



# **GCSE MARKING SCHEME**

**INFORMATION AND COMMUNICATIONS  
TECHNOLOGY**

**SUMMER 2013**

## **INTRODUCTION**

The marking schemes which follow were those used by WJEC for the Summer 2013 examination in GCSE INFORMATION AND COMMUNICATIONS TECHNOLOGY. They were finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conferences were held shortly after the papers were taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conferences was to ensure that the marking schemes were interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conferences, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about these marking schemes.

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**INFORMATION & COMMUNICATION TECHNOLOGY**

**UNIT 1: UNDERSTANDING ICT**

Question	Answer	Max mark										
Q.1 (a)	<p align="center"><b>One mark for each for each correctly circled answer</b></p> <table border="1" style="display: inline-table; vertical-align: top;"> <tr><td align="center">1 ✓</td></tr> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td align="center">4 ✓</td></tr> <tr><td> </td></tr> <tr><td align="center">6 ✓</td></tr> <tr><td> </td></tr> </table> <div style="border: 1px solid black; padding: 10px; margin-left: 200px; width: fit-content;"> <p><i>If all ticked no marks</i></p> </div>	1 ✓			4 ✓		6 ✓		<b>3</b>			
1 ✓												
4 ✓												
6 ✓												
(b)	Thesaurus Online thesaurus <b>NOT</b> dictionary	<b>1</b>										
(c)	Mail Merge Label printing Condome Email (merge)	<b>1</b>										
Q.2	Knowledge Information Data	<b>3</b>										
Q.3 (a)	<p><b>GIS:</b></p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th align="center">True</th> <th align="center">False</th> </tr> </thead> <tbody> <tr><td align="center">✓</td><td> </td></tr> <tr><td align="center">✓</td><td> </td></tr> <tr><td> </td><td align="center">✓</td></tr> <tr><td align="center">✓</td><td> </td></tr> </tbody> </table>	True	False	✓		✓			✓	✓		<b>4</b>
True	False											
✓												
✓												
	✓											
✓												

Question	Answer	Max mark									
(b)	<p><b>Advantage:</b></p> <p><b>Speed:</b> Can send/receive data/images/music/text instantly.*  <b>Cost:</b> Can send/receive data/images/music/text for no extra cost.            No wires are needed/wireless.            You can synchronise devices/link devices.            Hands free (while driving).  <b>Security:</b> Pairing requires PIN.**            Do not accept a use as an advantage.</p> <p><b>Disadvantage:</b></p> <p>Can only be used over short distances.            Relatively small bandwidth / slow to transfer large files. *            Cannot send to a group / can only handshake with one device at a time.            Health concerns.            Runs battery down quickly.            Can be used for hacking. **</p> <p><b>Do not allow opposite answers.</b></p>	<b>2</b>									
Q.4 (a)	6	<b>1</b>									
(b)	7	<b>1</b>									
(c)	Student ID Number. <i>Must have whole fieldname.</i>	<b>1</b>									
(d)	To uniquely identify the student / to make each record unique / unique identifier / unique / individual differentiating number.	<b>1</b>									
(e)	TEXT	<b>1</b>									
(f)	<p><b>One mark each for any two of the following:</b></p> <p>Consistency of data.            Saves <u>typing</u> in the whole word/ quicker to <u>type</u>/ Faster to enter data.            Saves memory/ storage space. Not 'space' by itself.            Less chance of error/fewer transcription errors.            Easier to check codes using validation checks.            Faster access to data / Faster to transfer data.</p>	<b>2</b>									
(g)	<p><b>One mark for each</b> correct field and search criteria X2.  <b>One mark if</b> both fields are correct but search criteria incorrect.  <b>One mark if</b> both search criteria are correct but fields are incorrect.            Search criteria must be spelt correctly.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Logical Operator</th> <th>Search Criteria</th> </tr> </thead> <tbody> <tr> <td>Ski Ability</td> <td>=</td> <td>Beginner</td> </tr> <tr> <td>Paid</td> <td>=</td> <td>Yes</td> </tr> </tbody> </table>	Field	Logical Operator	Search Criteria	Ski Ability	=	Beginner	Paid	=	Yes	<b>2</b>
Field	Logical Operator	Search Criteria									
Ski Ability	=	Beginner									
Paid	=	Yes									
(h)	46/07/1997 / There are not 46 days in a month/July (1). Range check/ list check (1). The range/day should be between 1 and 31./ >=1 and <=31 (1)	<b>3</b>									

Question	Answer	Max mark										
Q.5 (a)	<table border="1" style="width: 100%;"> <tr> <td style="width: 150px;">True ✓</td> <td></td> </tr> <tr> <td>True ✓</td> <td></td> </tr> <tr> <td>False ✓</td> <td></td> </tr> <tr> <td>True ✓</td> <td></td> </tr> </table>	True ✓		True ✓		False ✓		True ✓		<b>4</b>		
True ✓												
True ✓												
False ✓												
True ✓												
(b)	<p>For two marks needs to include both of:</p> <p>(i) CC – email sent to more than one person <u>at the same time/ every recipient can see who it was sent to</u></p> <p>(ii) BCC – send a copy of the email to another person <u>without other recipients seeing it / they do not know if it has been copied to other people as well</u></p>	<b>2</b>										
Q.6 (a)	<table border="1" style="width: 100%;"> <tr> <td style="width: 150px;">Advantage ✓</td> <td></td> </tr> <tr> <td>Advantage ✓</td> <td></td> </tr> <tr> <td></td> <td>Disadvantage ✓</td> </tr> <tr> <td>Advantage ✓</td> <td></td> </tr> <tr> <td></td> <td>Disadvantage ✓</td> </tr> </table>	Advantage ✓		Advantage ✓			Disadvantage ✓	Advantage ✓			Disadvantage ✓	<b>5</b>
Advantage ✓												
Advantage ✓												
	Disadvantage ✓											
Advantage ✓												
	Disadvantage ✓											
(b)	<p>Any one from advantage (1) and disadvantage (1) <b>TO THE COMPANY</b></p> <p><b>Advantage</b>  Can attract wider variety of customers.  Low start-up costs compared to a shop.  Can reach customers 24/7.  Easy to update stock and prices.  No cost for overheads in retail premises.  Income from third party advertising.  E-advertising and market targeting.</p> <p><b>Disadvantage</b>  Network downtime can be expensive due to loss of sales.  Extra costs to maintain and update the website.  Competitors can see your prices/ global competition.  Delays/lost goods due to reliance on delivery companies.  Customers personal data can be hacked (not just hacking on its own).  Not everyone has access to the Internet (NOT if 'wider audience' given as an advantage).  Loss of reputation due to fraudulent sites.  Loss of reputation through bad reviews.</p> <p>Do <b>not</b> accept shop closures/loss of staff jobs.</p> <p><b>DO NOT ACCEPT ADVANTAGES AND DISADVANTAGES TO THE CUSTOMER</b></p>	<b>2</b>										
(c)	<p><b>One of the following:</b></p> <p>Hyperlink.  Menu/drop down list.  Search engine/search box/filter.  Hotspot.</p> <p><b>Not</b> url /links from other sites.  <b>Not</b> search/ browsing/query on its own.</p>	<b>1</b>										

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Q.7	<p><b>TWO advantages:</b>            Unique to each student / No-one else can register for you            Cannot forget like a card            Real time registration/know immediately where pupils are/can track pupils            Frees up teacher time</p> <p><b>ONE disadvantage:</b>            Expensive to buy scanners/ expensive to install            Time consuming to create biometric database / Maintenance            Privacy issues/ Parental Concerns            Reliance on ICT system / dirt / grease issues            Hygiene</p>	3																											
Q.8 (a)	£60 Sixty pounds <b>NOT</b> 60	1																											
(b)	Currency No decimal places	1																											
(c)	A =SUM(B3:H3)	1																											
(d)	B =IF(J4=0,"Trip Paid","Not Fully Paid")	1																											
(e)	Absolute cell referencing / absolute	1																											
(f)	<p><b>One mark each for two of:</b></p> <p>Accurate/correct calculations            Automatic <u>re</u>calculation            Save formula and data            Do 'what ifs'            Draw graphs</p> <p><b>NOT</b> 'can do sums' <b>NOT</b> 'faster' <b>NOT</b> 'easier'  <b>NOT</b> just Automatic calculations</p>	2																											
Q.9	<p><i>1 mark for naming and use of sensor and 1 mark for example of where used in school x 3</i></p> <table border="1"> <thead> <tr> <th>Sensor</th> <th>Measures</th> <th>Use</th> </tr> </thead> <tbody> <tr> <td>Humidity</td> <td>Water vapour in air</td> <td>Weather station</td> </tr> <tr> <td>Infra-red</td> <td>Body heat</td> <td>Computer room security alarm system</td> </tr> <tr> <td>Light</td> <td>Light level</td> <td>External security lights</td> </tr> <tr> <td>pH</td> <td>Acid/alkali levels</td> <td>In science experiments</td> </tr> <tr> <td>Pressure</td> <td>Pressure</td> <td>Security door mats at school entrance</td> </tr> <tr> <td>Smoke</td> <td>Atmospheric smoke</td> <td>Smoke alarms in classrooms</td> </tr> <tr> <td>Sound</td> <td>Level of noise</td> <td>Security alarm in school office</td> </tr> <tr> <td>Humidity</td> <td>Water vapour in air</td> <td>Weather station</td> </tr> </tbody> </table> <p>Motion sensor Detects changes in movement Alarm systems</p> <p><b>Do not accept same use twice (e.g. security alarm/system) without additional expansion</b></p> <p><b>NOT</b> heat or temperature.</p> <p>Any reasonable answer.</p>	Sensor	Measures	Use	Humidity	Water vapour in air	Weather station	Infra-red	Body heat	Computer room security alarm system	Light	Light level	External security lights	pH	Acid/alkali levels	In science experiments	Pressure	Pressure	Security door mats at school entrance	Smoke	Atmospheric smoke	Smoke alarms in classrooms	Sound	Level of noise	Security alarm in school office	Humidity	Water vapour in air	Weather station	6
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Question	Answer	Max mark
Q.10 (a)	<p><b>One mark each for:</b></p> <p>Voting.  Shopping.  Dating.  Email.  Videoconferencing.  Recording programmes.  Pausing / rewind live TV.  Pay per view services.  Games.  Quizzes.  Streamed video content (Catch up / films ,etc.)  Motion/gesture control.  Screen options e.g. split screen/camera angles.  Voice options e.g. choice of language/subtitles.</p> <p>Any reasonable answer.</p>	<b>2</b>
(b) (i)	<p>Instant messages/ Chat.  Make Comments / wall posts.  Check friends status / newsfeeds.  Create or join groups / events.  Locate friends –gps.  Search to find friends.  Sharing videos and photographs.  Tag videos and photographs.  Update profile picture.  Playing games.  Videocalls.  Tweeting.</p> <p>‘Talking’ needs to be clarified.  Any reasonable answer.</p>	<b>2</b>
(ii)	<p>Reasons involving:  Identity theft/ hacked.  Burglary is updating status to say you are on holiday.  Paedophiles / grooming / stalking.  Cyberbullying / blackmail/ could affect reputation and job prospects.</p>	<b>1</b>
(c) (i)	<p>A (digital) camera used to capture still images and video images on the Internet/network.  A camera used to collect/display moving images over the Internet/network.  Real time camera.  Video telephony.</p> <p><b>Not</b> just a ‘digital camera’                      Needs camera + internet/network/computer/live/realtime.  No brand names.</p>	<b>1</b>

Question	Answer	Max mark																		
(ii)	<p><b>Advantage (1)</b> Seeing/talk to people online / relatives in another country Capture image and edit e.g. try different hairstyles</p> <p><b>Disadvantage (1)</b> Inappropriate use of webcam images Paedophiles can capture images Unaware the camera is capturing images Poor quality speeds leads to time lag</p> <p><b>Not</b> workplace examples Not just 'can be misused'</p>	2																		
(d)	<p><b>One mark for each hazard and matching prevention.</b></p> <table border="1"> <thead> <tr> <th>Health hazard</th> <th>Prevention</th> </tr> </thead> <tbody> <tr> <td>Neck strain</td> <td>Have eyes at same level as screen Adjust monitor height / screen at suitable angle Use <u>adjustable</u> chairs <b>NOT</b> comfortable chair <b>NOT</b> correct posture <b>NOT</b> sit up straight</td> </tr> <tr> <td>Repetitive strain injury/ Carpel tunnel syndrome / wrist ache / wrist strain <b>NOT</b> arthritis</td> <td>Wrist and feet supports / arm supports Ergonomic keyboards Regular joint exercise Key in with your wrist straight <b>NOT</b> just 'take breaks' must have time element</td> </tr> <tr> <td>Epileptic fits</td> <td>Screens to reduce screen flicker</td> </tr> <tr> <td>Eye strain</td> <td>Regular breaks Focus on distant object Ergonomic lighting</td> </tr> <tr> <td>Radiation</td> <td>Screen filters</td> </tr> <tr> <td>Headaches</td> <td>Take regular breaks / screen filters <b>NOT</b> take breaks - <b>must have</b> time element</td> </tr> <tr> <td>Circulation problems</td> <td>Take regular breaks <b>NOT</b> take breaks - <b>must have</b> time element</td> </tr> <tr> <td>Back problems / back ache</td> <td>Use <u>adjustable</u> chairs / foot supports Take regular breaks <b>NOT</b> comfortable chair <b>NOT</b> correct posture <b>NOT</b> sit up straight</td> </tr> </tbody> </table> <p><i>Do not give same prevention twice Prevention must match for second mark</i></p> <p><b>NOT</b> get fat / heart disease <b>NOT</b> Don't sit / spend too long at computer <b>NOT</b> electrocution <b>NOT</b> trip up over cables <b>NOT</b> spill drinks <b>NOT</b> Bacteria <b>NOT</b> couch potato syndrome</p>	Health hazard	Prevention	Neck strain	Have eyes at same level as screen Adjust monitor height / screen at suitable angle Use <u>adjustable</u> chairs <b>NOT</b> comfortable chair <b>NOT</b> correct posture <b>NOT</b> sit up straight	Repetitive strain injury/ Carpel tunnel syndrome / wrist ache / wrist strain <b>NOT</b> arthritis	Wrist and feet supports / arm supports Ergonomic keyboards Regular joint exercise Key in with your wrist straight <b>NOT</b> just 'take breaks' must have time element	Epileptic fits	Screens to reduce screen flicker	Eye strain	Regular breaks Focus on distant object Ergonomic lighting	Radiation	Screen filters	Headaches	Take regular breaks / screen filters <b>NOT</b> take breaks - <b>must have</b> time element	Circulation problems	Take regular breaks <b>NOT</b> take breaks - <b>must have</b> time element	Back problems / back ache	Use <u>adjustable</u> chairs / foot supports Take regular breaks <b>NOT</b> comfortable chair <b>NOT</b> correct posture <b>NOT</b> sit up straight	4
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Question	Answer	Max mark																								
Q.11 (i)	<p><b>One mark for each of four features with corresponding example of use.</b></p> <table border="0"> <thead> <tr> <th>Name</th> <th>Example of use /descriptions</th> </tr> </thead> <tbody> <tr> <td>Automatic marking</td> <td>Giving instant feedback</td> </tr> <tr> <td>Games</td> <td>to teach maths</td> </tr> <tr> <td>Video</td> <td>tutorials/ videos showing a science experiment</td> </tr> <tr> <td>Audio</td> <td>tutorials in music</td> </tr> <tr> <td>Simulations/demonstrations</td> <td>of weather patterns</td> </tr> <tr> <td>Animation</td> <td>to show different aspects of design</td> </tr> <tr> <td>VLE</td> <td>Teachers can upload content / Students can submit their work electronically</td> </tr> <tr> <td>Email/ chat room/blogs/forums</td> <td>Communication between teachers and students - discussion</td> </tr> <tr> <td>Interactive quiz</td> <td>ICT revision</td> </tr> <tr> <td>Tracking feature</td> <td>Pupils/parents can check progress</td> </tr> <tr> <td>Walkthrough</td> <td>online papers</td> </tr> </tbody> </table> <p><b>DO NOT AWARD THE SAME USE MORE THAN ONCE</b></p>	Name	Example of use /descriptions	Automatic marking	Giving instant feedback	Games	to teach maths	Video	tutorials/ videos showing a science experiment	Audio	tutorials in music	Simulations/demonstrations	of weather patterns	Animation	to show different aspects of design	VLE	Teachers can upload content / Students can submit their work electronically	Email/ chat room/blogs/forums	Communication between teachers and students - discussion	Interactive quiz	ICT revision	Tracking feature	Pupils/parents can check progress	Walkthrough	online papers	4
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(ii) Double	<p><b>6-8 marks</b> Candidates give a clear, coherent answer discussing advantages and disadvantages of online tutorials and assessment. They use appropriate terminology and accurate spelling, punctuation and grammar.</p> <p><b>3-5 marks</b> Candidates discuss some advantages and disadvantages of online tutorials and assessment but responses lack clarity. There are a few errors in spelling, punctuation and grammar</p> <p><b>1-2 marks</b> Candidates simply give a brief description of some advantages or disadvantages. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.</p> <p><b>0 marks</b> No valid response.</p> <table border="0"> <thead> <tr> <th>Advantages</th> <th>Disadvantages</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>• Individualised learning – tailor own work pattern</li> <li>• Students can work at own pace</li> <li>• Can access from any device with Internet anywhere</li> <li>• Learning can take place at any time learn 24/7</li> <li>• Can be done away from school/distance learning</li> <li>• Teacher does not have to be there/they provide extra support when the teacher is not available</li> <li>• Wide variety of online resources can be used</li> <li>• Keep students interested/ More interactive than pen and paper/variety of multimedia formats can be used(sound/video/animation)</li> <li>• Self-assessment / Immediate results/ feedback/ Analyse/view where you went wrong</li> <li>• Frees up teachers time</li> <li>• Don't have to incur extra costs of extra tuition outside school</li> <li>• Not as embarrassing if they get it wrong/improves confidence</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>• Complex software/expensive to purchase</li> <li>• Staff training</li> <li>• Time consuming to upload all content/slow loading speeds</li> <li>• No interaction with peers/lack of social interaction</li> <li>• Needs to be self-motivated</li> <li>• Sometimes hard for teachers to monitor progress</li> <li>• Might not explain subject as well as a teacher</li> <li>• Cannot ask questions as you can in a classroom environment</li> <li>• Reliance on communication network</li> <li>• Hard to mark essays</li> <li>• Hackers can get in and change marks</li> <li>• Parents worried about the safety of pupils working online.</li> </ul> </td> </tr> </tbody> </table> <p><b>Must have at least two advantages and two disadvantages to get full marks</b></p> <p><b>NOT</b> 'expensive to setup' <b>NOT</b> just 'need to have the internet'</p>	Advantages	Disadvantages	<ul style="list-style-type: none"> <li>• Individualised learning – tailor own work pattern</li> <li>• Students can work at own pace</li> <li>• Can access from any device with Internet anywhere</li> <li>• Learning can take place at any time learn 24/7</li> <li>• Can be done away from school/distance learning</li> <li>• Teacher does not have to be there/they provide extra support when the teacher is not available</li> <li>• Wide variety of online resources can be used</li> <li>• Keep students interested/ More interactive than pen and paper/variety of multimedia formats can be used(sound/video/animation)</li> <li>• Self-assessment / Immediate results/ feedback/ Analyse/view where you went wrong</li> <li>• Frees up teachers time</li> <li>• Don't have to incur extra costs of extra tuition outside school</li> <li>• Not as embarrassing if they get it wrong/improves confidence</li> </ul>	<ul style="list-style-type: none"> <li>• Complex software/expensive to purchase</li> <li>• Staff training</li> <li>• Time consuming to upload all content/slow loading speeds</li> <li>• No interaction with peers/lack of social interaction</li> <li>• Needs to be self-motivated</li> <li>• Sometimes hard for teachers to monitor progress</li> <li>• Might not explain subject as well as a teacher</li> <li>• Cannot ask questions as you can in a classroom environment</li> <li>• Reliance on communication network</li> <li>• Hard to mark essays</li> <li>• Hackers can get in and change marks</li> <li>• Parents worried about the safety of pupils working online.</li> </ul>																					
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	<b>TOTAL</b>	<b>80</b>																								

### UNIT 3: ICT IN ORGANISATIONS

Question	Answer	Max mark																							
1	<p>1 mark for name of device                      1 mark for saying whether input or output                      If tick 2 boxes in same category then no marks                      Allow second mark if name device incorrectly</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 20%;">Device</th> <th style="width: 20%;">Input</th> <th style="width: 20%;">Output</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">Scanner</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">Speakers</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">Webcam/digital camera/digital video camera (<b>Not</b> camera)</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td style="text-align: center;"></td> <td style="text-align: center;">Microphone</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </tbody> </table>		Device	Input	Output		Scanner	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Speakers	<input type="checkbox"/>	<input checked="" type="checkbox"/>		Webcam/digital camera/digital video camera ( <b>Not</b> camera)	<input checked="" type="checkbox"/>	<input type="checkbox"/>		Microphone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2	2	2	6
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2(a)(i)	Graphical User Interface / GUI <b>(Not WIMP. Not Windows)</b>	1	1		1																				
2(a)(ii)	<p>Any four of:</p> <ul style="list-style-type: none"> <li>• Windows</li> <li>• Icons</li> <li>• Menus</li> <li>• Pointers</li> <li>• Assistants / help files / online help</li> <li>• Tutorials</li> <li>• Favourite settings / change environment / adding widgets / customisation</li> <li>• (Keyboard) Shortcuts / Hot keys</li> <li>• Task bar / Ribbon bar / Tabs/ Customised toolbar</li> </ul> <p><b>WIMP = one mark only</b>                      <b>NOT</b> pictures or images <b>NOT</b> Colour</p>	1	1	1	1	4																			

Question	Answer	Max mark
2(b)	<p>Type of interface = <b>one mark x 2</b></p> <p>Different advantage = <b>one mark x 2</b> Do not give duplicate answers</p> <p>Allow a correct advantage if HCI type mark is not awarded if you can clearly recognise what interface they are talking about.</p> <p><b>Must be an advantage not a use</b></p> <p><b>Not</b> 'easy', 'easier' / faster - unless qualified</p> <p><b>NOT GUI</b></p> <p><u>Menu driven</u></p> <ul style="list-style-type: none"> <li>• No need to learn a lot of commands</li> <li>• Intuitive/easy to understand</li> <li>• Easy to navigate</li> <li>• Ideal for beginners – everything is in a logical place/order</li> <li>• No expert language to learn</li> <li>• Little processing power needed</li> <li>• Empowers disabled</li> </ul> <p><u>Command-line</u></p> <ul style="list-style-type: none"> <li>• Quicker to type commands (<b>NOT</b> 'quicker' must be qualified)</li> <li>• Quicker to input commands as shortcut keys can be used/shortcut keys</li> <li>• Little <u>memory /storage space (not 'space')</u> needed - compared with other interfaces</li> <li>• Little <u>processing</u> power - needed compared with other interfaces</li> </ul> <p><u>Voice/ Speech driven</u></p> <ul style="list-style-type: none"> <li>• Speech input is much faster than keyboard input</li> <li>• No need to learn to type</li> <li>• Less danger of RSI</li> <li>• Reduces typing mistakes such as spelling / hitting wrong key</li> <li>• Keyboard takes up room on the desk</li> <li>• People with a disability that prevents typing can use speech input</li> <li>• Hands free advantages/ can multitask</li> </ul> <p><u>Biometric</u></p> <ul style="list-style-type: none"> <li>• Each individual has unique biometric characteristics</li> <li>• It's difficult to forge biometric properties</li> <li>• A biometric property of an individual cannot be lost</li> <li>• Biometric properties cannot be shared</li> <li>• Eliminate problems caused by lost IDs or forgotten passwords</li> <li>• Reduce password administration costs</li> <li>• Replaces hard to remember passwords which may be shared or observed by others</li> </ul> <p><u>Touch</u></p> <ul style="list-style-type: none"> <li>• A touch screen is very intuitive</li> <li>• Easier or faster to use (must be qualified) e.g. the user simply touches what they see on the display</li> <li>• 'No keyboard or mouse is required' - <u>only allow if qualified</u> e.g. saves desktop space, no need to buy mouse and keyboard</li> <li>• Touch monitors can even be mounted on the wall.</li> <li>• Touching a visual display of choices requires little thinking and is a form of direct manipulation that is easy to learn.</li> <li>• Touch screens are the fastest pointing devices.</li> <li>• Touch screens have easier hand eye coordination than mice or keyboards.</li> <li>• No extra work space is required as with other pointing devices.</li> <li>• Touch screens are durable in public access and in high volume usage</li> <li>• Can be used in dirty/noisy environments</li> <li>• Empowers disabled</li> </ul>	<p>2</p> <p>2</p> <p>4</p>

Question	Answer	Max mark																					
3(a)	One mark for each correct Star Bus / line/ condone 'ethernet' Ring (Not circle')		3																				
3(b)(i)	<b>A switch</b> looks at each packet of data and then sends it to the computer it was intended for / routes data /directs data between computers on the network. <i>Must have the idea of routing of data</i>	1																					
3(b)(ii)	A gateway; <ul style="list-style-type: none"> <li>• Joins together two networks that use different base protocols,</li> <li>• Links different types of networks</li> <li>• Links LAN to WAN</li> <li>• Allows a LAN to connect to the internet.</li> </ul>	1																					
3(b)(iii)	A bridge; <ul style="list-style-type: none"> <li>• Joins together two networks that use the same base protocols,</li> <li>• Links similar types of networks</li> <li>• Links LAN to LAN</li> </ul>	1																					
3(c)(i)	<b>Any two of:</b> <ul style="list-style-type: none"> <li>• Share hardware</li> <li>• Share software</li> <li>• Share data/files</li> <li>• Easier for internal communication / can send email</li> <li>• <u>Central</u> backup</li> <li>• Easier to monitor network activity</li> <li>• <u>Centrally</u> controlled security</li> <li>• Can access work from any computer</li> </ul>	1 1	2																				
3(c)(ii)	<b>Any one of:</b> <ul style="list-style-type: none"> <li>• A network manager may need to be employed – expensive</li> <li>• Security problems – files sent between computers could spread a virus.</li> <li>• Hackers may gain access to data</li> <li>• If the server is down, all workstations on the network are affected</li> <li>• Initial cost of servers, communication devices, etc. can be expensive</li> </ul>	1	1																				
3(d)(i)	Closed /private/ internal internet Condone 'private network' but not general descriptions of LAN	1	1																				
3(d)(ii)	External / remote access to an Intranet <i>Needs both <u>external</u> access and <u>internal</u> network</i>	1	1																				
4(a)	<table border="0" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>Advantage</th> <th>Disadvantage</th> <th></th> </tr> </thead> <tbody> <tr> <td>Accurate readings</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td>1</td> </tr> <tr> <td>Initial cost of the data logging equipment</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td>1</td> </tr> <tr> <td>Data can be collected automatically</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td>1</td> </tr> <tr> <td>Can be used in dangerous situations</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td>1</td> </tr> </tbody> </table>		Advantage	Disadvantage		Accurate readings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Initial cost of the data logging equipment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1	Data can be collected automatically	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	Can be used in dangerous situations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1		4
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4(b)(i)	<p><b>One mark for Sensor and one mark for Output device. These must match the named control system.</b></p> <p><b>Example response:</b></p> <p><b>ICT Control System:</b>      <u>Greenhouse</u>  <b>Sensor:</b>                      Temperature sensor (1)  <b>Output <u>device</u>:</b>              Heater (1)</p>	1 1	2
4(b)(ii)	<p><b>One mark for each <u>sensible</u>, suitable process linked to part (i)</b></p> <p>A      Control statement  B      If response is yes  C      If response is no or null</p> <p><b>Example responses:</b></p> <p><b>Greenhouse</b></p> <p>A      Is the temperature below 25<sup>0</sup>C?  B      Turn heater on  C      Turn heater off</p> <p><b>Automatic car park barrier</b></p> <p>A      If a car approaches  B      If yes raise barrier  C      If no do not raise barrier/lower barrier</p>	1 1 1	3
5(a)	<p>Any one of:</p> <ul style="list-style-type: none"> <li>• Helps diagnose illness/give medical advice</li> <li>• Second opinion</li> </ul>	1	1
5(b)	<p>Any two of:</p> <ul style="list-style-type: none"> <li>• Can store more knowledge than one person</li> <li>• Can be kept up to date</li> <li>• Helps to give a more accurate diagnosis (<b>Not</b> 'accurate' on its own)</li> <li>• Does not forget like a doctor</li> <li>• Does not retire</li> <li>• Some people prefer entering personal data into a computer rather than talking to a person</li> <li>• Gives a second opinion (<b>Not</b> if given in 5a)</li> <li>• Available 24/7 (<b>Not</b> just '24/7')</li> <li>• Allows self-diagnosis</li> <li>• Allows access to an expert where not available locally / saves leaving home to go to doctor</li> <li>• Avoids waiting time</li> </ul> <p><b>Condone:</b> 'Cheaper to use an expert system' if qualified e.g. rather than training a human expert'  <b>Not</b> 'continuously monitoring patient's condition' / intensive care unit monitoring</p>	1 1	2

Question	Answer	Max mark	
5(c)	Any one of: <ul style="list-style-type: none"> <li>• Initial development costs- 'Expensive' needs to be qualified as development costs or expensive to purchase initially.</li> <li>• GIGO (resulting in wrong diagnosis)</li> <li>• Not 100% accurate</li> <li>• Lack of common sense</li> <li>• Lack of human touch</li> <li>• Lacks human senses</li> <li>• Over reliance on the software</li> </ul> <b>Not</b> general disadvantages of using computers	1	1
6(a)	Any three of: <ul style="list-style-type: none"> <li>• (Spot) welding</li> <li>• Spray painting</li> <li>• Applying adhesives / sealants</li> <li>• (Automatically) fetching and carrying parts/carrying heavy objects</li> <li>• Bottle making</li> <li>• <u>Assembling</u> parts (only accept once)</li> <li>• Testing if qualified e.g. engines</li> <li>• Use in dangerous environments e.g. bomb disposal</li> </ul> Accept any reasonable answer	1 1 1	3
6(b)	Any two of: <ul style="list-style-type: none"> <li>• Robot does not get bored carrying out repetitive jobs</li> <li>• Carrying out dangerous work</li> <li>• Consistency of quality / eliminates human error /Accept more accurate if qualified</li> <li>• No holidays / tea breaks / work 24/7</li> <li>• Saves on employment costs</li> <li>• Robots can work in unheated and unlit environments</li> </ul> <b>NOT</b> 'works faster'	1 1	2
6(c)	Any one of: <ul style="list-style-type: none"> <li>• Loss of human jobs / robots replace humans</li> <li>• High initial cost of purchasing robots</li> <li>• Possible need for extra space, and new technology, to accommodate robots</li> <li>• Cost of maintenance/running costs</li> <li>• Staff training to set-up/use robots</li> <li>• Limited functions</li> <li>• Robots may not respond properly in times of an emergency or when some unexpected variance occurs / lack of common sense.</li> </ul>	1	1

Question	Answer	Max mark									
7(a)	Software/program (1) that controls/runs the computer system (1)	2	2								
7(b)	<p>Any three of:</p> <ul style="list-style-type: none"> <li>• Maximises use of RAM</li> <li>• enables software to run / runs software/ run application</li> <li>• manages system resources</li> <li>• organises the hard drive</li> <li>• maximises the use of the memory</li> <li>• controls hardware / it handles inputs and outputs from peripherals</li> <li>• deals with interrupts</li> <li>• deals with errors</li> <li>• provides user interface</li> <li>• boots up / shuts down the computer</li> <li>• manages multi-tasking</li> <li>• manages multi-access</li> <li>• manages security</li> <li>• manages user accounts</li> </ul> <p><b>NOT</b> 'runs the computer/system'</p>	1 1 1	3								
8(a)	The first / main page <u>of a website</u>	1	1								
8(b)	Leader board or scrolling marquee <b>Not</b> 'banner'	1	1								
8(c)	<table border="0" style="width: 100%; text-align: center;"> <thead> <tr> <th>Website feature</th> <th>Letter</th> </tr> </thead> <tbody> <tr> <td>Hyperlink</td> <td><b>C</b></td> </tr> <tr> <td>Web Icons</td> <td><b>B</b></td> </tr> <tr> <td>Search box</td> <td><b>D</b></td> </tr> </tbody> </table>	Website feature	Letter	Hyperlink	<b>C</b>	Web Icons	<b>B</b>	Search box	<b>D</b>	1  1  1	3
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8(d)(i)	Area of a webpage that a user focuses on (1) when search engine results are displayed (1)	2	2								
8(d)(ii)	To ensure their website get as much traffic as possible / people are more likely to click on the links (in the golden triangle).	1	1								

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9a	Any one of: <ul style="list-style-type: none"> <li>• Mouse</li> <li>• Graphics tablet</li> <li>• Light pen</li> <li>• Joystick</li> <li>• Touch screen</li> <li>• Stylus pen</li> <li>• Interactive whiteboard</li> </ul> Must be a device <b>Not</b> phone <b>Not</b> tablet	1	1																					
9b	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Standard tools</th> <th style="text-align: left;">Tick (✓)</th> <th></th> </tr> </thead> <tbody> <tr> <td>Transition</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Cloning</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;">1</td> </tr> <tr> <td>Tweening</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Layering</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;">1</td> </tr> <tr> <td>Distortion</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;">1</td> </tr> <tr> <td>Pivot tables</td> <td style="text-align: center;"><input type="checkbox"/></td> <td></td> </tr> </tbody> </table>	Standard tools	Tick (✓)		Transition	<input type="checkbox"/>		Cloning	<input checked="" type="checkbox"/>	1	Tweening	<input type="checkbox"/>		Layering	<input checked="" type="checkbox"/>	1	Distortion	<input checked="" type="checkbox"/>	1	Pivot tables	<input type="checkbox"/>			3
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9(c)	An image made up of pixels	1	1																					
9(d)	<b>Problem:</b> The image may become pixelated / fuzzy / blurry – <i>idea of loss in quality</i>  <b>Suggested image type:</b> Vector (graphic) Do <b>not</b> accept compression formats	1  1	2																					
9e	<ul style="list-style-type: none"> <li>• Optimisation is the reduction of the file size of the image.(1)</li> </ul> <b>Not 'makes the image smaller'</b> – must refer to file size  One advantage from: <ul style="list-style-type: none"> <li>• Faster uploads/downloads</li> <li>• Saves memory/storage (space) /saves hard disc space</li> </ul> <b>(Not 'saves space')</b>	1  1	2																					



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10(a)	mp3, .wma or .wav	1	1
10(b)	<b>mp3 /.wma</b> <ul style="list-style-type: none"> <li>files are compressed</li> <li>faster uploads / downloads</li> <li>saves memory</li> <li>compatibility with many devices</li> </ul> <b>wav</b> <ul style="list-style-type: none"> <li>No reduction in quality</li> </ul>	1	1
10(c)	<b>mp3 /.wma</b> <ul style="list-style-type: none"> <li>Loss of quality</li> </ul> <b>wav</b> <ul style="list-style-type: none"> <li>slower to download</li> <li>large file sizes</li> </ul>	1	1
11	<p><b>7-10 marks</b> Candidates give a clear, coherent answer fully discussing advantages and disadvantages of an e-commerce system to the customer and Smash Hits. They use appropriate terminology and accurate spelling, punctuation and grammar.</p> <p><b>4-6 marks</b> Candidates describe or list some advantages and disadvantages of an e-commerce system to the customer and Smash Hits but responses lack clarity. There are a few errors in spelling, punctuation and grammar</p> <p><b>1-3 marks</b> Candidates simply give a brief description of an e-commerce system and may not mention advantages and disadvantages for both the customer and Smash Hits. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.</p> <p><b>0 marks</b> No valid response.</p> <p><b>Indicative content</b>  <b>Do not give duplicate answers</b></p> <p><b>Advantages for the customer</b></p> <ul style="list-style-type: none"> <li>Ability to order goods 24/7/ buy 24/7</li> <li>Cost savings are passed to customers with cheaper goods</li> <li>Allows disabled people to do their own shopping</li> <li>Saves travel time</li> <li>Saves travel costs</li> <li>Greater choice of goods from a global marketplace</li> <li>Price comparisons</li> <li>Read reviews</li> <li>Can listen to samples before you buy</li> <li>Get goods delivered</li> <li>Faster to find products using search engines</li> <li>Instant downloads of videos/books/music/games/apps</li> <li>Online tracking of orders</li> <li>Reminder emails when goods in stock</li> </ul> <p><b>Disadvantages for the customer</b></p> <ul style="list-style-type: none"> <li>Problems with fraudulent sites</li> <li>Harder to assess the quality of goods before ordering</li> <li>Loss of the social pleasure of shopping</li> <li>Hidden costs of postage or duties</li> <li>Customers worried about security of credit / debit card details</li> <li>Could download a virus if qualified e.g. when downloading a music file</li> <li>Getting an increase in spam email</li> <li>Have to wait for some items to be delivered</li> </ul> <p><b>Not</b> network crashes/power cuts</p>	10	

Question	Answer	Max mark	
	<p><b>Advantages for the business</b></p> <ul style="list-style-type: none"> <li>• Online catalogues are more easily updated</li> <li>• Fewer (retail) staff needed</li> <li>• Ability to reach customers 24/7</li> <li>• Global marketplace means customers from around the world</li> <li>• Fluid pricing – easy to change prices from day to day</li> <li>• Low start-up and running costs compared to traditional stores</li> </ul> <p><b>Disadvantages for the business</b></p> <ul style="list-style-type: none"> <li>• Network downtime can be very expensive</li> <li>• Increased competition from abroad offering cheaper goods</li> <li>• Reliance on third-party delivery companies who may be unreliable</li> <li>• Costs of delivery may make goods more expensive</li> <li>• Competitors can see your prices</li> </ul>		
		<b>Total</b>	<b>80</b>



WJEC  
245 Western Avenue  
Cardiff CF5 2YX  
Tel No 029 2026 5000  
Fax 029 2057 5994  
E-mail: [exams@wjec.co.uk](mailto:exams@wjec.co.uk)  
website: [www.wjec.co.uk](http://www.wjec.co.uk)