



General Certificate of Secondary Education
2012

**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]

FRIDAY 1 JUNE, MORNING

**MARK
SCHEME**

General Marking Instructions

Introduction

Mark schemes are intended to ensure that the GCSE examinations are marked consistently and fairly. The mark schemes provide markers with an indication of the nature and range of candidates' responses likely to be worthy of credit. They also set out the criteria which they should apply in allocating marks to candidates' responses. The mark schemes should be read in conjunction with these general marking instructions.

Assessment Objectives

Below are the assessment objectives for GCSE ICT.

Candidates must:

- recall, select and communicate their knowledge and understanding of ICT;
- apply knowledge, understanding and skills to produce ICT-based solutions; and
- analyse, evaluate, make reasoned judgements and present conclusions.

Quality of candidates' responses

In marking the examination papers, examiners should be looking for a quality of response reflecting the level of maturity which may reasonably be expected of a 16-year-old which is the age at which the majority of candidates sit their GCSE examinations.

Flexibility in marking

Mark schemes are not intended to be totally prescriptive. No mark scheme can cover all the responses which candidates may produce. In the event of unanticipated answers, examiners are expected to use their professional judgement to assess the validity of answers. If an answer is particularly problematic, then examiners should seek the guidance of the Supervising Examiner.

Positive marking

Examiners are encouraged to be positive in their marking, giving appropriate credit for what candidates know, understand and can do rather than penalising candidates for errors or omissions. Examiners should make use of the whole of the available mark range for any particular question and be prepared to award full marks for a response which is as good as might reasonably be expected of a 16-year-old GCSE candidate.

Awarding zero marks

Marks should only be awarded for valid responses and no marks should be awarded for an answer which is completely incorrect or inappropriate.

Types of mark schemes

Mark schemes for tasks or questions which require candidates to respond in extended written form are marked on the basis of levels of response which take account of the quality of written communication.

Other questions which require only short answers are marked on a point for point basis with marks awarded for each valid piece of information provided.

Levels of response

Tasks and questions requiring candidates to respond in extended writing are marked in terms of levels of response. In deciding which level of response to award, examiners should look for the 'best fit' bearing in mind that weakness in one area may be compensated for by strength in another.

In deciding which mark within a particular level to award to any response, examiners are expected to use their professional judgement. The following guidance is provided to assist examiners.

- **Threshold performance:** Response which just merits inclusion in the level and should be awarded a mark at or near the bottom of the range.
- **Intermediate performance:** Response which clearly merits inclusion in the level and should be awarded a mark at or near the middle of the range.
- **High performance:** Response which fully satisfies the level description and should be awarded a mark at or near the top of the range.

Marking calculations

In marking answers involving calculations, examiners should apply the 'own figure rule' so that candidates are not penalised more than once for a computational error.

Quality of written communication

Quality of written communication is taken into account in assessing candidates' responses to all tasks and questions that require them to respond in extended written form. These tasks and questions are marked on the basis of levels of response. The description for each level of response includes reference to the quality of written communication.

For conciseness, quality of written communication is distinguished within levels of response as follows:

Level 1: Quality of written communication is limited.

Level 2: Quality of written communication is satisfactory.

Level 3: Quality of written communication is of a good standard.

In interpreting these level descriptions, examiners should refer to the more detailed guidance provided below:

Level 1 (Limited): The candidate makes only a limited attempt and use of an appropriate form and style of writing. The organisation of material may lack clarity and coherence. There is little use of specialist vocabulary. Presentation, spelling, punctuation and grammar may be such that intended meaning is not clear.

Level 2 (Satisfactory): The candidate makes a reasonable attempt and use of an appropriate form and style of writing, supported with appropriate use of diagrams as required. Relevant material is organised with some clarity and coherence. There is some use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are sufficiently competent to make meaning evident.

Level 3 (Good): The candidate successfully selects and uses an appropriate form and style of writing, supported with effective use of diagrams where appropriate. Relevant material is organised with a good degree of clarity and coherence. There is good use of appropriate specialist vocabulary. Presentation, spelling, punctuation and grammar are of a sufficiently high standard to make meaning clear.

			AVAILABLE MARKS	
1	(a)	B Scanner	[1]	
	(b)	C The screens can become dirty and difficult to use	[1]	
	(c)	C Impact Printer	[1]	
	(d)	A Flatbed Plotter	[1]	
	(e)	D Liquid Crystal Display	[1]	
	(f)	A To store the most recently used instructions	[1]	
	(g)	B Blu-ray discs have a higher storage capacity so store more detail about the movie	[1]	
	(h)	A New data can be written to a CD-R but not to a CD-ROM	[1]	
	(i)	C Random Access Memory	[1]	
	(j)	A Storage that holds data even when the power is switched off	[1]	
	(k)	A CD ROM, DVD ROM, Blu-ray	[1]	
	(l)	C Adding sound and filtering data	[1]	
	(m)	D A slide that when edited will update the contents of all slides made from it	[1]	
	(n)	D Animations	[1]	
2	(a)	A program/file/software [1] which is designed to damage a computer system/corrupt files/attack the system/damage files or an example of damage [1]	[2]	
	(b)	Worm	[1]	
	(c)	It spreads by replicating itself [1] It does not have to be attached to any document [1] Steal login names not acceptable	[2]	
	(d)	Any two from: Internet [1]/related to internet (activities related to internet) but not websites on its own Email (attachments) [1] Portable storage [1]	[2]	
	(e)	Computer Misuse Act	[1]	

- 3 (a) www.google.com/Google [1] [1]
- (b) (i) World wide web [1] [1]
- (ii) Any **one** from:
 Server on the web [1]
 Website address [1] – website (not enough)
 Domain name [1]
 Website name [1] [1]
- (iii) Folder/path/directory [1] on the server [1] [2]
not page on website

(c)

Statement	Tick (✓)
Special software is required to read pdf files	✓
pdf files can be viewed on a PC but not on any other type of computer	
pdf files can be viewed on computers with different operating systems	✓
pdf means Portable Document File	

[2]

(d) (i)

File	File Format
Video	mp4 [1]
Podcast	mp3 [1]
Photographs	jpg [1]

[3]

- (ii) Only opened in certain software [1]
 Smaller after compression [1]/takes up less storage/memory [1]
not space
 must be decompressed/opened using special software [1]
 Faster upload/download [1] [2]

(e)

Statement	Tick (✓)
A tab can be use to read web pages	
Tabs provide a way of uploading information to a website	
Tabs allow the user to open more than one web page in the browser window	✓
Tabs provide an easy way of switching between websites	✓

[2]

4 (a) **Level 0 ([0])**

Answer is not worthy of credit.
3 pieces of advice = [3]

Level 1 ([1]–[3])

The candidate explains social networking [1]. They provide one [1] or two [2] pieces of advice with little or no explanation of how they help maintain safety online. The candidate makes limited use of spelling punctuation and grammar. The meaning of the text is not always clear. The candidate demonstrates a limited form and style appropriate to the question and little or no evaluation is present. The organisation of the answer is limited.

Level 2 ([4]–[6])

3 pieces of advice and give a description of social networking = [4]
The candidate explains social networking [1]. They provide two or three pieces of advice with some explanation of how they help maintain safety online. The candidate makes satisfactory use of spelling punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([7]–[8])

The candidate explains social networking [1]. They provide three pieces of advice with a good explanation of how these help maintain safety online. The candidate makes good use of spelling punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates good form and style appropriate to the question. The organisation of the answer is good.

Answers may include:

Social networking

- Using ICT to keep in touch/communicate/socialise with people

Advice

- Maintain a private profile/do not share personal details
- Don't accept "friends" requests from people you do not know
- Never arrange to meet anyone you have met online
- Always report abuse/bullying
- Change passwords/keep them secure [8]

(b) Any **one** from:

- Report to Spacebook [1]
- Ask an adult for help [1]
- Deactivate the account/Delete the account [1] [1]

9

- 5 (a) (i) LAN: Local Area Network [1]
(ii) WAN: Wide Area Network [1]
- (b) When using a LAN people can share PERIPHERALS [1]
A FILESERVER [1] stores all user DATA [1] and users can log on at any WORKSTATION [1] to access their files. [4]

(c)

Definition	Letter
A set of rules which define how data is transferred around a network	Protocol e [1]
A device which allows the LAN to connect to the Internet	Router b [1]
A device which individual computers need to connect to the LAN	Network Interface Card c [1]
A device which provides a single connection point for a group of computers	Switch d [1]

[4]

- (d) **Level 0 ([0])**
Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate names **one** [1] or **two** [2] measures. There is little or no explanation of how these measures help keep data secure. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate demonstrates a limited form and style appropriate to the question and little or no evaluation is present. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate names **two** or **three** measures. There is some explanation of how these measures help keep data secure. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate names **three** measures. There is a good explanation of how these measures help keep data secure. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is good.

Answers may include:

Virus protection

- software used to protect the computer system from all forms of viruses
- protects data from unauthorised access and corruption (from malicious sources)

Encryption

- encoding data to prevent access
- decryption code is required

Firewall

- a hardware device or a software program
- filters information coming from the Internet to the computer network
- can prevent hackers from entering the network via the Internet or viruses and spam from entering the network via the Internet or users/computers within the network from uploading data onto the Internet.

Levels of access

- giving users different **levels of access**.
- suitable example, e.g. school pupils, teachers and the system manager have different levels of access/example of levels of access (read only/read/write etc.)

Backup

- make a copy of data
- if data is lost the system must have some method of recovering the data
- there is a copy of the data that can be loaded on to the system if the original data is lost
- backup copies of data are stored on a variety of media. [6]

not physical security

16

6 (a) Merge/Merging [1]

(b) Currency/accountancy [1]
Date/Time [1]/Date [1]
Yes/No/Boolean [1] [2]

(c)

Formula	Tick (✓)
=Sum(F11+F16)	
=F11*F16	
=Sum(F11:F16)	✓

[1]

(d) Formula = F20 [1] – F22 [1] [2]

(e) (i) Times between 00:30 and 6:00 am [1]

(ii) A cell reference which does not change [1] when it is copied [1] [2]

(iii) F13: \$F\$3 [1]/F3 [2]
F19: \$F\$4 [1]/F4

11

7 (a) Any **one** from:
 Could have two people with the same name [1]
 Key field uniquely identifies each customer [1] [1]

(b) Any **two** from:
 currency [1] date/time/Date [1] yes/no [1] boolean [1] [2]

(c) (i)

Validation Rule	Tick (✓)
>=0 AND <=50	
>0 AND <50	
>=1 AND <=50	✓
>1 AND <=50	

[1]

(ii) Any **two** from:
 Presence check [1]
 Type check [1]
 Format check [1]
 Length check [1] [2]

(d) Any **one** from:
 one-to-one [1]
 many-to-many [1] [1]

(e) Less chance of mistakes being made/increased speed of data entry
 Limits entry options [1]

(f) Any **one** from:
 list needs to be edited if new products become available [1]
 if error made in setting up list it will be in every record [1] [1]

(g) Town = "Belfast" [1] **AND** [1] Cardtype = "Birthday" [1]
 field names required [3]

(h)

Database tool	Tick (✓)
Form	
Report	✓
File	
Record	

[1]

			AVAILABLE MARKS
	<p>(i) Any three from: Select only those customers who have purchased "Birthday Cards" [1] using query or by selecting in mailmerge process [1] Write a letter/open a document/Create a standard letter [1] and include merge fields in the letter [1] Merge the letter with the selected customer's details [1]</p>	[3]	16
8	<p>(a) Virtual Learning Environment</p>	[1]	
	<p>(b) Level 0 ([0]) Answer is not worthy of credit.</p> <p>Level 1 ([1]) The candidate lists one way in which the VLE can be used but provides little or no description. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate demonstrates a limited form and style appropriate to the question and little or no evaluation is present. The organisation of the answer is limited.</p> <p>Level 2 ([2]–[3]) The candidate lists one or two ways in which the VLE can be used and provides a suitable description of at least one [2] or both [3]. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.</p> <p>Level 3 ([4]) The candidate lists and describes appropriately two ways in which the VLE can be used. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is good.</p> <p>Answers may include:</p> <p>VLE: Virtual Learning Environment Forum; upload coursework/personal file area Wiki/Blog</p> <p>Uses: To communicate with teacher/video conferencing To collaborate with other pupils To view sample material/notes/homework To take online exam To develop user generated content of wiki, blog Quizzes/questionnaire</p>	[4]	
	<p>(c) (i) Computer Assisted/Aided Learning</p>	[1]	
	<p>(ii) Any two from: She can use it at home/without teacher [1] She can review it at her own pace [1] Multimedia can be included [1] Interaction available [1]</p>	[2]	8

- 9 (a) Any **one** from:
 Less chance of error [1] (only credit once)
 Itemised receipts [1]
 Queues processed more quickly [1]
 Does not have to carry cash [1]/can use bank card/ATM card
not just 'card' [1]
- (b) Any **one** from:
 Initial capital outlay [1]
 Problems if break down [1]
 Cost of maintenance [1]
 Staff need training [1]
 Delay of payment into shop owner's account [1] [1]
- (c) 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]/
 smaller queues [1]
 Shelves are always well stocked as stock levels are accurately
 monitored [1]
 NOT keeping track of stock [1]
- (d) Any **two** from:
 Printer [1]
 LCD/Screen/monitor/VDU [1]
 Speaker [1] [2]

AVAILABLE
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10 (a) Hypertext Markup Language [1]

(b)

Features of web design packages	Correct Word
Used in web pages to organise text and other multimedia elements into rows and columns	Tables [1]
A tool that can be used to place text and other multimedia elements on a web page.	Layer [1]
An element on a web page that when clicked on will take the user to another website, web page or document	Hyperlink [1]
An area of a graphic that when clicked on will cause something else to occur	Hotspot [1]

[4]

- (c) Any **two** from:
- Create folders [1]
 - Name folders [1]
 - Create/manage navigation [1]
 - Move files [1]
 - Reorganise pages/folders [1]
 - Name the site [1]
 - Apply templates/master page [1]

[2]

- (d) (i) Any **one** from:
- bmp is not an optimised/compressed format for web page display [1]
 - bmp images take up too much web space [1]
 - bmp images may take a long time to load [1]

[1]

- (ii) Take a long time to load [1]

- (e) Any **two** from:
- Small version/preview of image [1]
 - Hyperlink/when clicked on [1]
 - Displays full version of image [1]

[2]

(f)

Statement	Vector-based or bitmap
The file contains instructions on how the image should be redrawn.	Vector-based
The file is made up of a grid of tiny pixels.	Bitmap
The image can be stretched without loss of clarity.	Vector-based
The image is made up of objects defined by mathematical equations.	Vector-based
When stretched the image can become blurry.	Bitmap

[4]

AVAILABLE MARKS

			AVAILABLE MARKS
(g)	Design View Any one from: Lets you edit content of web page [1] Lets you add text/graphics/video/animation/content to web page [1]	[1]	19
	Preview Mode Any one from: Allows you to preview web page/website in different browsers [1] Allows you to see what web page/website will look like on www [1]	[1]	
(h)	Files in wrong location [1] Web page no longer there [1]/wrong url/website/web address [1]	[2]	
11 (a)	Any one from: Allows the hardware/software to communicate [1] Provides an interface between the user and the computer [1] Runs software [1]	[1]	
(b)	Any three from: Manage memory [1] Allocate processor time [1] Monitor/Manage storage/hard disk/hardware [1] Error checking [1]	[3]	
(c) (i)	Graphic(al) User Interface	[1]	
	(ii) Any two from: <ul style="list-style-type: none"> • Windows [1] – allows multiple applications to be opened/where applications are opened [1] • Icons [1] – pictures/pictures which represent their meaning when clicked start up an application [1] • Menus [1] – options presented to users on a pull down list [1] • Pointer [1] – used to show the position of the cursor onscreen [1] WIMP [2] (must give full terms) One word [0] if name min of 2 – [1] if name 3 or 4 – [2] 2 explanations – [2]	[4]	
	(iii) Any one from: easy to learn/intuitive to use/no training required as pictures are used [1] menus are self-explanatory [1] interface is the same across applications [1]	[1]	
		[1]	

12 (a)

Question	Tick (✓)
What is your name?	
Do you have any convictions?	✓
What is your address?	
Please give details of your medical history.	✓

[2]

(b) (i)

Any **two** from:

If statement fits one of these:

Personal Data should be used for the specified purpose only [1]

Personal Data should be processed in accordance with the rights of the data subject [1]

Personal Data should not be transferred outside the EU [1]

[2]

(ii) Data Controller

[1]

(iii) Information Commissioner/Data Commissioner

[1]

6

13 (a)

Statement	TRUE/FALSE
The phone has no wireless technology	FALSE
RAM is volatile	TRUE [1]
RAM and ROM are volatile	FALSE [1]
ROM is non volatile	TRUE [1]
The processor will store user data when the phone is switched off	FALSE [1]
The processor will run programs while the phone is switched on	TRUE [1]

[5]

(b) (i)

Any **two** from:

Wifi operates over a longer distance range than Bluetooth [1]

Bluetooth is used (temporarily) to connect devices over a short distance [1]

Wifi/wifi protocol allows many computers to communicate together [1]

Bluetooth uses low power [1]

Bluetooth produces a weak signal [1]

Wifi has a faster transmission rate/Bluetooth has a slower transmission rate [1]

Bluetooth is less secure [1]

[2]

(ii)	Tasks	Which Wireless technology?	
	Connecting a headset to the phone to play online games	Bluetooth	[1]
	Connecting the phone to the Internet to download movie files	Wifi	[1]
	Connecting the phone to the Internet to read email whilst travelling	3G	[1]
			[3]

- (c) (i) A person who accesses data/another computer without permission [1]
- (ii) Anyone using the phone could gain access to private online accounts/ usernames/passwords/data or details [1]
- (iii) Any **two** from:
 Data is scrambled before transmission [1]
 so that it cannot be understood if it is intercepted [1]
 Data is unscrambled at the destination computer [1]
 special software/key is required [1] [2]

- 14 (a) Any **two** from:
 Visual/Text/onscreen changes [1]
 Sound [1] [2]
not movement on its own – must be qualified

- (b) steering wheel [1]
 joystick [1]
 balance board [1] [3]

- (c) Any **two** from:
 No experience needed/novices can use them [1]
 People with limited control of hands can still use them [1]
 No cables linking devices to the game console [1]
 More natural movement so easier to play game [1]
 Fun element [1]
 No cost associated with buying peripherals [1]
 No worry about peripherals breaking [1] [2]

- (d) (i) Any **two** from:
 Language is not at appropriate level [1]
 No instructions for user [1]
 No graphics to make it appealing to user [1]/visually not appealing [1]
 Level of difficulty of questions [1]
 Too many questions per screen [1] [2]

- (ii) Any **two** from:
 Scoring details [1]
 Navigation details/controls [1]
 Rules [1]
 User instructions [1] [2]

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- (e) Any **one** from:
 User may not know how game works [1]
 Need to be able to get instructions on how to play game at all times [1]
 Need to be able to access rules at all times [1]
 Need instructions on how to navigate game at all times [1]
 Need to know how to end game at any time [1] [1]

- (f) Any **two** from:
 Menu [1]/Homepage [1]/Options [1]
 Exit [1]
 Save [1]
 Pause/Resume/Restart [1] [2]

- (g) (i) **Level 0 ([0])**
 Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate names **one** [1] or **two** [2] genres. There is little or no description of the genres. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate demonstrates a limited form and style appropriate to the question. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate names **two** or **three** genres. There is some description of each of the genres. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate names **three** genres. There is a good explanation of each of the genres. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is good.

- If candidate names 1 genre [1]
- 2 or 3 genres [2]
- 1 genre + explanation [2]–[3]
- 3 genres + 2 explanations [3]–[4]
- 2 genres + 2 explanations [3]–[4]
- 3 genres + 3 explanations [5]–[6]

Answers may include:

RPG/Role Play Games:

Player sees games through eyes of another character in game scenario
 Interactions with game are as a character in the game

Action:

Time is critical in these games/Fast reactions are needed
 Points can be lost if too slow
 Lives lost if too slow

Adventure:

May have to solve puzzles
Not always time restricted
Players response to games can dictate next scene they see in game

Puzzles:

Solve a series of puzzles/answer quiz type questions
Questions get more difficult as the game progresses
Putting pieces together/matching [6]

(ii) Level 0 ([0])

Answer is not worthy of credit

Level 1 ([1]–[2])

The candidate names **one** [1] or **two** [2] concerns. There is little or no explanation of how excessive playing of computer games can cause the problems identified. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The candidate demonstrates a limited form and style appropriate to the question. The organisation of the answer is limited.

Level 2 ([3]–[4])

The candidate names **two** or **three** concerns. There is some explanation of how excessive playing of computer games can cause the problems identified. The candidate makes satisfactory use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The organisation of the answer is satisfactory.

Level 3 ([5]–[6])

The candidate names **three** concerns. There is a good explanation of how excessive playing of computer games can cause the problems identified. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is usually clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is good.

Answers may include:

Obesity/Lack of fitness:

Sitting playing computer games for too long
Not enough exercise

RSI/Injury/Neck or Back Pain/Eyestrain

Repeating same movements over and over using joystick
Using excessive force when using devices that are linked with remote sensors
Poor posture/slouching

Poor social skills:

Playing games instead of interacting with friends
Obsessed with virtual world created by game scenario and ignore real world
Negative impact/influence on personality/behaviour [6]

15 (a) Mobile phones have a built-in **microphone** [1] to record sound. Sound is input in **analogue** [1] format and is then converted into **digital** [1] format so it can be stored in the phone's memory.

[3]

- (b) Any **one** from:
Bluetooth [1]
Infra-red [1]
MMS [1]
Transfer via a PC [1]

[1]

Total

AVAILABLE
MARKS

4

180