



General Certificate of Secondary Education
2016

**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]

WEDNESDAY 18 MAY, 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) C Data is facts and figures that have no meaning	[1]													
	(b) C Optical Mark Recognition	[1]													
	(c) D OCR stands for Optical Character Recognition which is used to scan typed or handwritten documents	[1]													
	(d) A Software which is designed to damage files on the computer	[1]													
	(e) B jpg, mpg, mp3, zip	[1]													
	(f) D Flash media allows for high speed data transfer and can be read from and written to	[1]													
	(g) A RAM is Random Access Memory, is volatile and holds programs currently being run on the computer	[1]													
	(h) D Byte, Kilobyte, Megabyte, Gigabyte	[1]													
	(i) C A check digit is used to ensure that the barcode has been entered correctly	[1]													
	(j) D Utility bills are created using batch processing and the process makes use of a transaction file	[1]	10												
2	(a)	<table border="1"> <thead> <tr> <th>DEVICE</th><th colspan="2">MEDIA TYPE</th></tr> </thead> <tbody> <tr> <td>CD-RW</td><td>MAGNETIC</td><td>OPTICAL</td></tr> <tr> <td>HARD DISK</td><td>MAGNETIC</td><td>OPTICAL</td></tr> <tr> <td>BLU-RAY DISK</td><td>MAGNETIC</td><td>OPTICAL</td></tr> </tbody> </table>	DEVICE	MEDIA TYPE		CD-RW	MAGNETIC	OPTICAL	HARD DISK	MAGNETIC	OPTICAL	BLU-RAY DISK	MAGNETIC	OPTICAL	[3]
DEVICE	MEDIA TYPE														
CD-RW	MAGNETIC	OPTICAL													
HARD DISK	MAGNETIC	OPTICAL													
BLU-RAY DISK	MAGNETIC	OPTICAL													
	(b) BLU-RAY DISK		[1]												
	(c) Any two from: Select a compressed file format [1] Do not upload a full length/long video [1] Use third party hosting, e.g. Vimeo [1] If mentions compressed file format [1] Impact on website performance [1]	[2]	6												

			AVAILABLE MARKS												
3	(a) Merged/centred	[1]													
	(b) She can predict/estimate the approximate cost of her party	[1]													
(c)	<table border="1"> <thead> <tr> <th>Cell</th><th>Formula</th><th></th></tr> </thead> <tbody> <tr> <td>D5</td><td>B5-C5</td><td>[1]</td></tr> <tr> <td>C15</td><td>Sum(C5:C14)</td><td>[1]</td></tr> <tr> <td>B18</td><td>B2-C15</td><td>[1]</td></tr> </tbody> </table>	Cell	Formula		D5	B5-C5	[1]	C15	Sum(C5:C14)	[1]	B18	B2-C15	[1]	[3]	
Cell	Formula														
D5	B5-C5	[1]													
C15	Sum(C5:C14)	[1]													
B18	B2-C15	[1]													
	(d) (i) Whether each item has gone over budget or not.	[1]													
	(ii) IF(D14 [1] <0 [1], "Yes" , "No") Or =IF(B14 [1] <C14 [1], "Yes", "No")	[2]													
(e) (i)	<table border="1"> <tbody> <tr> <td>Cell range 1</td><td>A4/A5: A14</td><td>[1]</td></tr> <tr> <td>Cell range 2</td><td>D4/D5: D14</td><td>[1]</td></tr> </tbody> </table>	Cell range 1	A4/A5: A14	[1]	Cell range 2	D4/D5: D14	[1]	[2]							
Cell range 1	A4/A5: A14	[1]													
Cell range 2	D4/D5: D14	[1]													
	(ii) Shows whether each item was above/below/on budget [1] and by how much [1]	[2]													
(f) (i)	<p>Any two from:</p> <p>Description of deviation between actual cost and estimated cost [1] of each item [1]</p> <p>Shows the proportional [actual] cost [1] of each item [1] as a % [1]</p> <p>Shows what % [1] of the budget each item uses [1]</p>	[2]													
	(ii) Any two from:														
	<p>Easy to read/Visuals/Patterns/Trends can be easily identified [1] + [1] for example, e.g.</p> <p>The cost of an item relative to the overall cost can be identified [1]</p> <p>Can identify the largest/smallest % cost [1]</p>	[2]													
	(iii) Any two from:														
	<p>A set of commands [1]</p> <p>Commands recorded together [1]/steps recorded together [1]</p> <p>Commands activated/executed by a single button press/click [1]</p> <p>Shortcut to a task [1]</p>	[2]	18												

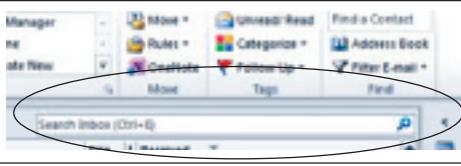
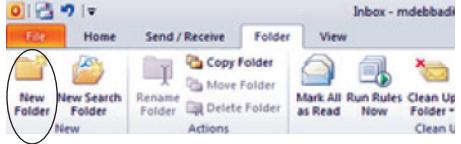
			AVAILABLE MARKS										
4	(a) Universal Serial Bus	[1]											
(b)	HDMI [1] – to watch TV/VIDEO [1] Ethernet or Network [1] – to access network resources, e.g. files/printers [1] Speaker or Headphone [1] – to listen to sound [1] or Microphone [1] – to record sound [1]	[2]											
(c)	<table border="1"> <thead> <tr> <th>Statement</th><th>TRUE/FALSE</th></tr> </thead> <tbody> <tr> <td>This device can be used to read Blu-ray discs</td><td>FALSE</td></tr> <tr> <td>This device can be used to read CD-ROM discs</td><td>TRUE</td></tr> <tr> <td>This device can be used to write information onto DVD-RW devices</td><td>TRUE</td></tr> <tr> <td>This device can be used to write information onto Blu-ray discs</td><td>FALSE</td></tr> </tbody> </table>	Statement	TRUE/FALSE	This device can be used to read Blu-ray discs	FALSE	This device can be used to read CD-ROM discs	TRUE	This device can be used to write information onto DVD-RW devices	TRUE	This device can be used to write information onto Blu-ray discs	FALSE	[4]	
Statement	TRUE/FALSE												
This device can be used to read Blu-ray discs	FALSE												
This device can be used to read CD-ROM discs	TRUE												
This device can be used to write information onto DVD-RW devices	TRUE												
This device can be used to write information onto Blu-ray discs	FALSE												
(d) (i)	Mouse  Tracker Ball [1]												
	Reason: can hold like a pen/stylus so easy to draw [1]	[2]											
(ii)	 Monitor Scanner [1]												
	Reason: any one from High quality printing/doesn't limit page size [1]	[2]	11										

- 5 (a) To send an email **already** in Jim's inbox

[1]

AVAILABLE MARKS

(b)

Feature	How this can help locate emails
	Type in key word from subject or senders name to narrow down number of emails [1]
	If stored in folders according to who sent them or by subject it can be easier to find a specific email [1]

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- (c) Any **two** from:

More efficient as already set up [1] Don't have to select every person one by one/don't have to type in every address each time [1] You will not leave/are less likely to leave anyone's address out if you send the email [1]

[2]

Do not allow sending to multiple people [1]

Less likely to insert the address of a non-member [1]

- (d) jimmygames@email.com [1]/the address contained in the BCC line [1] [1]
(Do not accept Bcc on its own)

- (e) Any **two** from:

Download the attachment/save the attachment to his computer[1]

Open up the saved/downloaded file in a word processor [1]

Make changes/add notes [1]/enable editing

Save file back to his computer [1]

Can open attachment directly from email [1]

[2]

8

6 (a)

Task	Internet	Podcast	VLE	Video Conference	AVAILABLE MARKS
Searching for graphics to use in a GCSE Controlled Assessment task	✓				
Submitting homework electronically so your teacher can mark it online			✓		
Meeting with students from another school to discuss a joint project				✓	
Listening to a pre-recorded revision lesson using a smart phone		✓			

[4]

(b) (i) Any two from:

- Blocking [1] and how blocked [1]
 Blocking of certain types of content/unsuitable websites [1]
 Use of software to monitor internet usage [1]/firewall
 Use key words to block websites [1]

[2]

(ii) Any two from:

- Avoids exposure to unsuitable content [1]
 Removes opportunity for distraction in the classroom [1]
 Protects students from cyber danger during the school day [1]
 Helps maintain safe working environment for students in the classroom [1]

[2]

(iii) Filtering can prevent useful **sites** from being accessed [1].

[2]

10

		AVAILABLE MARKS
7	(a) (i) Any two from: An analogue device [1]/input device [1]/detects/senses data [1] Transfers data to a device/computer for processing [1] Measures a physical quantity [1]	[2]
	Example: One from: Temperature [1]/Pressure [1]/Light [1]/Smoke [1]/ Moisture [1]/Another acceptable sensor	[1]
	(ii) An output device [1] which carries out an action [1] based on a decision made by/instruction from a computer.	[2]
	Example of an actuator: Any one from: camera lens [1]/open and close windows [1]/another acceptable example of an actuator or its resulting action/traffic lights [1]	[1]
(b)	Level 0 ([0]) Answer not worthy of credit	
	Level 1 ([1]–[2]) The candidate mentions the importance of one or more area(s) (input, output, feedback, processing) in maintaining room temperature. 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. There is little use of specialist terms.	
	Level 2 ([3]–[4]) The candidate discusses the importance of two or three areas (input, output, feedback, processing) in maintaining room temperature. 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. There is some use of specialist terms.	
	Level 3 ([5]–[6]) The candidate discusses well the importance of all four areas (input, output, feedback, processing). The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates good form and style appropriate to the question. The organisation of the answer is good. There is good use of specialist terms.	
	Answers may include:	
	Input: Reference to sensors, ADC	
	Processing: Reference to processing in terms of decision making or conditions (e.g. if room temperature > 25)	
	Output: Reference to how the conditions are changed e.g. oil burner turns off/actuators.	
	Feedback: Reference to the feedback process – when the temperature is too high the burner is turned off and the room temperature drops.	[6]
		12

		AVAILABLE MARKS
8 (a) Any two from:		
Enter keywords or phrases [1] Use logical operators [1]/Plus (+) and Minus (-) [1]/Complex logic [1]/ AND/OR/NOT [1] Quotation marks [1] Narrow by group [1]	[2]	
(b) To view html pages/web pages	[1]	
(c) Any two from: History [1] Favourites [1] Bookmark [1] Back Arrow [1]/Navigation [1]	[2]	5

		AVAILABLE MARKS								
9	(a) Record [1] Field [1]	[2]								
	(b) (i) Member ID [1]									
	(ii) Uniquely identifies records [1]	[2]								
	(c) Surname: Text/Character/String [1] Paid: Boolean/Yes/No/Character/Text/String [1]	[2]								
	(d) Any one from: Reduces redundancy/repeated data [1]/increases integrity [1] Reports/Queries can be created using data from more than one table [1]	[1]								
	(e) Any two from: Software/program [1] Helps the user complete a task [1] Step by step/using prompts [1]	[2]								
	(f) (i) Query	[1]								
	(ii)	<table border="1"> <thead> <tr> <th>CRITERIA</th><th>Tick (✓) Answer</th></tr> </thead> <tbody> <tr> <td>=<01/01/1986 And >=31/12/1989</td><td></td></tr> <tr> <td>>=01/01/1986 And <=31/12/1989</td><td></td></tr> <tr> <td>>01/01/1986 And <31/12/1989</td><td>✓</td></tr> </tbody> </table>	CRITERIA	Tick (✓) Answer	=<01/01/1986 And >=31/12/1989		>=01/01/1986 And <=31/12/1989		>01/01/1986 And <31/12/1989	✓
CRITERIA	Tick (✓) Answer									
=<01/01/1986 And >=31/12/1989										
>=01/01/1986 And <=31/12/1989										
>01/01/1986 And <31/12/1989	✓									
	(g) (i) To ensure data is entered correctly [1] and is acceptable/sensible/ reasonable [1] [to the system]	[2]								
	(ii) Any three from: Presence Range Type Format Length	[3]								
		16								

		AVAILABLE MARKS
10 (a) (i)	Any two from: Mixture of letters/numbers/special characters/upper and lower case [1] Changed regularly [1] Kept confidential/Not a recognisable term/word/not easily guessed [1] Reference to a minimum length [1]	[2]
	(ii) The password is entered twice to confirm it	[1]
(b) Level 0 ([0])	Answer is not worthy of credit	
	Level 1 ([1]–[2]) The candidate mentions one or two of the problem areas. The candidate makes limited use of spelling 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. There is little use of specialist terms.	
	Level 2 ([3]–[4]) The candidate discusses one [3] or two [4] of the problem areas. The candidate makes satisfactory use of spelling 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. There is some use of specialist terms.	
	Level 3 ([5]–[6]) The candidate discusses the two problem areas well. There is good explanation of each DOWNSIDE. The candidate makes good use of spelling and grammar. The meaning of the text is always clear. The candidate demonstrates a good form and style appropriate to the question. The organisation of the answer is good. There is good use of specialist terms.	
	Answers may include:	
	Problems relating to CUSTOMERS Less Customer contact Harder to build personal relationships with their customers Harder to sell other services to customers that may be on offer Seeing a customer in person, you can say, 'have you thought about this insurance/bank loan/service?/not all services are available online If the web site goes down then customers cannot access their accounts Customers' resistance to technology/fear of technology Require access to technology/reliance on technology	
	Problems relating to SECURITY Banks have to employ specialists to be one step ahead of criminals Investment must be made in coming up with new ways to keep customer accounts secure To prevent hacking Keep customer accounts and details secure Invest in new technology Employ trained personnel Monitor customer accounts/services	[6]
		9

11	Level 0 ([0]) Answer not worthy of credit	AVAILABLE MARKS
Level 1 ([1]–[2])	The candidate mentions how one or two of the areas contribute to globalisation. 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. There is little use of specialist terms.	
Level 2 ([3]–[4])	The candidate discusses how one [3] or two [4] of the areas contribute to globalisation. 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. There is some use of specialist terms.	
Level 3 ([5]–[6])	The candidate discusses three of the areas contribute to globalisation. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates good form and style appropriate to the question. The organisation of the answer is good. There is good use of specialist terms.	[6] 6
<p>Answers may include:</p> <ul style="list-style-type: none"> 24/7 communications Online sales and marketing Any place connectivity Increased/improved broadband availability Widespread use of WiFi Lower priced technology smart phones etc. Social networking Global game playing 		

		AVAILABLE MARKS
12	(a) Any one from: Look for padlock [1]/HTTPS: [1] Green Bar on Browser [1] [1]	
	(b) (i) Data Protection Act [1]	
	(ii) The company must keep his data secure [1]. The company have failed to hold his data securely[1] Statement of principle [1] + expansion [1] [2]	
	(c) Any two from: Encoding/Scrambling data [1] before transmission Use encryption/decryption key [1] Unscrambling data at destination [1] Data cannot be understood in transmission [1] [2]	
	(d) (i) Participants assume the role of a character [1] and can interact with the game's world [1]/play in the role of the character [2]	
	(ii) Any two from: Test problem solving skills [1] include logic tests [1] pattern matching [1] progressive difficulty [1] time limited [1] [2]	
	(e) Any two from: Keep his online profile private [1] Do not give out contact details [1] Select players which he knows [1] Use a pseudonym [1] [2]	
13	(a) Level 0 ([0]) Answer not worthy of credit	12
	Level 1 ([1]–[2]) The candidate mentions how one or two of spreadsheets and websites can be tested. 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. There is little use of specialist terms.	
	Level 2 ([3]–[4]) The candidate discusses how one [3] or two [4] of spreadsheets and websites can be tested. 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. There is some use of specialist terms.	
	Level 3 ([5]–[6]) The candidate discusses two things from each list well how a spreadsheet and website can be tested. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates good form and style appropriate to the question. The organisation of the answer is good. There is good use of specialist terms.	
	Answers may include: Spreadsheet Do formula accurately calculate totals/figures? Are data/cells correctly formatted?/all data visible? When changes are made in cells is the change carried throughout the data? Do graphs and chart correctly reflect the data?	

Test validation rules
 Logic testing
 Absolute cell testing
 Website
 Do pages display properly in a different browser?
 Hyperlinks link to correct webpage/website/document
 Time to load webpage
 Ensure images display on webpage
 Video and sound files checked to ensure they play correctly

[6]

(b) (i) Any one from:

- Vector graphics can be resized without pixelation [1] whereas bitmap graphics become pixelated [1]
- Vector graphics are more suitable for diagrams and symbols [1] whereas bitmap graphics are best for photos [1]
- Vectors are made up of mathematical equations [1]
- Bitmaps are made up of pixels [1]

[2]

Situation	Graphic
A photograph of a concert for use in a booklet	 Vector [1]
A cartoon image of the band's mascot to be resized for use on large signs	 Bitmap [1]
An action photograph of the band for use on their website	 Vector [1]

[3]

11

		AVAILABLE MARKS
14	(a) Input: 1 microphone [1]/headset with microphone [1] Output: 1 speaker/headphone [1]	[2]
	(b) Bandwidth not big enough [1] to carry sound and video signal [1] Heavy network traffic [1]	[2]
	(c) Level 0 ([0]) Answer not worthy of credit	
	Level 1 ([1]–[2]) The candidate mentions a benefit in one [1] or two [2] of the areas or discusses a benefit in one of the areas [2]. 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. There is little use of specialist terms.	
	Level 2 ([3]–[4]) The candidate discusses benefits in both areas providing advantages in each area. 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. There is some use of specialist terms.	
	Level 3 ([5]–[6]) The candidate discusses two benefits from each list well providing advantages in each. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates good form and style appropriate to the question. The organisation of the answer is good. There is good use of specialist terms.	
	Answers may include:	
	Video conferencing Can see face to face Can interact in regular conversation Can meet with family without having to pay travel costs Conversations can be arranged ad hoc Mobile devices can be used	
	Email Don't need to be concerned about time difference/can send an email at any time or without the other party being online Don't need broadband connection Can send email from mobile phone (i.e. don't have to be at home to do it) Can easily send video clips/images from other devices as attachments	[6] 10

AVAILABLE MARKS
15 (a) Any two from: Wi Fi WAP 3G 4G [2]
(b) Additional form of feedback in case user missed visual feedback on screen [1] Helps make game environment more realistic [1] (e.g. vibration of tennis racquet mimics real game play [1]) [2]
(c) Level 0 ([0]) Answer not worthy of credit
Level 1 ([1]–[2]) The candidate mentions how one or two of the advances in technology have improved gaming. 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. There is little use of specialist terms.
Level 2 ([3]–[4]) The candidate discusses how one [3] or two [4] of the advances in technology have improved gaming. 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. There is some use of specialist terms.
Level 3 ([5]–[6]) The candidate discusses well how two of the advances in technology have improved gaming. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates good form and style appropriate to the question. The organisation of the answer is good. There is good use of specialist terms.
Answers may include: Technology: Increased processing power/memory Improvement: means devices can process larger programs/more lines of code Technology: Changing screen resolution – improved Improvement: Means graphics are more realistic/higher definition Technology: Broadband – wider bandwidth Reason: Games can be streamed so updates can easily be added/games features always improving/new levels being added/online gaming is more prevalent Technology: Wider range of peripherals/more realistic peripherals Improvement: Make gaming experience closer to real life experience [6] 10

16 (a) (i) Local Area Network	[1]	AVAILABLE MARKS
(ii) Any two from: Peripherals can be shared [1] Data can be shared [1] Users can log on at any workstation to access their files [1] Users can communicate [1] Enhanced security [1]/levels of access [1]/usernames and passwords [1] Shared software [1]	[2]	
(iii) Backup: A copy of data [1] incase the original version is lost or damaged [1] Method of backup: One from: NAS/DAS/Cloud/magnetic tape/ external hard drive [1]	[3]	
(b) (i) Any two from: Allows the user/software to communicate with hardware/system [1] Manages system resources [1] memory/storage [1]/ allocation of tasks [1] Security [1]	[2]	
(ii) Graphical User Interface [1] consisting of Menus, Icons, Pointers and Windows [1]	[2]	
(c) Level 0 ([0]) Answer not worthy of credit		
Level 1 ([1]–[2]) The candidate mentions the role of a firewall or router on a network. 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. There is little use of specialist terms.		
Level 2 ([3]–[4]) The candidate discusses the role of one [3] or both [4] of a firewall and router on a network. 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. There is some use of specialist terms.		
Level 3 ([5]–[6]) The candidate discusses well both the role of a firewall and router on a network. The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates good form and style appropriate to the question. The organisation of the answer is good. There is good use of specialist terms.		
Answers may include: Firewall Prevents files from entering or leaving the network Protects from unauthorised access outside the LAN Can assist in filtering websites Can protect from viruses		

		AVAILABLE MARKS
Router Shares an internet connection between devices Routes/directs data around the network	[6]	16
17 [1] for each correct answer.		
DEFINITION	TERM	
A term which describes sound, video, animation pictures and text when used together	MULTIMEDIA	
The use of the Internet to make phone calls	VoIP	
Equipment used to process payments at a supermarket checkout	EFTPOS	
A form of injury caused by overuse of computers	RSI	
A network component used to link a group of computers on a network to the server	SWITCH	
A law which protects the work and creations of software developers	COPYRIGHT DESIGNS AND PATENTS ACT	
Software which is used to gain unauthorised access to information on a computer	SPYWARE	
A form of computer memory which is located close to the processor	CACHE	
A law which is designed to prevent hacking	COMPUTER MISUSE ACT	
A set of rules which govern the way in which data is transported on a network	PROTOCOL	
	[10]	10
	Total	180