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GCSE

Information and Communication Technology

Summer 2009

Mark Schemes

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NORTHERN IRELAND GENERAL CERTIFICATE OF SECONDARY EDUCATION (GCSE)
AND NORTHERN IRELAND GENERAL CERTIFICATE OF EDUCATION (GCE)

MARK SCHEMES (2009)

Foreword

Introduction

Mark Schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of 16 and 18-year-old students in schools and colleges. The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes therefore are regarded as a part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

The Council hopes that the mark schemes will be viewed and used in a constructive way as a further support to the teaching and learning processes.

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Rewarding Learning

General Certificate of Secondary Education
2009

Information and Communication Technology

Full Course

Paper 1

Foundation Tier

[G5801]

TUESDAY 19 MAY, AFTERNOON

MARK SCHEME

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			AVAILABLE MARKS
1	**(a)** C	[1]	
	(b) A	[1]	
	(c) C	[1]	
	(d) A	[1]	
	(e) C	[1]	
	(f) B	[1]	
	(g) A	[1]	
	(h) A	[1]	
	(i) B	[1]	
	(j) B	[1]	10

2 **(a)**

Sensor	Tick (✓)
Heat	
Light	
Pressure	✓
Motion	✓

[2]

(b) Convert analogue signals to digital signals [1]
Allow sensor to connect/communicate with PC [1]
Convert analogue to digital [1]
do **not** accept a restatement of the stem
[1] for each correct answer to a total of [2] [2] 4

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AVAILABLE MARKS

3 (a)

Output	File Format
Printed copies of instructions on how to play his music	**doc**
Sound files of him playing his music	**MP3**
Images of the instruments he teaches	**jpeg**

[3]

(b) Can sell 24 × 7 [1]/greater customer base [1]/Database of customers is built up [1]/no premises required [1]/fewer overheads [1]
Improved advertising potential [1]
Electronic **files** can be sold online/via downloading [1]
[1] for each correct answer to a total of [2] [2]

(c)

Equipment	Tick
Word processor	
Browser	
MODEM	✓ [1]
Broadband link	✓ [1]

[2]

(d) Digital Versatile/Video Disk [1]

8

4 (a) (i) Local Area Network [1]

(ii) Any **one** from:
Data can be backed up [1]
User activities can be monitored [1]
Peripheral devices can be shared [1]
Software can be shared [1]
Username and password security available [1]/enhanced security [1]
Users can save work centrally on the network's file server [1]
Users can retrieve work from any workstation on the network [1]
Users can communicate with each other [1] (no reference to online)
Users can share data [1] [1]

(iii) Any **one** from:
Requires specialist knowledge to operate [1]/manage them [1]
Expensive to set up [1]
Server failure may mean no computers will operate [1] [1]

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				AVAILABLE MARKS
(b)	**(i)**	Any **one** from Interact/communicating across a network/link using sound and moving images/video (+ devices acceptable) [1] Face-to-face conference across a network [1]	[1]	
	(ii)	Any **three** from: Video camera/web cam [1] (**not** video recorder – **not** camera) Microphone [1] Speakers [1] Screen/TV/monitor [1] Computer [1] High speed data communications link [1]	[3]	
	(iii)	Any **one** from: Solicitors will be able to see each other while speaking [1] Improved communication and better relationships because of human aspect [1] Technology can include output from pc screen [1]	[1]	
	(iv)	Any **one** from: Fax machine must be switched on or manned to receive faxes [1] Information received cannot be edited [1]	[1]	
	(v)	Any **one** from: Sending signed/legally binding/drawing documents to clients [1] Fax machine can send handwritten/signed/hard copy documents [1]	[1]	10
5	**(a)**	**(i)** Any **two** from: Working remotely/from home [1] using communication technology/Internet/computer and Internet link to communicate with the company [1]	[2]	
		(ii) Any **two** from: Can recruit from any area in the world [1] Greater chance of finding suitable applicants/greater pool of applicants [1] Fewer overheads/fewer offices [1] Labour market cheaper elsewhere [1] No travel expenses [1]	[2]	
	(b)	**(i)** Random Access Memory	[1]	
		(ii) Better quality graphics on screen because there are more pixels per unit area	[1]	
	(c)	Data Protection (Act) **not** DPA	[1]	7

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					AVAILABLE MARKS
6	(a)	(i)	Any **one** from: Can book at anytime [1] Written/immediate confirmation [1]	[1]	
		(ii)	Any **one** from: May not have a computer/access to the internet/credit card [1] Lack of IT competence/confidence [1]	[1]	
	(b)	(i)			

Statement	Tick (✓)
The WWW is the information stored on the Internet	✓
The Internet is a set of web addresses	
The Internet is a network of computers and communication links	✓
The WWW is a set of web addresses	

[2]

		(ii)	A website which is accessible only to authorised users/ from within an organisation	[1]	5
7	(a)		RECORDS [1] FIELDS [1] FORMS [1]	[3]	
	(b)		Report [1] query [1]	[2]	5

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				AVAILABLE MARKS
8	**(a)**	Cleared **Merged** Pasted	[1]	
	(b) **(i)**	C6*B6 **or** =C6*B6 **or** C6 × B6 **or** C6 multiplied by B6	[1]	
	(ii)	D6-F6 **or** =D6-F6	[1]	
	(c)	D4 [1]/G4 [1]/G8 [1]	[3]	
	(d) **(i)**	Pie chart	[1]	
	(ii)	A3:A6 [1] and G3:G6 [1] **or** A3 to A6 [1] and G3 to G6 [1]	[2]	
	(iii)	Bar chart [1]/line graph [1]	[1]	
	(iv)	Any **one** from Easier to see patterns and trends (or example thereof) [1] Easier to read/understand [1]	[1]	
	(v)	Best rental car [1]/relative rental figures [1]	[1]	12
9	**(a)**	Text which occurs at the **bottom** of **every page** of a document	[1]	
	(b)	Any **one** from To view/check the print layout/appearance of the document [1] In case there is something wrong and she wastes paper printing it [1]	[1]	
	(c)	The picture is a hyperlink	[1]	
	(d)	Any **one** from Not in the dictionary [1]/may be place names or people's names [1]	[1]	
	(e)	Any **one** from Word spelt correctly but used in the wrong way, e.g. "there" and "their" [1] Uses another language/dictionary [1]	[1]	5

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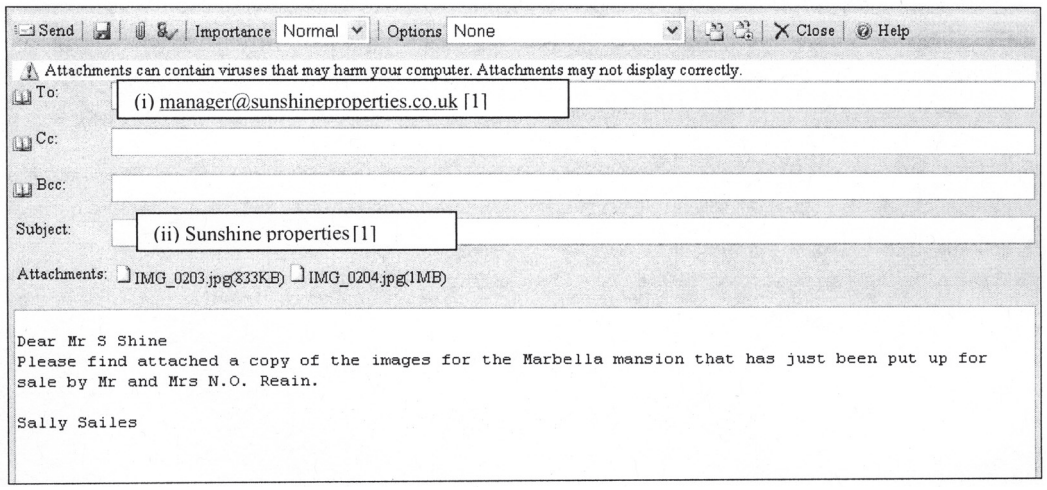
AVAILABLE MARKS

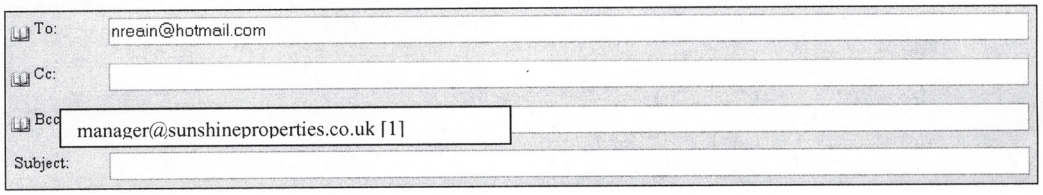
10 (a)



[2]

(b) Any **one** from
They may have been corrupted by viruses [1]/may not have appropriate software [1]
Virus protector stops it from showing properly [1] [1]

(c)



[1] 4

11 (a) Scanner [1] Database [1] Beep [1] Description [1] [4]

(b) Any **two** from:
Product code (or Product number) [1]/manufacturer code [1]/ country of origin/country of origin code [1]/check digit [1] [2] 6

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AVAILABLE MARKS

12 (a)

File Format	Tick
.htm	
.http	✓
.html	

[1]

(b) Any **one** from
Can slow the time taken for the page to appear on the screen [1]
User may not have correct plugin [1] [1] 2

13 (a) PORTRAIT [1]

(b) Any **two** from
Templates/layouts/design sets [1]
Tables [1]
Frames/sections [1]
Text boxes [1]
Graphic overlay/patterned/coloured background [1]
Colour/font size/font type/style [1] – only 1 ref to font accepted
Columns [1]
Borders [1]
Text wrap [1]
Wizard/help/instructions to assist user [1] [2]

(c) LANDSCAPE [1]

(d) (i) CENTRED [1]

(ii)

Feature	Tick
Right Justify	
Underline	
Table	✓
Left Justify	✓
Italics	

[2] 7

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14

Definition	Term
A program designed to damage a computer system.	VIRUS
A digit added to the beginning or end of a number to verify that the number entered is an authentic code.	CHECK DIGIT
A way of encoding data before transmitting it on a network.	ENCRYPTION
A company which provides the user with a connection to the Internet.	ISP
A measure of the quality of an image.	RESOLUTION
A device used to capture data by passing light over the image.	SCANNER
An optical storage device.	CD-ROM
A measure of the amount of data which can travel along a communication cable.	BANDWIDTH
A set of rules used for communicating over networks.	PROTOCOL
A name used to describe data held as 1s and 0s.	DIGITAL

[10]

QWC

Total

AVAILABLE MARKS
10
5
100

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The assessment of quality of written communication.

Marks are to be allocated to QWC in accordance with the following criteria.

Performance Level	Criteria	Marks
Threshold	Candidates spell, punctuate and use the rules of grammar with reasonable accuracy; they use a limited range of specialist terms appropriately.	0, 1
Intermediate	Candidates spell, punctuate and use the rules of grammar with considerable accuracy; they use a good range of specialist terms with facility.	2, 3
High	Candidates spell, punctuate and use the rules of grammar with almost faultless accuracy; deploying a range of grammatical constructions; they use a wide range of specialist terms adeptly and with precision.	4, 5

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Paper 2

Foundation Tier

[G5802]

FRIDAY 5 JUNE, MORNING

MARK SCHEME

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			AVAILABLE MARKS
1	**(a)**	Keep password secret/so no-one else can see password when typing it in [1]	
	(b)		

Media	**Tick**
CD RW	
DVD	
Magnetic Tape	✓

[1]

(c)

Address	**Tick**
http://www.bkrecruitment.co.uk	
htpp://www.bkrecruitment.co.uk	
https://www.bkrecruitment.co.uk	
https://www.bkrecruitment.co.uk	✓

[1]

(d)

Hacking	**True**
It is always carried out by people that the company does not know	
If the files are encrypted, the hacker may not be able to read them	✓
Is always carried out using the Internet	

[1]

(e) Any **two** from:
Not sharing storage devices [1]
Not downloading files from the internet [1]
Not using shareware or freeware [1]
Use of/Running regular antivirus [1]/use Anti-virus software [1]
Regularly updating virus definitions [1]
Not opening emails from unknown sources [1]
Using a firewall [1]
Restricting site [1] Max [2] 6

2 **(a)** 6 [1]

(b) 7 [1]

(c) 2 [1]

(d) Patient ID [1]
Appointment ID [1] [2]

(e) Links the two tables together [1]

(f) Relational [1] 7

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		AVAILABLE MARKS
3	**(a)** **(i)** Hacking/unauthorised access [1]	
	(ii) Fraud/Misuse of IT for own advantage (description of example) [1] Plant a virus [1]	
	(b) Copyright, Designs and Patents Act (Accept copyright) [1] more storage space required [1]	
	(c) **(i)** Time consuming [1] requires a lot of manpower [1] [1]	
	(ii) Install on server [1] [1]	5
4	**(a)**	

Solution	**Injury**
Work in a well lit room with a flicker-free screen	Eye Strain [1]
Use adjustable seats with good support	Back Strain [1]
Keep arms at 90° to the keyboard when typing	Repetitive Strain Injury (RSI) [1]

[3]

(b) Any **one** from:

Screens easily adjusted	[1]
Larger screens on PC	[1]
Eyestrain	[1]
Keyboard larger on PC	[1]
You have a separate mouse	[1]
Battery life	[1]
Laptop can overheat	[1]
Less chance of back strain	[1]

[1]

(c) Portability/can easily be brought with them when travelling [1] [1] 5

5 **(a)** Checking data to see how acceptable it is [1]/applying checks to data to reduce the chance of error [1] [1]

(b)

Validation Check	**Tick**
Check Digit	
Type Check	✓
Length Check	✓

[2]

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AVAILABLE MARKS

(c)

File	Tick
Master File	
Transaction File	✓

[1] 4

6 (a)

Advantage	Tick
You can delete pictures on a digital camera if you do not like them	✓
Digital cameras are cheaper to purchase than film cameras	
Pictures taken with a digital camera are better quality	
You can edit pictures on a digital camera before printing them	✓

[2]

(b) **Camera:** 2 [1]
Characteristic: it has 12 million pixels [1]/more pixels [1] [2] 4

7 (a) Any **one** from:
Money goes straight into their bank account [1]
Less cash stored [1]
Don't have to wait for cheques to clear [1]
Record of transactions can be kept [1]
No problems with cheques bouncing [1]
Ease of processing [1]
No cash exchange [1]
Less chance of error [1]
No errors with cash exchange [1]
Less chance of staff stealing money from tills [1]
More customers processed in less time as no counting money [1]
NOT keeping track of stock [1] [1]

(b) Any **one** from:
Less chance of error [1] (only credit once)
Itemised receipts [1]
Queues processed more quickly [1] [1]
Does not have to carry cash [1]

(c) Any **one** from:
Initial capital outlay [1]
Problems if break down [1]
Cost of maintenance [1]
Staff need training [1] [1]
Delay of payment into shop owners account [1]

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			AVAILABLE MARKS
	(d) Any **one** from: Data cannot be changed [1] Need to be able to add money to the card [1] Cannot deduct money when they buy something [1] Too easily damaged [1]	[1]	4
8	**(a)** Public Switched/Service Telephone Network	[1]	
	(b) **Recommend** Broadband [1] **Reason** Any **two** from: Broader bandwidth so better synchronisation quality of sound/images [1] PSTN cannot carry/is too slow to carry sound and video [1] Broadband has a wider bandwidth [1] (Loads a lot faster) [1]/better Normal telephone will provide erratic images [1] Can use phone whilst on internet [1]	[3]	
	(c) Any **one** from: Web browser [1] Communication (software)/ISP (Software) [1] or suitable example, e.g. Internet Explorer	[1]	5

9 **(a)**

Statement	Tick
Data is only input into computers using a numeric keyboard	
Data can easily be understood by humans	
Data is meaningless to humans	✓

[1]

(b)

Statement	Tick
Data must be given a context before it becomes information	✓
Data must be backed up before it becomes information	
Data must be transmitted across a network before it becomes information	

[1]

(c)

Item	Information	Data
02890876598		✓
18/05/92 is my birthday	✓	

[2]

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(d)

Data Item	Data Types
Date of Birth ***e.g. 12/03/90***	(Date) / Numeric / Text
Shoe Size ***e.g. 3.5***	Date / (Numeric) / Text
House Number ***e.g. 34A***	Date / Numeric / (Text)
Height ***e.g. 1 m 60 cm***	Date / Numeric / (Text)

[3] AVAILABLE MARKS 7

10 (a) (i) Optical Mark Recognition/Reader [1] [1]

(ii) Any **two** from:
Fast entry of data [1] Quick marking of examinations [1]
Less chance for human error in data entry [1]
Less data entry staff needed [1]
Data can easily be validated when it is being entered [1]
Direct data capture [1] e.g. goes straight into computer [2]

(iii) Any **one** from:
Forms need to be carefully designed [1]
Forms need to be **printed accurately** [1]/**filled** in [1]
Software/Equipment can be expensive [1]
Not all questions can easily be answered in this way [1]
Problems with marking if machines break down [1]
Damaged documents cannot be read [1] [1]

(iv) Any **one** from:
Their results should be available more quickly [1]
There should be no mistakes in their marking [1] [1]

(v) So they are not picked up by the scanning equipment [1]/The light will not be absorbed by them when the document is scanned [1] [1]

(b) (i) Optical Character Recognition [1] Reader [1] [1]

(ii) Any **one** from:
Handwriting may be illegible [1]
or example postcode may be incorrect [1]
May not be included on the letter [1]
Postcode may not have been written in the wrong place [1] [1] 8

11 (a) Any **one** from:
He was using a different version of the program [1]
NOT The file is corrupt [0]*
He tried to open it using the wrong program [1]
Saved in wrong format [1]
He removed his storage device before the file finished saving [1] [1]

(b) Rich Text Format [1] *NOT FILE* [1]

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			AVAILABLE MARKS
(c)	Any **one** from: Bitmap/GIF/BMP/PCX/PICT/TIFF [1] PNG [1]	[1]	
(d)	File compression is the process of making files smaller [1] so they can be transmitted across the internet more quickly. [1] File compression may lead to a reduction [1] in quality of images and sounds in the file.	[3]	6
12 **(a)**	MP3 is a common format for sound files. [1] They store music in digital format for high quality playback. [1]	[2]	
(b) **(i)**	Any **one** from: They cannot make money from them [1] It is illegal [1] They cannot tell how many people listen to their tracks [1] It affects their chart rating [1]	[1]	
(ii)	Any **two** from: People advertise on their site [1] Some bands may sell the copyright to them [1] They can charge other companies for putting links on to their websites [1] They may not offer all tracks for free [1] Bands may pay the company to allow downloads [1] she may sell some tracks [1] People can pay for membership/make a donation [1]	[2]	5

13 **(a)**

Statement	Tick
They use online processing	
The user wears a mask when viewing the scene they are in	✓
They require computers with a very low processing power	

[1]

(b) **(i)** Any **one** from:
Doctors
Pilots
Navy
Astronauts
or suitable application/occupation [1]
NOT GAMES

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				AVAILABLE MARKS
	(ii)	**Advantage:** Any **one** from: avoid danger [1] can train in various conditions even when those conditions do not exist [1] cost effective [1] variables can be adjusted to aid training [1] many extreme conditions can be simulated [1] saves damage to equipment [1] real life experience of the situation [1]	[1]	
		Disadvantage: Any **one** from: expensive to design [1] may not take all factors into consideration [1]	[1]	4
14	**(a)**	Any **two** safety measures from: Do not give personal details over the internet (accept address/ telephone number, etc. only once) [1] Problems publish video pictures on line [1] People online may not be telling you the truth [1] Report anything that makes you feel uncomfortable [1] Do **not open files** from anyone you do not know [1] Log out if someone says something that you do not like [1] Do not agree to meet someone [1] *Reason**Hacking/gaining access to users computer [1] *Reason**Possibility of viruses [1] Communicate only with people you know [1] Keep profile Private [1]	[2]	
		And [1] for each suitable reason why that measure should be followed. Same reasons 1+2 [1]	Max [2]	
	(b)	Any **two** from: They may not understand text language [1] They may not know how to text [1] They can delete messages without realising [1] Lack of confidence with technology [1] Age related reasons, e.g. eyesight/shaky hands or arthritis [1]	[2]	6
			QWC	4
			Total	**80**

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Intermediate	Candidates spell, punctuate and use the rules of grammar with considerable accuracy; they use a good range of specialist terms with facility.	2, 3
High	Candidates spell, punctuate and use the rules of grammar with almost faultless accuracy; deploying a range of grammatical constructions; they use a wide range of specialist terms adeptly and with precision.	4

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2009

Information and Communication Technology

Full Course

Paper 1
Higher Tier

[G5803]

TUESDAY 19 MAY, AFTERNOON

MARK SCHEME

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				AVAILABLE MARKS
1	**(a)**	C		
	(b)	A		
	(c)	C		
	(d)	A		
	(e)	C		
	(f)	B		
	(g)	A		
	(h)	A		
	(i)	B		
	(j)	B	[10]	10

2 **(a)** Movement
Motion sensor/Pressure sensor [1] [1]

(b) Measures a physical quantity [1]
Measures changes in environmental conditions [1]
Captures analogue data signals [1]
so that data can be recorded/processed on a computer [1]
[1] for each correct answer to a total of [2] [2]

(c) Convert analogue signals (from sensor) to digital signals for computer [1] to allow sensor to connect to PC Convert analogue to digital [1] [2]

(d) Feedback ensures that the room temperature is maintained at the level selected [1] [1] 6

3 **(a)**

Output	File Format
Printed copies of instructions for using spreadsheets	doc
Sound files of his voice giving instructions on using a database	MP3
Video tutorials on using the wordprocessor	avi

[3]

(b) Can sell 24 × 7 [1]/greater customer base [1]/Database of customers is built up [1]/no premises required [1]/fewer overheads [1]
improved advertising potential [1]
files can be sold online/via downloading [1]
[1] for each correct answer to a total of [2] [2]

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AVAILABLE MARKS

(c)

Equipment	Tick
Wordprocessor	✓
Browser	
Modem	
HTML files	✓
Broadband link	
Spreadsheet	✓

[3]

(d) FTP/HTTP (acceptable) [1] [1]

(e) optimise graphics/do not use large graphics files (or large quantities of graphics)/ensure video files are compressed [1] [1]

(f) Digital Versatile/Video Disk [1] [1] 11

4 **(a)** **(i)** Any **two** from:
Data can be backed up [1]
User activities can be monitored [1]
Peripheral devices can be shared [1]
Software can be shared [1]
Username and password security can be implemented [1]/enhanced security [1]
Users can save work centrally on the network's file server [1]
Users can retrieve work from any workstation on the network [1]
Users can communicate with each other [1] No reference to online
Users can share data [1] [2]

(ii) Require specialist knowledge to operate/manage them
Potential for unauthorised access [1]
Server failure may mean computers do not operate [1] [1]

(iii) Any **three** from:
Stores all the data on network [1]
Stores all applications/software for network [1]
Connects all the computers on the network/Allows communication between users on network [1]
Stores usernames and passwords [1]
Manages shared peripherals [1]
Manages resource allocation [1] [3]

(b) Research [1]
Communication [1]
1 example of each for [2] [2]

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AVAILABLE MARKS

(c)

Protocol	Tick
Wireless Additional Protocol	
Wireless Application Protocol	✓
Wire Application Protocol	
Wireless Additional Protocol	

[1]

(d) **(i)** Interact/communicating across a network/link using sound and moving images/video [1] (accept devices) [1]

(ii) Any **three** from:
Video camera/web cam [1] – not video recorder – not camera
Microphone [1]
Speakers [1]
Screen/TV/monitor [1] [3]

(iii) Any **two** from:
Bandwidth determines the speed of data transmission/amount of data transmitted [1]
The higher the bandwidth the faster the data transmission [1]
the better the quality of the video and sound will be [1] [2]

(iv) Any **two** from:
Solicitors will be able to see each other while speaking [1]
Improved communication and better relationships because of human aspect [1]
Technology can include output from pc screen [1] [2]

(e) Sending signed/legally binding/drawing documents to clients [1]/
Fax machine can send handwritten/signed/hard copy documents [1] [1] 18

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				AVAILABLE MARKS
5	(a)	(i)	Any **two** from: Working remotely/from home [1] Using communications technology/Internet/computer and Internet link to communicate with the company [1] [2]	
		(ii)	Any **two** from: Can recruit from any area in the world [1] Greater chance of finding suitable applicants/greater pool of applicants [1] [2]	
	(b)	(i)	Any **two** from: Can work from home [1] Can work flexible hours [1] no commuting time [1]/costs [1] Less stress from travelling [1] More job opportunities [1] [2]	
		(ii)	Any **two** from: Teleworkers may not share company ethos [1] Cannot ensure they work the correct hours/monitoring difficult [1] Expensive equipment/set up costs [1] Additional training may be required [1] High dependency on technology [1] [2]	
	(c)		RAM – Any **two** from: Ensure substantial/high amount of RAM [1] More RAM better performance of game [1] [2] Monitor – Any **two** from: Use a high resolution monitor [1] to ensure that user has a good representation of graphics onscreen [1] [2]	
	(d)	(i)	Data Protection Act (must use full term – not DPA) [1]	
		(ii)	Any **two** from: Personal data must be processed fairly [1]/processed for purpose [1] Adequate/relevant/not excessive [1] Accurate/up-to-date [1] Not kept longer than necessary [1] Processed in accordance with the owner's rights [1]/can view data [1] Kept secure [1] Not transferred without protection [1] or permission [1] Not transferred outside the UK [1] [2]	
		(iii)	Data/Information Commissioner [1] [1]	
		(iv)	Data Controller – the person in a company who is responsible for controlling the way in which personal data is processed/managed [1] Data Subject – the individual who is the subject of the personal data [1] [2]	18

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AVAILABLE MARKS

6 **(a)** **(i)** **One** from:
Can book at any time [1]
Written/immediate confirmation [1] [1]

(ii) **One** from:
Customers must have computer [1]
Cost/specialist expertise needed to set up/maintain system [1]
Needs to be kept secure [1]
Website failure [1] [1]

(iii) May not have a computer/access to the Internet/credit card [1]
Lack of I.T. competence/confidence [1]

(b) **(i)**

Statement	
The WWW is the information stored on the Internet	✓
The Internet is a set of web addresses	
The Internet is a network of computers and communication links	✓
The WWW is a set of web addresses	
To access the WWW you need a web browser	✓

More than 3 ticks – [0] [3]

(ii) A website which is accessible only to authorized users/from within an organisation [1] [1]

(iii) Any **two** from:
post important information [1]/allow employees to upload information [1]/better communication for employees [1] [2] 9

7 **(a)** Records [1]
Fields [1]
Criteria [1]
Form [1] [4]

(b) **(i)** Postcode/Priority [1]

(ii) To calculate cost of orders less discount [1]
Calculate the amount owed by customer [1]

(iii) Query [1]

(iv) Uniquely identifies each record in the table/database [1] [4] 8

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					AVAILABLE MARKS
8	**(a)**		Merged	[1]	
	(b)	**(i)**	C6*B6 **or** =C6*B6 (accept × or multiplied by)	[1]	
		(ii)	D6-F6 **or** =D6–F6	[1]	
		(iii)	Sum(g3:g6)/sum(g3 to g6)/g3+g4+g5+g6	[1]	
	(c)	**(i)**	A3:A6 [1] and G3:G6 [1] or A3 to A6 [1] and G3 to G6 [1]	[2]	
		(ii)	Easier to see patterns and trends [1] Easier to read and understand [1]	[1]	
		(iii)	Best hiring car [1]/relative hiring figures [1]	[1]	
		(iv)	More explanatory title [1]/more information on purpose of graph [1]	[1]	
	(d)	**(i)**	C6*B13 or C6*B13	[1]	
		(ii)	A cell reference, which does not change [1] when copied to different cells in the spreadsheet [1]	[2]	
		(iii)	B13 or B13	[1]	
		(iv)	Only 1 change is required in cell B13 if the driver cost per hour changes.	[1]	14
9	**(a)**		Text which occurs at the **bottom** of every page of a document [1]	[1]	
	(b)		She may not want numbers on the cover page of her document. [1]	[1]	
	(c)		(Right click and) remove the hyperlink [1] Save image locally	[1]	
	(d)		Not in the dictionary [1]/may be place names or people's names [1]	[1]	
	(e)		Word spelt correctly but used in the wrong way. E.g. "there" and "their" [1] Suitable example needed	[1]	5

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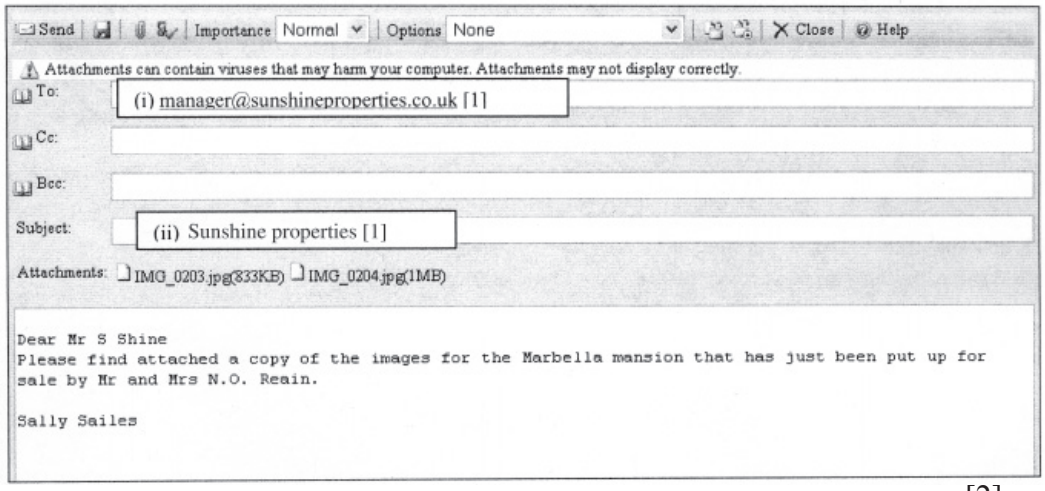
AVAILABLE MARKS

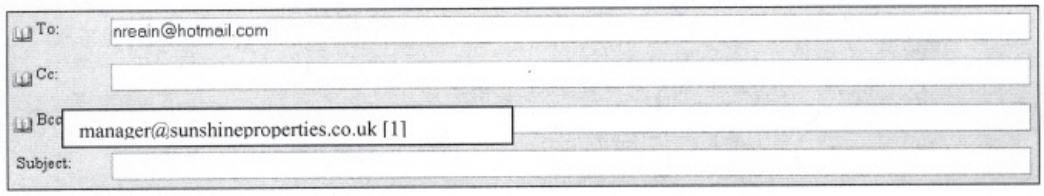
10 **(a)**



[2]

(b) They may have been corrupted by viruses [1]/may not have appropriate software [1]

(c)



[1]

(d) **(i)** Read receipt request is sent when the receiver opens and reads the email [1] whereas delivery receipt request is sent whenever the email reaches the recipient's inbox [1] [2]

(ii) Read receipt request [1] [1] 7

11 **(a)** Electronic Funds Transfer Point of Sale [1] [1]

(b) EFTPOS has a card reader which allows customers to pay using credit/debit cards [1] [1]

(c) Any **two** from:
No automatic tracking of stock [1]/will have to store more cash [1]
narrower customer base means less profit [1] [2]

(d) Scanner [1] Database [1] Beep [1] Description [1] [4]

(e) Manufacturer code [1]/country of origin [1]/check digit [1] [1] 9

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			AVAILABLE MARKS
12	**(a)**		

File Format	Tick
.htm	
.http	✓
.html	

[1]

(b) Websites can appear differently on different browsers [1]
Not all browsers work the same way [1] [1]

(c) **One** from:
She may not have uploaded all of the pictures [1]
Her pictures may be in a different folder than previously [1]
Broken links [1]
Wrong file format [1]
Picture not displayed because of settings/formats [1]
She may have moved the pictures to a different folder [1] [1]

(d) Can slow the time taken for the page to appear on the screen [1] [1]

(e) Data collected is in the correct format [1]/the required data will be collected [1] [1]

(f) Generally cannot be edited without a full version of adobe software/ applicants will print it and fill it out manually [1]
Cannot be read without appropriate software [1] [1] 6

13 **(a)** Portrait [1] [1]

(b) Templates/layouts/design sets [1]
tables [1]
frames/sections [1]
text boxes [1]
graphic overlay/patterned/coloured background [1]
colour/font size/font type/style [1] – only [1] for ref to font
columns [1]
borders [1]
text wrap [1]
wizard/help/instructions to assist the user [1] [1] 2

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14

Definition	Term
A program designed to damage a computer system.	Virus
A digit added to the beginning or end of a number to verify that the number entered is an authentic code.	Check Digit
A way of encoding data before transmitting it on a network.	Encryption
A company which provides the user with a connection to the Internet.	ISP
A measure of the quality of an image.	Resolution
A device used to capture data by passing light over the image.	Scanner
An optical storage device.	CD-Rom
An injury which occurs as a result of using the same muscles over and over again.	RSI
A set of rules which govern the way in which data is transmitted on a network.	Protocol
A name used to describe data held as 1s and 0s.	Digital

	AVAILABLE MARKS
[10]	10
QWC	7
Total	**140**

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Performance Level	Criteria	Marks
Threshold	Candidates spell, punctuate and use the rules of grammar with reasonable accuracy; they use a limited range of specialist terms appropriately.	0, 1, 2
Intermediate	Candidates spell, punctuate and use the rules of grammar with considerable accuracy; they use a good range of specialist terms with facility.	3, 4, 5
High	Candidates spell, punctuate and use the rules of grammar with almost faultless accuracy; deploying a range of grammatical constructions; they use a wide range of specialist terms adeptly and with precision.	6, 7

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2009

Information and Communication Technology

Full Course

Paper 2

Higher Tier

[G5804]

FRIDAY 5 JUNE, MORNING

MARK SCHEME

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AVAILABLE MARKS

1 **(a)** Employee with highest level of access: Network Manager [1]
Reason: Any **one** from:
Needs to be able to access/see all files/all users [1]
Needs to be able to apply security to the network [1]
Needs to be able to manage hardware/software on the network [1] [2]
(Accept server in place of network)

(b)

Media	**Tick**
CD RW	
External Hard Disc Drive	✓
DVD	
Magnetic Tape	✓

[2]

(c) Any **two** from:
Flooding [1]
Hacking [1]
Viruses [1]
Earthquakes [1]
Power surges [1]
Server failure [1]
Theft [1] NOT Fire [2]

(d)

Address	**Tick**
http://www.bkrecruitment.co.uk	
htpp://www.bkrecruitment.co.uk	
https://www.bkrecruitment.co.uk	
https://www.bkrecruitment.co.uk	✓

[1]

(e)

Hacking	**True**
Is always carried out by people that the company does not know	
If the files are encrypted, the hacker may not be able to read them	✓
Can be more difficult if you use a firewall	✓
Is always carried out using the Internet	

[2]

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				AVAILABLE MARKS
	(f)	Any **two** from: Firewall [1] Not downloading files from the internet [1] Not using shareware or freeware [1] Use of/Running regular antivirus checks/use of antivirus software [1] Regularly updating virus definitions [1] Not opening emails from unknown sources [1] Max [2] (Do not accept any answer relating to USB storage devices)	[2]	11
2	**(a)**	Any **one** from: Currency, Memo or Comment, Boolean or Yes/No String, autonumber	[1]	
	(b) **(i)**	Patient ID	[1]	
	(ii)	Patient DOB/patient first name/patient surname/patient address/ patient town.	[1]	
	(c) **(i)**	5	[1]	
	(ii)	Any **one** from: It reduces data redundancy [1] If it was held in the Appointment Table it would have to be stored for each appointment – this way it is only stored once [1] Doctor Speciality is related to the doctor, not the appointment [1]	[1]	
	(iii)		[3]	

Field Name	Data Type	Field Length
Patient Birth	Date/Time	8 [1]
Doctor 10	Numeric [1]	3
Room	Text/Alphanumeric/ Character [1]	3

	(d) **(i)**	Relational Database	[1]	
	(ii)	Any **one** from: There are three tables in the database [1] The tables are linked together (using Patient ID and Doctor ID) [1]	[1]	10
3	**(a)** **(i)**	Hacking/unauthorised access	[1]	
	(ii)	Fraud/Misuse of IT for own advantage description of example Plant a virus [1]	[1]	
	(b)	Copyright, Designs and Patents Act	[1]	
	(c)	Easy to share software/less time consuming/standard installation processes [1] Can easily add software to more computers if added to network [1]	[2]	5

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AVAILABLE MARKS

4 **(a)**

Solution	Injury
Work in a well lit room with a flicker-free screen	Eye Strain [1]
Use adjustable seats with appropriate support	Back Strain [1]
Keep arms at 90° to the keyboard when typing	Repetitive Strain Injury (RSI) [1]

[3]

(b) Any **one** from:
Parts can easily be replaced [1]/Repairs more easily carried out [1]
Screens are not fixed to the keyboard [1]
You have a separate mouse [1]
Keyboards are larger [1]/Manouverable
Larger screens on PC [1]/Manouverable screens [1] [1] 4

5 **(a)** Any **one** from:
Turnaround documents [1]
Data capture forms [1]
Hand held terminals [1]
OMR documents [1] [1]

(b) Any **two** from:
Length check [1]
Presence check [1]
Type check [1]
Range check [1] [2]

(c) Transaction file [1] [1]

(d) Any **one** from:
Subtract from previous meter reading to find how many units are used [1]
To calculate units used [1] [1]

(e) Error report [1]
Bill C
Updated Masterfile [1] [2] 7

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AVAILABLE MARKS

6 (a)

Advantage	Tick
You can change the resolution used to take pictures on a digital camera	✓
You can email pictures to your friends using your digital camera	
Pictures taken with a digital camera are higher quality than those taken with a film camera	
You can add the date and time to the borders of your pictures with a digital camera	✓

[2]

(b) **Camera:** Camera 1 [1]
Reason: Greater optical zoom [1] 4

7 (a)

Statement	Tick
Real time processing is used to process user interactions	
The user wears a mask when viewing the scene they are in	✓
Not all factors can be taken into consideration when programming the system	

[1]

(b) Any **two** from:
Doctors
Pilots
Navy
Astronauts
or suitable application/occupation [2]
(Not games)

(c) **Advantage:**
Any **one** from:
avoid danger [1]
can train in various conditions even when those conditions do not exist [1]
cost effective [1]
variables can be adjusted to aid training [1]
many extreme conditions can be simulated [1]
saves damage to equipment [1] [1]
real life experience of the situation [1]

Disadvantage:
Any **one** from:
expensive to design [1]
may not take all factors into consideration [1] [1] 5

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			AVAILABLE MARKS
8	**(a)**	Any **one** from: Less cash stored [1] Record of transactions can be kept [1] Ease of processing [1] Money goes straight into their bank account [1] Don't have to wait for cheques to clear [1] No problems with cheques bouncing [1] No (errors with) cash exchange [1] Less chance of error [1] Less chance of staff stealing money from tills [1] More customers processed in less time as no counting money [1] NOT keeping track of stock [1]	
	(b)	Any **one** from: Card damage [1] Shop has data about customer [1] If they cannot remember their PIN they cannot make a purchase [1] If the machines have broken down they cannot make a purchase [1] [1] Can only spend up to limit of card [1] Can only spend **above** a certain amount in some shops [1]	
	(c)	Any **one** from: Bank sort code [1]/card No [1]/name [1]/expiry date [1] Daily withdrawal limit for the card [1] [1] Card issue No [1]/date of issue [1]/security code [1]	
	(d)	Any **one** from: Data cannot be changed [1] Need to be able to add money to the card [1] Cannot deduct money when they buy something [1] Too easily damaged [1] [1]	4
9	**(a)**	**(i)** ADSL [1]	
		(ii) Any **one** from: a modem is needed to convert data to digital [1]/slower data transmission more data can be carried on the signal being transmitted [1]/higher bandwidth can use phone whilst on internet [1] [1]	
	(b)		

Method used to Transfer Data	**Tick**
Electrical Pulses	
Magnetic Signals	
Light Waves	✓
Sound Vibrations	

[1]

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(c) Any **one** from:
already in a format the computer can understand [1]
no conversion of data required [1] [1]

AVAILABLE MARKS

4

10 (a)

Statement	Tick
Data is only input into computers using a numeric keyboard	
Data can come in the form of text, graphics, numbers	✓
Data can easily be understood by humans	
Data is meaningless to humans	✓

[2]

(b)

Statement	Tick
Data must be given a context before it becomes information	✓
Data must be backed up before it becomes information	
Data must be interpreted or processed before it becomes information	✓
Data must be transmitted across a network before it becomes information	

[2]

(c) [1] for each appropriate example – see below for examples

Data Item	Information
02890876598	My home telephone number is 02890876598.
80	The grade boundary for an A grade is 80%
17:00	Your dental appointment has been set for 17:00 hrs
6, 8, 10	The order at the grocers was for 6 apples

[3]

(d)

Data Item	Data Types
Date of Birth	(Date)/Number/Text/Boolean
Shoe Size	Date/(Number)/Text/Boolean
Forename	Date/Number/(Text)/Boolean
Gender	Date/Number/(Text)/(Boolean)

[3]

Accept **text** or **Boolean**

10

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					AVAILABLE MARKS
11	**(a)**	**(i)**	Optical Mark Recognition/reader [1]		
		(ii)	Any **two** from: Fast entry of data [1] Less chance for human error in data entry [1] Less data entry staff needed [1] Data can easily be validated when it is being entered [1] Direct data capture [1]	[2]	
		(iii)	Any **one** from: Forms need to be carefully designed [1] Forms need to be printed accurately/filled in accurately [1] Software/Equipment can be expensive [1] Not all questions can easily be answered in this way [1] Problems with marking if machines break down [1] Damaged documents cannot be read [1]	[1]	
		(iv)	Any **one** from: Their results should be available more quickly [1] There should be no mistakes in their marking [1]	[1]	
		(v)	So they are not picked up by the scanning equipment [1]/ The light will not be absorbed by them when the document is scanned [1]	[1]	
	(b)	**(i)**	Optical Character Recognition/reader [1]		
		(ii)	Any **two** from: Postcode may not have been written on the envelope [1] The postcode written on the envelope may be incorrect [1] The handwriting may be illegible [1] Postcode may have been written in the wrong place on the envelope [1]	[2]	
	(c)		Scanner [1]		10
12	**(a)**		Any **one** from: He was using a different version of the program [1] He removed his storage device before the file finished saving [1] He tried to open it using the wrong program [1]	[1]	
	(b)		Rich Text Format [1]		
	(c)	**(i)**	Joint Photographic Experts Group [1] Joint Photo Experts Group [1]	[1]	
		(ii)	Any **two** from: Bitmap/GIF/BMP/PCX/PICT/TIFF/PNG	[2]	
	(d)	**(i)**	File compression is the process of making files smaller [1] so they can be transmitted across the internet more quickly [1] File compression may lead to a reduction [1] in quality of images and sounds in the file.	[3]	

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			AVAILABLE MARKS
(ii)	Any **one** from: He does not need to use it very often [1] It is a large file and takes up a lot of disc space [1] He might want to use it in a web page so he saves it in a format that takes up less space [1]	[1]	
(iii)	He must unzip it [1]/decompress it [1]	[1]	10
13 (a)	MP3 is a common format for audio files. [1] MP3 files are compressed files so more can be held on a smaller disc space. [1] They store music in digital format for high quality playback. [1]	[3]	
(b) (i)	Any **one** from: They cannot make money from them[1] It is illegal [1] They cannot tell how many people listen to their tracks [1] It affects their chart rating [1]	[1]	
(ii)	Any **one** from: Bands may pay the company to allow downloads [1] They may **sell** some tracks [1] People advertise on their site [1] Some bands may sell the copyright to them [1] They can charge other companies for putting links on to their websites [1] They may not offer all tracks for free [1] People can pay for membership/donation [1]	[1]	5
14 (a)	Any **two** safety measures from: Do not agree to meet someone [1] Hacking/gaining access to users computer [1] Do not give personal details over the internet (accept address/ tel num etc. only once) [1] Communicate only with people you know [1] Keep profile private [1] People online may not be telling you the truth [1] Report anything that makes you feel uncomfortable [1] Do not **open files** from anyone you do not know [1] Log out if someone says something that you do not like [1] Possibility of viruses [1] Problems with publishing pictures online [1] Add [1] for a suitable reason why a precaution should be followed Ideally we would like 2 precautions + 2 reasons However, 3 precautions (max) + 1 reason is acceptable for [4].	[4]	

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		AVAILABLE MARKS
(b) Any **two** from: They may not understand text language [1] They may not know how to text [1] They can delete messages without realising [1] Lack of confidence with technology [1] Age related reasons, e.g: Eyesight, shaky hands arthritus. Answer should be related to texting on a mobile phone.	[2]	6
	QWC	5
	Total	**100**

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High	Candidates spell, punctuate and use the rules of grammar with almost faultless accuracy; deploying a range of grammatical constructions; they use a wide range of specialist terms adeptly and with precision.	4, 5

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