Retired Onscreen Test Version 4 Unit 2: Technology Systems

BTEC Firsts Level 1/2 Information and Creative Technology

Introduction

This retired onscreen test has been made available to centres to help you prepare your learners for their BTEC Firsts Level 1/2 external assessments.

We recommend that you use this test as a written assessment which is then either teacher marked or peer assessed.

This retired test should be used in conjunction with the Mark Scheme and the Lead Examiner's Report to clearly identify the assessment requirements. These documents are available at:

http://qualifications.pearson.com/en/qualifications/btec-firsts/information-and-creative-technology-2012-nqf.coursematerials.html#filterQuery=Pearson-UK:Category%2FExternal-assessments

Retired Test Development

We are currently working towards a simulation test where mock onscreen tests can be taken in a real environment. However as this is being developed, we have temporarily created these PowerPoint based tests to support you.

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FAQs

How can I view the videos in the test?

This document has been produced using screen captures of the retired onscreen test. As such, videos are not available in this document. This document should be used in conjunction with the retired onscreen test which is available on the website: http://qualifications.pearson.com/en/qualifications/btec-firsts/information-and-creative-technology-2012-nqf.coursematerials.html#filterQuery=Pearson-UK:Category%2FExternal-assessments

How can I see the drop down menus in the test?

Where a drop down menu may obscure information the learner requires to answer a question, we have instead supplied a text box containing the options from the drop down menu. To view drop down menus please use the retired onscreen test.

Operating systems are used to control technology systems.

Which type of component is an operating system? (1)

Click on **one** of the boxes.

☐ Data

☐ Hardware

☐ Software

☐ Memory

Most computers provide the user with a graphical user interface (GUI).
A GUI should be easy to use.

Identify **two** features of a GUI for a desktop computer. (2)

Click on the **two** correct features.

Auto-correct

Icons

Spellchecker

Control buttons

Command lines

A personal computer will have an internal storage device to save programs and data.

Name **two** internal storage devices used in personal computers. (2)

Type your answers in the boxes.

Computer software can be custom-made or bought 'off-the-shelf'.

(a) Identify **one** reason why you would choose to use 'off-the-shelf' software.   (1)

Click on **one** of the boxes.

☐ The user can specify their needs   ☐ There will be a wide range of user support

☐ It will provide a competitive edge   ☐ Multiple application packages may be needed

(b) Identify **one** disadvantage associated with 'off-the-shelf' software.   (1)

Click on **one** of the boxes.

☐ It will take a long time to install   ☐ It will be difficult to keep up to date

☐ It will be more expensive   ☐ It will have more features than you may need

Data structures are used to organise data stored in a computer.
Well-designed data structures will enable the data to be used efficiently.

(a) Identify the data structure that should be used to store a series of integers, such as sales figures. (1)

Click on **one** of the boxes.

☐ Array   ☐ List box   ☐ Boolean   ☐ Variable

(b) Identify the data structure that should be used to store a series of strings and real numbers. (1)

Click on **one** of the boxes.

☐ Field   ☐ Sub-routine   ☐ Record   ☐ Constant

Back problems are one of several health and safety issues involved in the use of technology systems in the workplace.

> (a) Name **one** other health risk associated with prolonged use of the monitor and of the keyboard.   (2)

Type your answers in the boxes.

Monitor

Keyboard

Many regular computer users suffer from back problems.

> (b) State **one** measure that should be taken to reduce the likelihood of back problems arising.   (1)

Type your answer in the box.

Computers produce heat as they operate.
Some of the internal components must be cooled individually using heat sinks.

(a) Name **one** internal component that needs to be fitted with a heat sink.   (1)

Type your answer in the box.

(b) Describe **one** way the heat sink cools the internal component.   (2)

Type your answer in the box.

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Future developments of technology systems are important to many organisations.

Identify **two** reasons why organisations want to keep their technology systems up to date.　　(2)

Click on the **two** correct reasons.

To extend levels of access

To increase public awareness

To improve performance

To enhance staff skills

To maintain a competitive advantage

Malware, such as trojans and worms, is software designed to damage computer systems.

(a) Identify the software needed to protect computers against malicious code. (1)

Click on **one** of the boxes.

☐ Firewall ☐ Application

☐ Anti-virus ☐ Utility

It is sensible to take precautions to protect computer data from malware.

(b) Identify the statement that offers good advice on how to protect your computer data. (1)

Click on **one** of the boxes.

☐ Allow operating system automatic updates ☐ Save '.exe' files received by email to disk

☐ Run the disk defragmentation utility regularly ☐ Share storage media with other computer users

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Carol is a computer artist who creates images of landscapes for computer games. She uses a graphics tablet to produce the images because working with the pen and tablet is intuitive and very much like using a traditional pen or pencil.

Explain **one** other feature of a graphics tablet that will help Carol to work efficiently. (2)

Type your answer in the box.

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The data types assigned to variables in computer programs will determine the size of memory needed.
The table shows a program that uses an 8 bit system to represent characters.

State the amount of memory required for each variable in the table. (3)

Type your answers in the boxes.
The first one has been done for you.

Variable	Memory required (bits)
Title Mr or Mrs (String * 3)	24
Gender (M or F)	
In full-time education (True or False)	
Postcode (String * 8)	

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A computer is a machine for processing digital data.
Different types of device are used to input, store and output the data.

Identify **one** example of each type of device. (3)

Drag and drop the correct devices onto the table.

Actuator

Battery

Memory

Sensor

CD drive

Firewall

Motherboard

Type	Example
Input	
Storage	
Output	

The performance of the central processing unit (CPU) affects the overall performance of a system. CPU performance is controlled by clock speed and bus width.

Describe **two** relationships between clock speed and bus width. (4)

Type your answer in the box.

A coffee shop offers customers free internet access.
To access the internet, customers set up an account using a given code and their email address.
Authorised customers access the internet via the coffee shop's wireless router.

Describe **one** role of the coffee shop's wireless router in connecting customers to the internet. (2)

Type your answer in the box.

Object-oriented programming (OOP) is a style of programming that is used to create applications.
The programs are based on objects, classes and instances.
An example of an object would be a sprite in a computer game.
The sprite will have properties and methods.

(a) Explain the difference between an object's properties and methods. (2)

Type your answer in the box.

(b) Explain the relationship between classes and instances. (2)

Type your answer in the box.

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A system login routine is to be programmed to check that a valid password is entered.

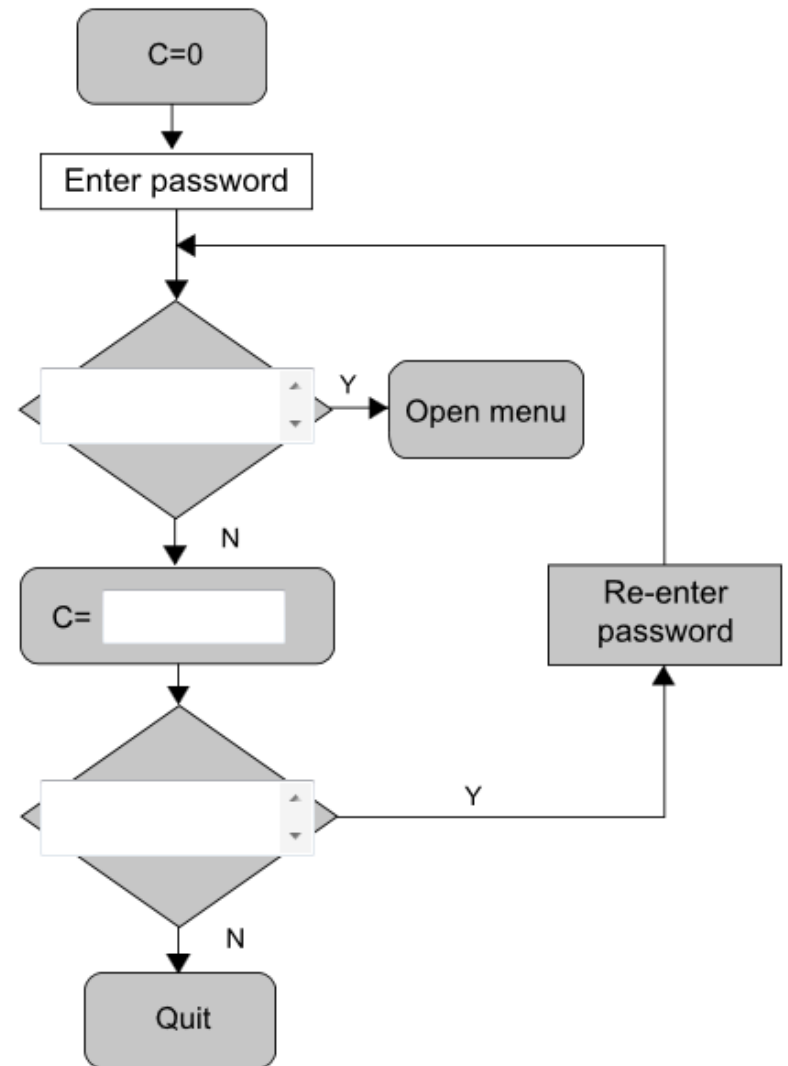If the password is valid the user is to be presented with a menu screen.

If the password is invalid the user is to be presented with a suitable message and asked to re-enter a password.

The user is to be allowed three attempts to enter a valid password.

The flow chart illustrates the password check routine.

Complete the flow chart by adding the missing labels. (3)

Type your answers in the boxes.
The first one has been done for you.

A large department store is developing a new site.
The building is to be fitted with a computer network.
A client server network is being considered as this will allow centralised control of backups, access rights and resource allocation.

Explain **one** other advantage of implementing a client server network.　　(2)

Type your answer in the box.

Forhad is a serious computer gamer.
He has decided to buy a new computer and is considering a laptop with a dedicated 2 GB graphics card.
He has noticed that the same laptop with an integrated graphics card is considerably cheaper.

Discuss the factors Forhad should consider before deciding on which laptop to purchase. (8)

Type your answer in the box.