Retired Onscreen Test Version 2 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://www.edexcel.com/quals/firsts2012/information-and-creative-technology/Pages/default.aspx

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.

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 PowerPoint document. This document should be used in conjunction with the retired onscreen test which is available on the website: http://www.edexcel.com/quals/firsts2012/information-and-creative-technology/Pages/default.aspx

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.

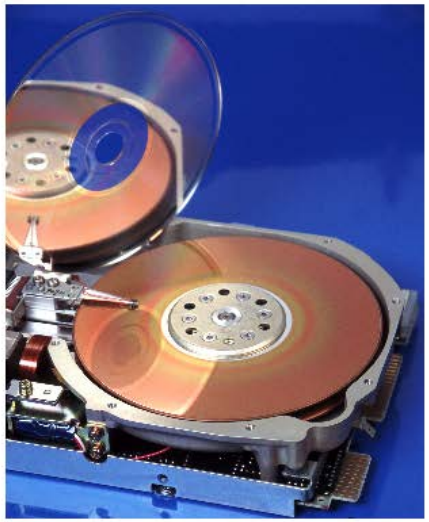
Question 1 / 18

Most computers store data on an internal hard disk.

Identify the type of media used by the hard disk shown in the photograph. (1)

Click on **one** of the boxes.

- ☐ Optical
- ☐ Solid state
- ☐ Magnetic
- ☐ Digital



Question 2 / 18

Computer data is represented using binary notation.

(a) Select the binary representation with a value of 9. (1)

Click on **one** of the boxes.

- 01010011
- 00001001
- 10000001
- 00110000

(b) Identify the base 10 number represented by 00000111. (1)

Click on **one** of the boxes.

1 2 3 4 5 6 7 8 9

Question 3 / 18

A geography teacher has decided to create some resources to help her students revise for their exams. She has decided to create a series of podcasts.

(a) Name the input device that would be essential for the teacher to create the podcasts. (1)

Type your answer in the box.

(b) Name the output device students would need to use the podcasts for revision. (1)

Type your answer in the box.

Question 4 / 18

The table shows part of a school's database.
The database is used to store details of students.

Forename	Surname	Form	D_O_B	BusPass	ContactTelephone
James	Smith	7 AB	04/05/00	☐	0123 444111
John	Smith	7 CF	02/03/00	☑	0123 555222
Jane	Smith	7 AB	10/12/01	☑	0123 666123
Janet	Thompson	7 CF	06/03/00	☐	0123 554611

(a) Identify the correct data type for the BusPass field. (1)

Click on **one** of the boxes.

☐ Boolean ☐ String ☐ Integer ☐ Character

(b) Identify the correct data type for the ContactTelephone field. (1)

Click on **one** of the boxes.

☐ Boolean ☐ String ☐ Integer ☐ Character

Question 5 / 18

Computer software can be custom-made to suit a client's exact requirements or it can be purchased from retailers 'off-the-shelf'.

Identify **two** advantages of purchasing 'off-the-shelf' software. (2)

Click on the **two** correct advantages.

- It will provide a competitive advantage
- It is available immediately
- There will be no licensing costs
- It will be updated when user needs change
- Product support will be readily available 24/7

Question 6 / 18

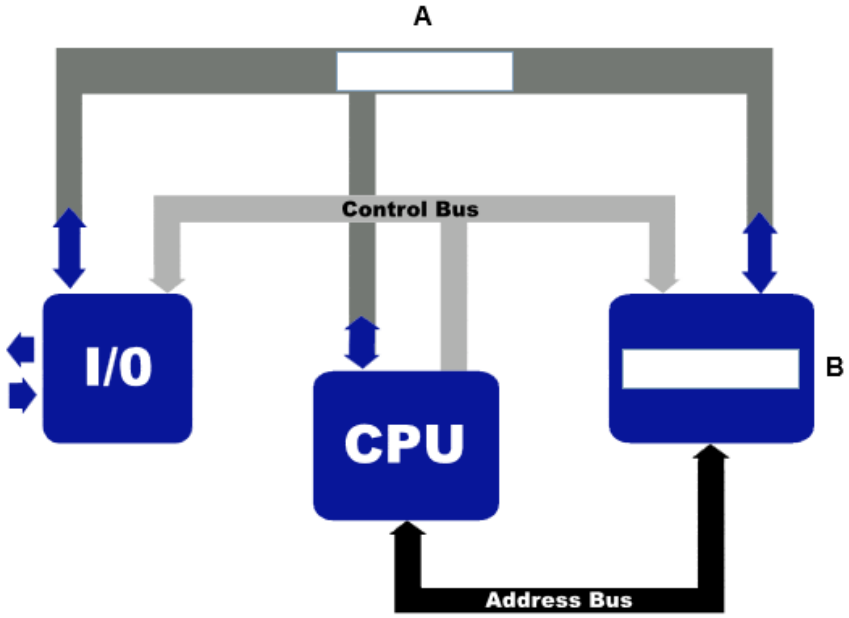
The diagram illustrates the main internal components of a computer system.

(a) Identify the missing components. (2)

Type your answers in boxes **A** and **B**.

(b) State the purpose of the Address Bus. (1)

Type your answer in the box.

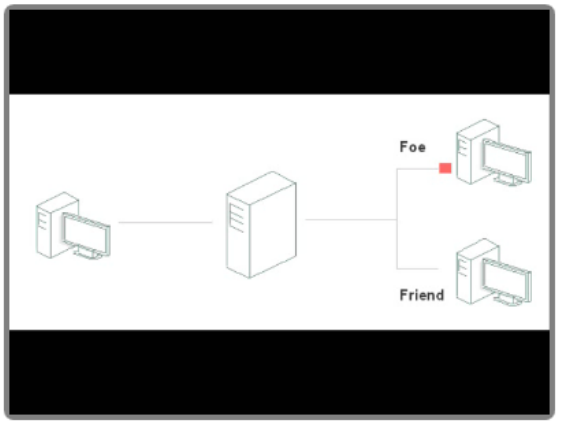


Question 7 / 18

One role of the operating system is to manage system security.
The animation shows a utility feature of an operating system.

(a) Identify the utility feature shown in the animation. (1)

Type your answer in the box.



(b) Explain the process carried out by the utility feature shown in the animation. (2)

Type your answer in the box.

Question 8 / 18

All program code must be translated into machine code before it can be run.

(a) Identify the software that is used to translate source code into machine code. (1)

Click on **one** of the boxes.

- ☐ Converter
- ☐ Compiler
- ☐ Loader
- ☐ Generator

This is an example of annotated source code.

```
top: cmp ax,bx              ; check loop condition
     jae next               ; false? exit loop
     inc ax                 ; body of loop
     jmp top                ; repeat the loop
next:
```

(b) Identify the type of language that has been used to produce the source code. (1)

Click on **one** of the boxes.

- ☐ Procedural language
- ☐ Imperative language
- ☐ Assembly language
- ☐ Visual language

Question 9 / 18

Scott runs an online business and wants to provide his customers with up to date pricing information on his products.

(a) Identify the software application that Scott would use. (1)

Click on **one** of the boxes.

- ☐ Web-authoring software
- ☐ DTP software
- ☐ Presentation software
- ☐ Graphics software

Scott uses his laptop to calculate sales figures and discounts for special offers.

(b) Which application should Scott use to carry out calculations? (1)

Click on **one** of the boxes.

- ☐ Email software
- ☐ Word processing software
- ☐ Database software
- ☐ Spreadsheet software

Question 10 / 18

Jane is considering buying a new smartphone.
She has narrowed down her options to three phones that are similarly priced.
The table shows an extract from the specifications for each of the smartphones.

Item	Phone 1	Phone 2	Phone 3
Weight (g)	134	134	130
Resolution (px)	720 x 1280	1080 x 1280	480 x 854
Talktime (hrs)	9.5	7.2	10.5
Processor (MHz)	1200 Quad Core	1500 Dual Core	1000
Memory (MB)	512	1024	512
Storage (GB)	16	32	32
Expansion	SDHC	SDHC	SD Micro
Standby battery life (hrs)	520	520	520

Phone 2 has less talktime than phone 1 or phone 3.

Explain **one** reason why the specification of phone 2 limits talktime. (2)

Type your answer in the box.

Question 11 / 18

Ali is a media studies student and has to create and work with large image and video files.
She has £200.00 to spend and is looking at a laptop.
The specification of the laptop is shown.
Ali decides not to buy the laptop.

Price	**£ 199.00**
OS	Windows 8 (64-bit)
Weight (kg)	2.7
Processor (GHz)	1.8 Dual Core
Memory (GB)	6
Storage (TB)	2
Graphics card (MB)	256
Battery (cells)	12

(a) Identify **two** problems with the laptop specification that led to Ali's decision. (2)

Type your answers in the boxes.

1.

2.

(b) State **one** benefit of a 64-bit operating system. (1)

Type your answer in the box.

Question 12 / 18

The features of computer memory can affect performance and user experience.
The diagram shows the location of different types of memory.

(a) Complete the diagram with the correct memory types. (2)

Drag and drop the correct memory types into the spaces.

RAM | Disk cache | Flash memory | Cache | ROM

(b) Identify the type of memory that is non-volatile. (1)

Click on **one** of the boxes.

- Cache
- RAM
- ROM
- Disk cache

Question 13 / 18

An operating system is the layer of software that links the user with the components of a computer. The operating system must manage the computer's resources.

(a) Explain the role of the operating system in managing resources for multi-programming. (2)

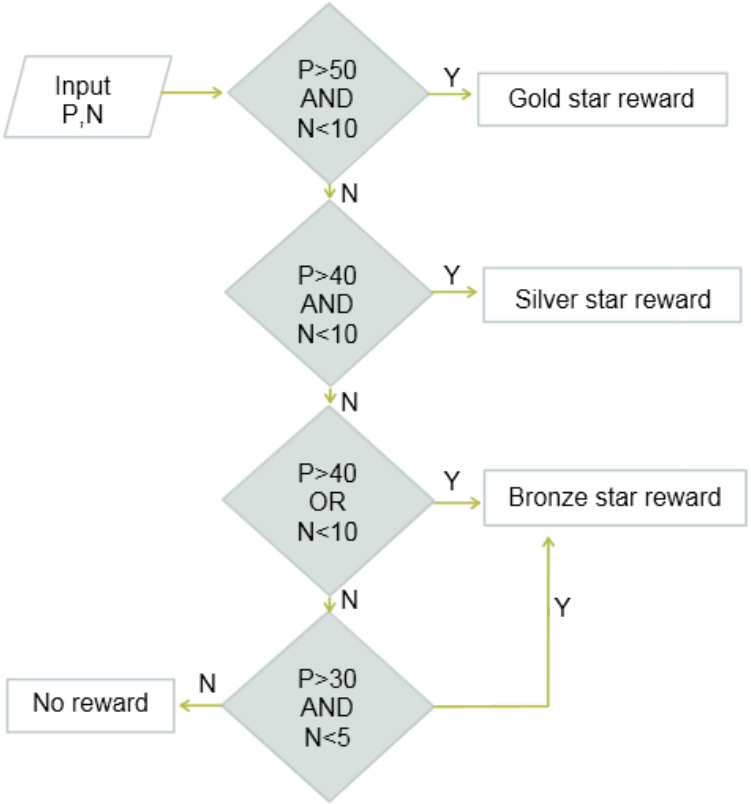
Type your answer in the box.

(b) Explain the role of the operating system in memory management. (2)

Type your answer in the box.

Question 14 / 18

Sian is designing a program for a pupil reward system.
The issue of rewards will be based on positive (P) and negative (N) behaviour points.
The flowchart shows the decisions that need to be made.



Enter the correct outputs in the table. (2)

Type your answers in the boxes.

	P	N	Output
1	55	15	
2	35	10	

Question 15 / 18

This is a design for a program that sorts two numbers into descending order.

```
Sort two numbers
NumX as integer 'NumX input by user'
NumY as integer 'NumY input by user'


Start sub NumSort
        Temp as integer
        If NumX<NumY then
        Temp = NumY
        NumY = NumX
        NumX = Temp
        End if
End sub NumSort

Start MainProg
        Output "Enter value",NumX
        Output "Enter value",NumY
        Call NumSort
        Output NumX, NumY
EndMainProg
```

(a) Explain the process being carried out by the selection statement in the sub-routine. (2)

Type your answer in the box.

'Temp' is an example of a local variable.

(b) Explain **one** reason why it is good practice to use local variables. (2)

Type your answer in the box.

Question 16 / 18

In addition to a smartphone, Ella has a laptop computer and a desktop PC at home.
She accesses her calendar on all three devices.

(a) Name the process used to keep Ella's calendar up to date on all three devices. (1)

Type your answer in the box.

Ella also owns a mobile Wi-Fi device which she uses with her laptop.

(b) Explain **one** advantage to Ella of using a mobile Wi-Fi device. (2)

Type your answer in the box.

Question 17 / 18

Computer programs can be written in different types of high-level language.
Here is an example of program code written in an event-driven language.

```
event click_button_enter (info[]) {
   if (info[x_rel_cordinate] > 55) {
     info['error_msg'] = 'You clicked the very edge of the button' ;
   } else {
     process_button...
   }
   return(info); | }
```

Explain **one** advantage of using programs written in an event-driven language. (2)

Type your answer in the box.

Question 18 / 18

An education and training centre is considering extending its computer network.
The extended network needs to support administration, marketing and management functions in addition to training.
The new network facilities could be cabled or wireless.

Discuss whether the centre should install a cabled or wireless extension to its network. (8)

Type your answer in the box.