visiting customers in their homes | (3 marks) |
| (iv) | Taking notes during a lecture or training session | (3 marks) |

Learning Outcome 3

1. Comments on learners' performance

70% of learners achieved at least a pass mark on this question. The average mark was 7 out of the 12 available marks. This is comparable with similar questions in previous sessions.

2. Mark scheme

1.5 marks for each appropriate different type of computer, 1.5 marks for a suitable physical size and 1.5 marks for a realistic cost in \$ or £, to a maximum of 3 marks per subdivision

- | | | |
|-------|--|-----------|
| (i) | Weather forecasting | |
| | - super computer | 1.5 marks |
| | - fills a large room | 1.5 marks |
| | - £ millions | 1.5 marks |
| (ii) | Processing bank transactions | |
| | - mainframe | 1.5 marks |
| | - small room size | 1.5 marks |
| | - £50,000 + | 1.5 marks |
| (iii) | Producing insurance quotations when visiting customers in their homes | |
| | - laptop/tablet | 1.5 marks |
| | - ca. 300mm x 200mm x 30mm/200mm x 150mm x 8mm | 1.5 marks |
| | - £200+ | 1.5 marks |
| (iv) | Taking notes during a lecture or training session - different from (iii) | |
| | - laptop/tablet/Smartphone | 1.5 marks |
| | - ca. 300mm x 200mm x 30mm/200mm x 150mm x 8mm/ phone sized! | 1.5 marks |
| | - £200+ | 1.5 marks |

N.B. A difference in price should be indicated between tablets, laptops/smartphones and desktops with laptops or 2 in 1 laptop/tablet devices being likely to be the most expensive and desktop computers being the likely to be the least expensive for similar specifications. Dimensions can also be given in terms of references to other things e.g. a desktop PC will occupy approximately $\frac{1}{2}$ of a desk, when including the keyboard, monitor and mouse.

3. Recommendations

In a question like this it is important for candidates to give different answers for each type of computing device to achieve maximum marks, even though some computing devices can perform one than one of the roles.

4. Model Answer

- | | | |
|-----|---------------------|--|
| (i) | Weather forecasting | |
| | - super computer | |

- fills a large room
- £ millions

- (ii) Processing bank transactions
 - mainframe
 - small room size
 - £50,000 +

- (iii) Producing insurance quotations when visiting customers in their homes
 - laptop/tablet
 - ca. 300mm x 200mm x 30mm/200mm x 150mm x 8mm
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- (iv) Taking notes during a lecture or training session - different from (iii)
 - laptop/tablet/Smartphone
 - ca. 300mm x 200mm x 30mm/200mm x 150mm x 8mm/ phone sized!
 - £200+

Examiner's tips

Candidates need to learn what the different types of computing device are available as well as typical characteristics and uses of each.

Question 4

(a)

- (i) Explain what the letters in term GUI stand for and what a GUI is. **(4 marks)**
(ii) Name an **alternative** to the most widely used Personal Computer GUI and describe its features. **(4 marks)**

(b)

Give an example of a Personal Computer GUI you are familiar with and describe how to format a USB disk drive using this GUI. **(4 marks)**

Learning Outcome 4

1. Comments on learners' performance

60% of the learners achieved at least a pass mark. The average mark was 5.7 out of the 12 available marks.

2. Mark scheme

(a) (i)

Graphical User Interface 2 marks
Or partially correct answer 1 mark

(ii)

Any 2 appropriate descriptive points e.g.

A visual interface for a user to interact with a computing device 1 mark
Usually controlled with some kind of pointing device such as a mouse/finger 1 mark
Composed of pictorial representations such as icons 1 mark
Designed to make the device easier for a novice to use 1 mark
It is customisable to help meet the needs/tastes of the user 1 mark

Any one suitable example but not Windows e.g.

Mac OS 1 mark
Android 1 mark
Chrome OS 1 mark
X Windows 1 mark
Linux GUI in any of its flavours 1 mark

Any 3 suitable features e.g.

Icons 1 mark
Toolbars 1 mark
Windows 1 mark
Menus 1 mark
Folders 1 mark
Recycle/trash bin 1 mark
Interface control methods - drag, click, double click, touch, pinch, swipe etc. 1 mark

Maximum marks for (a) 8 marks

Interface example (see above) if different from given in 4(a) (ii) e.g. Windows 1 mark

Up to 4 suitable steps e.g.

Open the file management software 1 mark
Select the appropriate USB drive icon 1 mark
Select the File menu/Right click 1 mark
Click the Format option 1 mark
Input the name for the drive 1 mark
Confirm the format command 1 mark

Maximum marks for (b) 4 marks

3. Recommendations

Candidates need to be familiar with different Graphical User Interface (GUI) other than Microsoft Windows and keep abreast with changes in technology, particularly in relation to mobile devices such as phones and tablets.

4. Model Answer

(a) (i)

GUI stands for Graphical User Interface.

A GUI is a visual interface for a user to interact with a computing device. A GUI is usually controlled with some kind of pointing device such as a mouse/finger. It is usually composed of pictorial representations such as icons. GUIs are designed to make the device easier for a novice to use and is often customisable to help meet the needs and tastes of the user.

(ii)

One alternative to Microsoft Windows is the Apple Macintosh operation system - Mac OS. Similar to any windows based GUI it is composed of a desktop with Icons used to launch features and applications. Applications run within rectangular windows that usually have toolbars and menus used to give commands. Files are stored in folders and the user interacts with the computer using a mouse, track pad or touch screen using actions such as drag, click, double click, touch, pinch, swipe etc.

(b)

Using Microsoft Windows 7 the steps to format a USB drive are as follows:

1. Open **Windows Explorer** e.g. by double clicking the **Computer** icon on the desktop
2. Select **Right click** the appropriate USB drive icon
3. Click the **Format** option from the shortcut menu
4. Rename the USB drive, if desired
5. Click the **Start** button
6. Confirm that all the files are to be deleted from the USB drive

Examiner's tips

Candidates need to be able to describe typical features of a GUI – windows, icons, menus, toolbars.

Question 5

- (a) State what the letters in the term URL stand for and describe what a URL is. Ensure that your answer explains the component parts of a URL, through the use of a suitable example. **(8 marks)**
- (b) Describe the component parts of an e-mail address, supporting your answer with a suitable example. **(4 marks)**

Learning Outcome 6

1. Comments on learners' performance

40% of learners achieved at least a pass score on this question. The average mark was 4.4 out of a possible 12 marks. Performance was comparable with similar questions - candidates frequently lost marks due to lack of detail.

2. Mark scheme

(a)

2 marks for Uniform/Universal Resource Locator, 1 mark for 2 correct words
1 mark for an example of a URL e.g. <http://www.abeuk.com/qualifications.php>

1 mark for each suitable point describing a URL up to a maximum of 5 marks e.g.
A URL is the unique address of a resource on a computer network, such as the internet
HTTP specifies the protocol used to transfer data - HyperText Transfer Protocol
www specifies that it is a World Wide Web resource
abeuk.com is the domain
qualifications.php is the name of the specific page on the site

(b)

1 mark for a suitable example e.g. info@abeuk.com
1 mark for suitable points up to a maximum of 3 marks e.g.
info - is the local part that specifies the mailbox within the organisation
@ - the 'at' symbol is the separator between the local part of e-mail address and the domain
abeuk.com - is the domain of the e-mail address
e-mail addresses cannot contain spaces or certain special characters ((),,;,<>@[\\]) unless enclosed in quotation marks ("")

3. Recommendations

Candidates need to understand what a URL is and its component parts and what each means..

4. Model Answer

(a)

A Uniform Resource Locator (URL) is the unique address of a resource on a computer network, such as the internet, e.g. <http://www.abeuk.com/qualifications.php>. URLs have a given structure. HTTP specifies the protocol used to transfer data - HyperText Transfer Protocol. www specifies that it is a World Wide Web resource, abeuk.com is the domain and qualifications.php is the name of the specific page on the site of the domain.

(b)

An e-mail address e.g. info@abeuk.com is composed of three parts - first the local part (info) then the @ symbol and then the domain (abeuk.com) they are not permitted to contain spaces or certain special characters unless enclosed in quotation marks "".

Examiner's tips

Review past papers, mark schemes and suggested answers to better understand what elements of answers are creditworthy.

Question 6

- (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)**

Learning Outcome 7

1. Comments on learners' performance

Only 1 candidate (10%) achieved at least the pass mark for this question. The average mark was 2.6 of the available 12 marks. This is comparable with similar questions in previous sessions.

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 **1 mark**
http://www.google.com/advanced_search
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 understand how to perform an advanced search with a search engine.

4. Model Answer

(a) A (web) browser is a software application installed on a device that can access the internet such as a computer, tablet or smartphone that enables access to internet services such as the World Wide Web. It interprets web pages and displays them appropriately on the device's screen so that the users can interact with them. A wide range of browsers exist for a range of devices including Firefox, Chrome, Safari, Opera and Internet Explorer. A search engine on the other hand is software accessed via a browser that enables users to search for content on the World Wide Web and display the results as a series of web pages with hyperlinks to the location of the sites found. Examples of search engines include Google, Yahoo, Bing and Ask.

(b) To perform an advanced search you need to load up your web browser access the search engine you want to and either manually construct your advanced search term using features such as:

- incorporating an exact phrase by using putting the term in speech marks e.g. "internet service provider" - will only retrieve pages containing the three words in the speech marks next to each other in that order on the page
- the use of the minus sign (-) to exclude unwanted terms e.g. Botswana -safari - will retrieve pages about Botswana but not those with reference to the word *safari*
- the use of OR to include options e.g. medium OR large - will retrieve pages containing references to both medium and large
- the specifying of a domain e.g. site:bw - will only retrieve pages on sites ending in the Botswana domain

Alternatively some search engines have an advanced search page where these options can be specified via a web form. Advanced search pages may also allow you to specify other options such as language, region, when the page was last updated, the location of the terms on the retrieved pages for example Google's advanced search http://www.google.com/advanced_search

Examiner's tips

Candidates need to clearly understand the difference between a search engine and a browser and be able to describe them with examples of each.

Question 7

State four different types of network topology and give **one** advantage and **one** disadvantage of each.

Learning Outcome 10

1. Comments on learners' performance

Half of the learners were able to achieve at least the pass mark for the question. The average mark for the question was 4.2 out of the 12 marks available. This is comparable with similar questions in previous papers.

2. Mark scheme

Type - 1 mark, Corresponding advantage - 1 mark, Corresponding disadvantage - 1 mark e.g.

Bus	1 mark
Advantage - cheap to implement - single cable	1 mark
Disadvantage - network fails if the cable fails, costly to maintain, limited size	1 mark
Mesh	1 mark
Advantage - very stable, fast transfer, high traffic, easy to fault-find	1 mark
Disadvantage - very expensive in terms of cabling, redundancy	1 mark
Ring	1 mark
Advantage - fast, stable, easy to extend, easy to fault find	1 mark
Disadvantage - if a node fails so does the network, data travels slower than star	1 mark
Star	1 mark
Advantage - robust, easy to expand, fast	1 mark
Disadvantage - if the hub fails so does the network, quite costly	1 mark

3. Recommendations

Candidates need to learn the four network topologies contained in the lecture guide as well as the advantages and disadvantages of each.

4. Model Answer

Bus

Advantage - cheap to implement - single cable

Disadvantage - network fails if the cable fails, costly to maintain, limited size

Mesh

Advantage - very stable, fast transfer, high traffic, easy to fault-find

Disadvantage - very expensive in terms of cabling, redundancy

Ring

Advantage - fast, stable, easy to extend, easy to fault find

Disadvantage - if a node fails so does the network, data travels slower than star

Star

Advantage - robust, easy to expand, fast

Disadvantage - if the hub fails so does the network, quite costly

Examiner's tips

Follow the instructions in each question very carefully making sure that your answer provides what was requested.

Question 8

- (a) Explain the importance of keeping your personal information secure when using the World Wide Web. **(2 marks)**
- (b) Identify and explain the five key principles of data protection. **(10 marks)**

Learning Outcome 11

1. Comments on learners' performance

This was the lowest scoring question in the examination with no candidates achieving a pass mark. The average mark of 2.4 out of the 12 marks available.

2. Mark scheme

- (a) 1 mark for each suitable element of an answer up to a maximum of **2 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 suggested answer table

3. Recommendations

Candidates need to familiarise themselves with data security principles.

4. Model Answer

- (a) It is important to protect your personal information when online because if criminals discover your details they can use them to commit crimes such as fraud, identity theft, harassment or to use the computing device you use for cyber-crimes.

(b)

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.

Examiner's tips

Candidates need to understand the possible consequences loss of personal data and be able to describe them.