General Certificate of Secondary Education
2015

Information and Communication Technology (Full Course)

Unit 3: Understanding ICT Systems
in Everyday Use and its
Implications for Individuals,
Organisations, Society and
the Wider World

[GIT31]

GIT31

WEDNESDAY 13 MAY, MORNING

TIME

2 hours.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at
the top of this page.
You must answer the questions in the spaces provided.
Do not write outside the boxed area on each page or on blank pages.
Complete in blue or black ink only. **Do not write with a gel pen.**
Answer **all seventeen** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 180.
Figures in brackets printed down the right-hand side of pages indicate the
marks awarded to each question or part question.
Quality of written communication will be assessed in Questions **5**, **7**, **9**, **12(h)**,
14, **15(b)** and **16**.

9404

For question 1 insert the appropriate letter in the space provided.

1 **(a)** Select the statement which is true about Random Access Memory.

    A   Random Access Memory is non volatile

    B   Random Access Memory is volatile

    C   Random Access Memory is present on the hard disk

    D   Random Access Memory is used in USB memory pens

Answer _____ [1]

(b) CSV means:

    A   Common Sense Value

    B   Comma Selected Value

    C   Command Secure Value

    D   Comma Separated Value

Answer _____ [1]

(c) Select the correct definition for information.

    A   Information is data without meaning and context

    B   Information is something you enter into a computer

    C   Information is raw facts and figures with no meaning

    D   Information is data that has been processed and presented in a meaningful form

Answer _____ [1]

(d) An ISP is an:

    A   Internet Service Provider

    B   International Standard Provider

    C   Internet Standard Provider

    D   International Service Provider

Answer _____ [1]

(e) In a database a key field:

    A   Has the same value for each record

    B   Is always numeric

    C   Has a different value for each record

    D   Must be made up of letters and numbers

Answer _____ [1]

(f) The term WORM means:

    A   Write Once Read Many

    B   Write Only Read Media

    C   Write Once Read Media

    D   Write Only Read Many

Answer _____ [1]

[Turn over

(g) Select the correct definition of vector-based graphics.

A Vector-based graphics store details about each of the pixels that make up the image

B Vector-based graphics store multiple images which run one after another to create animations

C Vector-based graphics store details about individual components that make up the image

D Vector-based graphics store details about the device used to capture photographic images

Answer _____ [1]

(h) Select the list which contains file formats most suitable for distributing sound files across the Internet.

A wmv, mp4, wma, mp3

B avi, midi, wav, mp3

C avi, mov, wmv, mp3

D midi, wav, wma, mp3

Answer _____ [1]

(i) Select the option that explains the advantage of optimising digital video files.

A Optimisation reduces file size for faster upload and download across the Internet

B Optimisation increases file size for improved quality of video before distribution

C Optimisation reduces the file size and ensures the video cannot be opened by anyone else for editing

D Optimisation increases the file size and ensures the video can be opened by anyone else for editing

Answer _____ [1]

(j) Select the correct definition of a hotspot on a website.

A An area with Wi-Fi access so you can connect to the Internet in a public area

B An area on an image you can click on to access a hyperlink to another web page or website

C An area on a website where you can access and edit the hyperlinks previously created by someone else

D An area on a website where you are provided with a list of all of the pages previously visited

Answer _____ [1]

(k) Select the statement that correctly describes how games consoles have developed over the years.

A Games consoles are becoming larger in size, they have increased processing power and they can generate higher quality graphics

B Games consoles are becoming smaller in size, they have increased processing power and they allow users to access a wide range of functions

C Games consoles are becoming smaller in size, their processors are less powerful and they can produce 3D graphics

D Games consoles are becoming larger in size, their processors are less powerful and they can generate high quality graphics

Answer _____ [1]

2 (a) Expand the acronym OCR.

_____ [1]

(b) In the table below, tick (✓) **two** processes which are most likely to make use of OCR.

Process	Tick (✓)
Scanning a document so that the data can be edited	
Entering data directly onto a spreadsheet	
Using a GUI	
Converting handwritten postcodes on envelopes into electronic data	
Typing a document in a word processor	

[2]

3 Forest High School allows pupils to bring their own laptops and tablets to school to access the wireless network.

Below are the details about two pupils' tablets.

	Tablet 1	Tablet 2
Screen	Size = 7.9 inches Resolution=1024x768	Size = 7 inches Resolution 1920x1200
Memory	512MB RAM	2GB RAM
Processor	1GHz Dual Core	1.5GHz Quad Core
Storage	64GB	16GB
Bluetooth	Yes	Yes
Wi-Fi	Yes	Yes
3G	No	Yes
Wireless Charging	No	Yes
Camera	8 Megapixels	5 Megapixels

(a) In the table below, tick (✓) **two** statements which are true about the tablets.

Statement	Tick (✓)
Tablet 1 will have Internet access without the need to log on to the wireless network	
Tablet 2 will have Internet access without the need to log on to the wireless network	
Tablet 1 will take better quality photographs than tablet 2	
Tablet 2 will take better quality photographs than tablet 1	

[2]

44GIT3108

(b) Complete the table below, by circling the name of the tablet you would recommend for each purpose. In each case explain your choice.

Purpose	Which Tablet?	Explain your choice of tablet below.
Playing online games	Tablet 1 Tablet 2 [1]	[2]
Storing HD movies	Tablet 1 Tablet 2 [1]	[2]

[Turn over

Both tablets have Wi-Fi and Bluetooth technologies.

(c) (i) Complete the sentence below by choosing the correct words from the list supplied.

STANDARDS   **WAVES**   **DEVICES**

Wi-Fi is short for Wireless Fidelity. It is a set of _____

for using short range radio _____ to allow

computing _____ to connect to a LAN or to the

Internet.

[3]

(ii) List **two** features of Bluetooth technology.

1. _____

_____

2. _____

_____ [2]

Each tablet has different amounts of RAM.

(d) (i) What is the purpose of RAM?

_____

_____ [2]

(ii) How can the amount of RAM impact on the performance of the tablet?

_____

_____ [2]

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44GIT3110

(e) Describe **two** advantages to the pupils of having access to the wireless network.

1. _____

_____

2. _____

_____ [2]

(f) List **two** security measures the school could take to ensure only authorised users log on to a wireless network.

1. _____

_____

2. _____

_____ [2]

[Turn over

4 SamsonDigital Ltd is a software development company.

The company has developed a new application for pupils who are studying GCSE ICT. Pupils can download the application and use it on a computer or mobile device.

In order to download the application pupils must log on to a secure website which uses encryption and a firewall.

(a) What is a firewall?

_____

_____

_____ [2]

(b) Describe the process of encryption.

_____

_____

_____

_____

_____ [3]

Pupils are asked to set a password when they first log on to the website.

(c) List **two** pieces of advice that a pupil should follow when selecting a password.

1. _____

_____

2. _____

_____ [2]

9404

The website is stored on a file server which is backed up daily.

(d) Apart from backup, list **two** functions of a server on any network.

1. _____

_____

2. _____

_____ [2]

(e) Explain how data can be backed up on a network.

_____

_____

_____ [2]

(f) List **one** advantage to the pupil of using a mobile device to run the application.

_____

_____ [1]

[Turn over

9404

5 EFTPOS and barcodes are widely used in shops. Describe these two technologies under the following headings:

How EFTPOS and barcodes help to provide better services for customers

_____

_____

_____

_____

_____

_____

_____

How EFTPOS and barcodes help to provide accurate information for the shop owners

_____

_____

_____

_____

_____

_____

_____

_____ [6]

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(Questions continue overleaf)

44GIT3115

6 Below is a section of a spreadsheet for a local grocery store, showing costs and delivery charges.

	A	B	C	D	E	F	G	H	I	J
1	Delivery Charges - SM Groceries Ltd									
2	Client Code	Client Name	Address	Cost of Goods	Distance (miles)	Delivery Cost	Cost	Gold Card	Discount	Total Payable
3	DL101	Mr M Gillan	1 Papton Ave	£ 185.80	12	£ 5.00	£190.80	Y	£ 9.54	£ 181.26
4	DL102	Mrs P Mahon	23 Island Path	£ 320.67	14	£ 5.00	£325.67	Y	£ 16.28	£ 309.39
5	DL103	Miss R Rowan	19 Upper Rd	£ 150.78	18	£ 9.00	£159.78	N	FALSE	£ 159.78
6	DL104	Mr J Wilson	3 Papton Ave	£ 98.06	12	£ 5.00	£103.06	Y	£ 5.15	£ 97.91
7	DL105	Mrs L Harking	62 Oak Path	£ 204.50	22	£ 11.00	£215.50	N	FALSE	£ 215.50
8	DL106	Miss S Mullin	88 Elm Park	£ 300.90	25	£ 12.50	£313.40	N	FALSE	£ 313.40
9	DL107	Mr P Jones	11 Belmont	£ 100.67	10	£ 5.00	£105.67	N	FALSE	£ 105.67
10	DL108	Mr A Greene	14 Harrow Rd	£ 107.67	9	£ 5.00	£112.67	N	FALSE	£ 112.67
11					122		£325.67	3		£1 495.57
12										
13										
14		Cost for Delivery	0–15 miles	£ 5.00						
15			Cost per mile if more than 15 miles	£ 0.50						

(a) In the table below, tick (✓) the formula which has been used in cell J11.

Formula	Tick (✓)
=SUM(J3:J10)	
=SUM(G11:H11)	
=SUM(D3:D11)	

[1]

(b) Write down the formula you would expect to find in cell G3.

_____ [1]

Delivery costs are £5 if customers live within 15 miles of the store, otherwise the cost is 50 pence per mile.

(c) (i) In the table below, tick (✓) the IF statement which will give the correct results for cell F3.

IF Statement	Tick (✓)
=IF(E3<=15,500,E3*50)	
=IF(E3<=15,5,E3*0.50)	
=IF(E3<=15,5,E3*50)	

[1]

(ii) The IF Statement can make use of absolute cell references instead of values. Complete the following IF Statement using absolute cell references.

=IF(E3<=15, _____, E3*_____)

[2]

(iii) State **one** advantage of using absolute cell references in this IF statement.

_____

_____

_____ [2]

[Turn over

A discount of 5% is given to clients who have a Gold Card.

(d) The IF Statement below will show FALSE in cell I5 when a customer does not have a Gold Card. In the table below, change the IF Statement so that a value of 0 will appear in cell I5 when a customer does not have a Gold Card.

IF statement showing FALSE in cell I5	IF statement showing 0 in cell I5
=IF(H5="Y",G5*0.05)	[1]

(e) What function has been used in cell G11?

_____ [1]

A spreadsheet can be used to view the effect of changing values in cells.

(f) Describe **one** way in which this feature could be used to help the owner of SM Groceries Ltd to make decisions on pricing.

_____

_____

_____ [2]

9404

7 The use of computer systems has provided new and changing job opportunities. Describe **two** ways in which technology has affected job opportunities in the ICT and computing sector.

1. _____

_____

_____

_____

_____

_____

2. _____

_____

_____

_____

_____

_____ [6]

8 Molly wants to design a computer game to help primary school children with their spelling.

The game needs to be a puzzle game.

(a) In the table below, place a tick (✓) beside the **two** statements that help describe a puzzle game genre.

Statement	Tick (✓)
Fast reactions are needed in time crucial scenarios	
The player answers quiz type questions	
The game is played through the eyes of another character	
The game gets harder the longer you play	

[2]

(b) Apart from using graphics state **two** ways Molly can make the game suitable for primary school children.

1. _____

2. _____ [2]

Molly searches the Internet for graphics to use in her computer game.
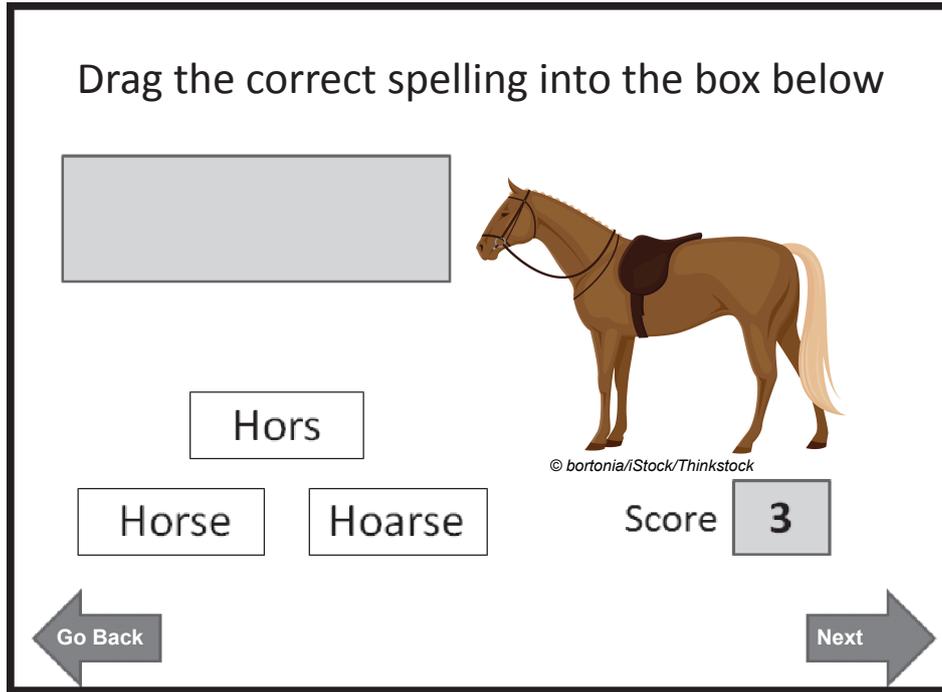
(c) Molly's friend tells her not to use images with a .bmp file extension.

Explain why this is not an appropriate file type for a computer game.

_____

_____ [2]

In Molly's game pupils have to drag the correct spelling of a word into a box. A screenshot is shown below.

Drag the correct spelling into the box below

Hors

Horse   Hoarse

© bortonia/iStock/Thinkstock

Score   3

Go Back   Next

(d) Identify an appropriate input device for Molly's game.

_____ [1]

Molly wants to use sound in her game.

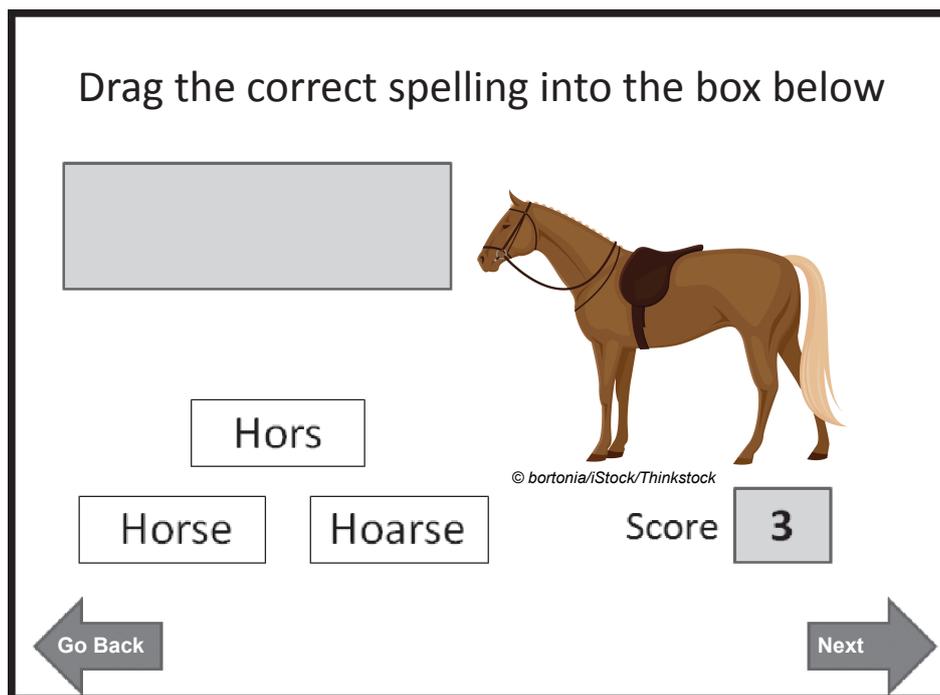**(e)** Give **two** examples of how sound can be used in Molly's computer game.

1. _____

2. _____ [2]

(f) Circle **one** example of feedback shown on the game screen below.

Drag the correct spelling into the box below

Hors

Horse   Hoarse

© bortonia/iStock/Thinkstock

Score 3

Go Back   Next

[1]

(g) Molly needs to design a User Guide for her game. List **three** pieces of information Molly should include in the User Guide.

1. _____

2. _____

3. _____ [3]

Molly needs to test her game before she allows the children to play it.

(h) Describe how Molly should test the following parts of her game.

Score: _____

_____

_____

Navigation: _____

_____

_____ [4]

9 Many people now play computer games on portable devices such as mobile phones.

Explain how mobile phones now support gaming applications. You should refer to the processor, screens and 3G in your answer.

Processor: _____

_____

_____

_____

_____

Screens: _____

_____

_____

_____

_____

3G: _____

_____

_____

_____

_____ [6]

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(Questions continue overleaf)

10 Annie is a graphic designer.

As part of her job she sometimes uses presentation and graphics packages.

(a) (i) Identify **one** advantage of using a master slide in a presentation.

_____

_____ [1]

(ii) Describe how a hyperlink can be used in presentation packages.

_____

_____

_____

_____ [2]

(iii) Identify **two** file types suitable for storing animated graphics.

1. _____

2. _____ [2]

Annie is often asked to edit photographs for family members.

(b) Apart from the use of cables describe **one** method Annie could use to transfer images from a camera across to her computer.

_____

_____

_____ [2]

Annie is given the following image by a school cafeteria. They want to use it on a poster.

© CCEA

(c) Annie needs to edit the image so that only the apple can be seen. What feature of a graphics package would she use to do this?

_____ [1]

(d) State **two** ways in which the image below has been changed from the original image above.

© CCEA

1. _____

2. _____ [2]

[Turn over

44GIT3127

Annie stores some of her images in JPEG format.

(e) (i) Expand the acronym JPEG.

_____ [1]

(ii) Describe **one** advantage of storing images in JPEG format.

_____

_____ [2]

Annie has some images on her mobile phone. She would like to send them to her friend's mobile phone but the message fails to send.

(f) State **two** reasons why Annie might not be able to send this message to her friend's phone.

1. _____

2. _____ [2]

9404

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(Questions continue overleaf)

11 David is entering a competition on a local radio station. He has to design a 30 second music introduction for one of the shows on the radio station.

He wants to use a MIDI connector to link his music keyboard to the computer.
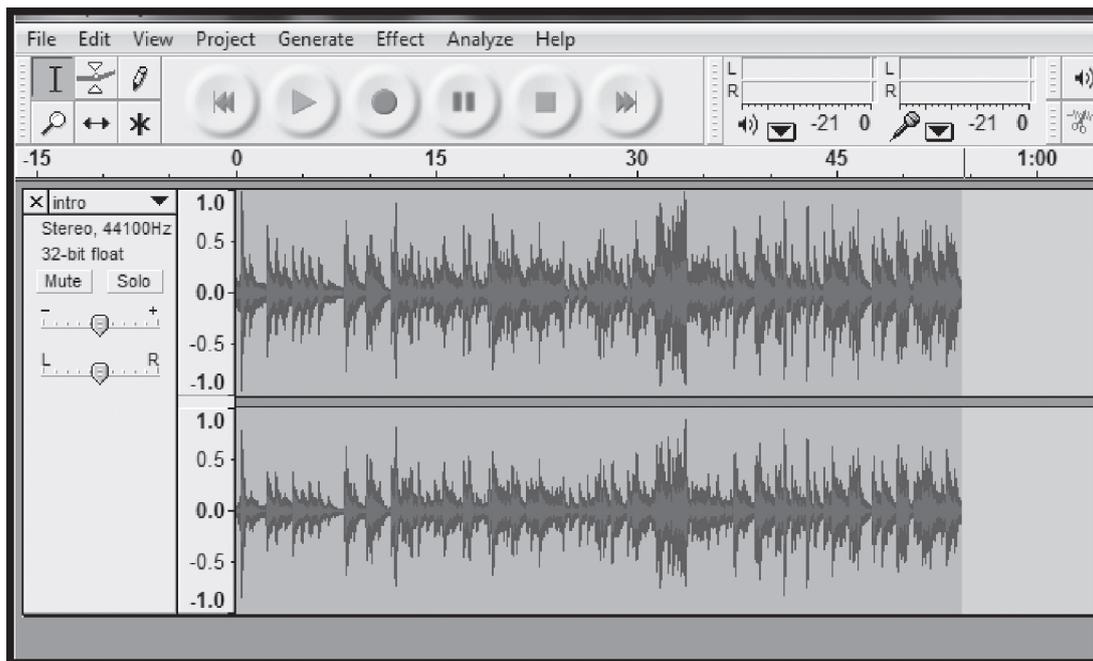
(a) Expand the acronym MIDI.

_____ [1]

(b) Describe **one** advantage of recording music from the keyboard directly onto his computer.

_____

_____ [2]

David opens up his soundtrack in an editing package. His soundtrack can be seen below.

© CCEA

(c) From the image on the previous page, identify **one** problem with the soundtrack David has created.

_____

_____ [1]

David wants to record a voiceover at the start of the soundtrack.

(d) Identify **one** input device he would use for this task.

_____ [1]

David needs to compress the file before he can email it to the radio station.

(e) (i) Describe how this could impact on the quality of the soundtrack.

_____

_____

_____ [2]

(ii) State how this will affect the file size.

_____ [1]

[Turn over

44GIT3131

12 Peter has been asked to design a website for a local sports club.

He creates the website shown below.

© Belfast Fencing Club
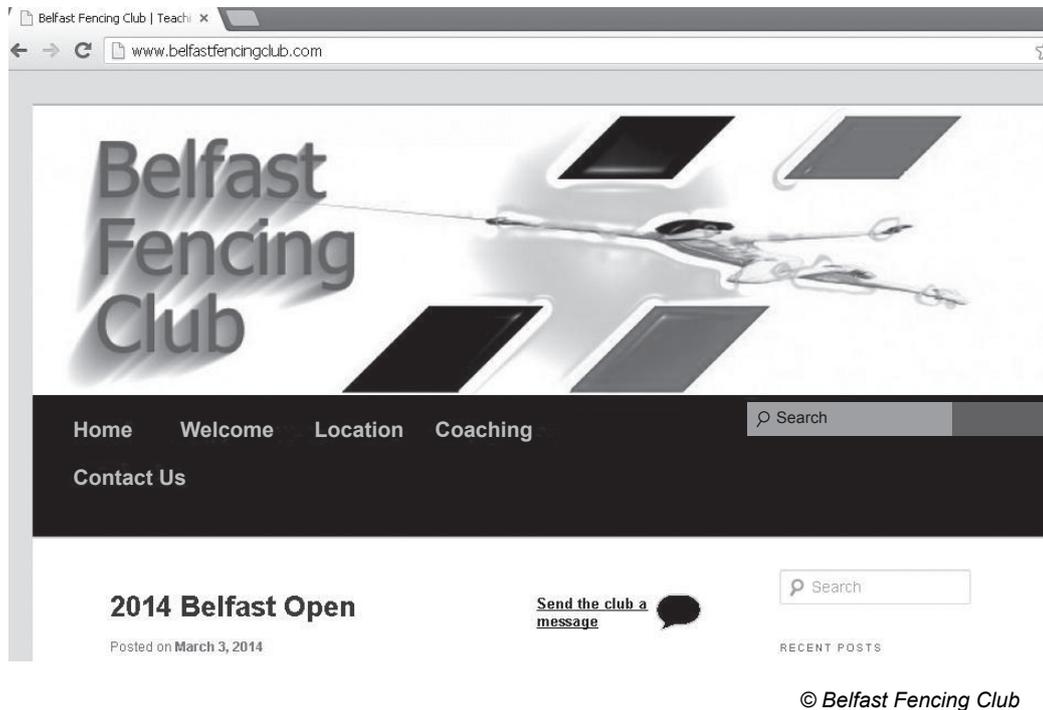
(a) State the name of **one** hyperlink on the website shown above.

_____ [1]

Websites are created using HTML.

(b) Expand the acronym HTML.

_____ [1]

Peter has over one hundred images and video clips to add to the website.

(c) (i) Peter decides to add them as thumbnail images. What is a thumbnail image?

_____

_____ [2]

(ii) State **two** problems that the club might have if they are to include a large number of images and video clips on their website.

1. _____

2. _____ [2]

The navigation buttons on each page are in the same order and same location on each page of the website.

(d) Why is consistent navigation important in website design?

_____

_____ [2]

(e) Why should Peter use Preview Mode to view the website in a browser before uploading it to the Internet?

_____

_____

_____ [2]

[Turn over

Peter used a template to create each of the pages shown below.

(f) Use the two web pages above to identify **two** items he may have included in his template design.

1. _____

2. _____ [2]

(g) The documents on Peter's website are stored in PDF format.

What is the advantage of storing documents in PDF format if they are to be shared across the Internet?

_____

_____

_____ [2]

(h) Peter used a range of tools to help him create the website. Describe how each of the following features can be used when creating a website.

Design View _____

_____

_____

_____

_____

_____

_____

Forms _____

_____

_____

_____

_____

_____

_____ [6]

13 Sean is using a database to store details of second-hand cars and their sales.

(a) He has created the table below for his business.

TBL_CARDETAILS						
REGISTRATION	MAKE	MODEL	YEAR OF MANUFACTURE	COLOUR	PRICE	MILEAGE
AXZ3456	MINI	COOPER	2009	BLACK	£10,000.00	15001
DNZ7812	MAZDA	MX5	2008	GREEN	£8,500.00	46512
FGZ4976	MINI	ONE	2009	RED	£9,250.00	56489
GGZ8512	MAZDA	3	2010	BLUE	£8,250.00	48723
PRZ6589	BMW	3	2012	RED	£19,000.00	5000
TKZ1289	BMW	1	2011	SILVER	£15,000.00	8250

© CCEA

(i) How many fields are in the table?

_____ [1]

(ii) How many records are in the table?

_____ [1]

(iii) Suggest data types for the following fields:

Fieldname	Data Type
REGISTRATION	
PRICE	
MILEAGE	

[3]

44GIT3136

(b) Sean has queried the database using the following criteria:

Price> 9000 AND Price<=15000.

In the box below, list the REGISTRATION of the cars which will be returned when he runs the query.

[3]

After adding some cars to the database, Sean has produced the report shown below.

Car Details

YEAR OF MANUFACTURE	PRICE	REGISTRATION	MAKE	MODEL	COLOUR	MILEAGE
2008						
	£8,500.00	DNZ7812	MAZDA	MX5	GREEN	46512
2009						
	£9,250.00	FGZ4976	MINI	ONE	RED	56489
	£10,000.00	AXZ3456	MINI	COOPER	BLACK	15001
	£18,000.00	IUI3091	VOLVO	C70	BLACK	500
2010						
	£8,250.00	GGZ8512	MAZDA	3	BLUE	48723
2011						
	£6,000.00	RIW2345	VAUXHALL	CORSA	RED	23000
	£15,000.00	TKZ1289	BMW	1	SILVER	8250
2012						
	£6,500.00	JKZ3456	FORD	FOCUS	SILVER	2460
	£19,000.00	PRZ6589	BMW	3	RED	5000

© CCEA

(c) List **two** reporting features that he has used to organise the information on the report.

1. _____

2. _____ [2]

(d) Sean's secretary has suggested using a flat file database. Explain **two** disadvantages of storing data in a flat file instead of a relational database.

1. _____

_____

_____

2. _____

_____

_____ [4]

14 Working for long periods on a computer can lead to health problems. Describe how the following health and safety issues can be reduced.

RSI _____

_____

_____

_____

_____

_____

_____

Eyestrain _____

_____

_____

_____

_____

_____

_____ [6]

15 (a) Nalan is studying the Copyright, Designs and Patents Act at school. In the table below, tick (✓) the activities that could break this law.

Statement	Tick (✓)
Photocopying all the pages from a text book	
Modification of your own work on the school network	
Uploading his own photographs to social networking sites	
Making copies of films on DVD	

[2]

(b) The Data Protection Act places certain legal requirements on companies that collect data about people.

Describe the role of the following people in the Data Protection Act.

- The Information Commissioner
- The Data Controller
- The Data subject

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

[6]

16 Ellen teaches in a coastal area in Northern Ireland. Some of her students live on islands. In the winter they can be cut off from school because of storms. Ellen has decided to use the school VLE to help teach these students.

Describe **three** advantages to students unable to attend school of using a VLE for studying.

Advantage 1 _____

_____

_____

_____

Advantage 2 _____

_____

_____

_____

Advantage 3 _____

_____

_____

_____ [6]

17 Using the terms in the list below, choose **one** term that best matches the definition in the left-hand column (**not all words in the list will be used**).

MASTER   EMBEDDING OBJECTS   FEEDBACK   WIZARD

FLASH   DATA PORTABILITY   LINKING OBJECTS   SENSOR

RANGE   TRANSITION   ROM   MACRO   BATCH

BOOLEAN   PRESENCE   INTEGER   ONLINE

Definition	Term
A tool provided within a software package to help users complete a task	
A type of computer memory which cannot be written to	
A computer process where the output from the system affects the input to the system	
A type of slide which defines the layout of all the other slides in a presentation	
A validation check used to ensure that data has been entered by the user	
A data type used when the data can have only two values	
The ability to transfer files from one system to another	
A processing method where data is processed all at one time without human intervention	
A set of program instructions executed using a single command	
Placing a chart from a spreadsheet into a word processing document so that the chart will change when the spreadsheet data changes	

[10]

―――――――――――――――――――――――――

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