



GCSE MARKING SCHEME

**INFORMATION AND COMMUNICATION
TECHNOLOGY**

JANUARY 2014

INTRODUCTION

The marking schemes which follow were those used by WJEC for the January 2014 examination in GCSE INFORMATION AND COMMUNICATION 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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GCSE ICT

UNIT 1 - 4331

MARK SCHEME - JANUARY 2014

Question	Answer	Max mark									
1(a)	<p>One mark for each for each correct answer</p> <p>Word Art / 3D shading ClipArt / picture / image/ graphics Bold Font / Italic Font (NOT bold, italic or font by itself) Accept Bold text / italic text BUT NOT text by itself /NOT different fonts) Centre text Underline Add Border / border art Font size / text size Table Bullet points AutoShapes Colour must be qualified e.g. coloured font, coloured background Accept any reasonable DTP feature</p>	4									
1(b)	<p>One mark for each correct answer</p> <p>Database Spreadsheet Presentation</p>	3									
1(c)	Mail Merge	1									
2	<table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">5 ✓</td> <td style="text-align: center;">6 ✓</td> </tr> <tr> <td style="text-align: center;">7 ✓</td> <td style="text-align: center;">8</td> <td style="text-align: center;">9</td> </tr> </tbody> </table> <p>Make sure only one tick in each row is selected or no marks for that row.</p>	1	2	3	4	5 ✓	6 ✓	7 ✓	8	9	3
1	2	3									
4	5 ✓	6 ✓									
7 ✓	8	9									

Question	Answer	Max mark									
3	<p>One mark for each of two advantages from: They can reduce fuel use so are '<u>greener</u>' Can select/plan the shortest route to save <u>money</u> Gives <u>estimated time</u> from A to B / shows how long it takes from one place to another Can be warned in advance of any holdups/traffic jams/tolls / can suggest alternative routes Helps you to keep to planned route / can give you directions to where you are going /plan routes from A to B Can be found by others if lost/in an emergency Can find places of interest / petrol stations, supermarkets etc.</p> <p>Condone uses such as: Can see birds eye view /street view/ spatial awareness Can track / be tracked / locates where you are</p> <p>Answers must be qualified NOT 'to see how long it takes' or 'to see what the area is' NOT general advantages e.g. Easier to carry / Can take it anywhere</p> <p>One mark for each of two disadvantages from: Data not accurate or up to date / maps could be out of date Satellite navigation systems can send you down roads which are too narrow</p> <p>Using satellite navigation systems can distract drivers and cause accidents Problems with loss of satellite signal Can drain battery <u>quickly</u> / <u>No</u> battery available / Needs to be charged more regularly</p> <p>NOT Cost of equipment NOT Uses battery</p>	4									
4(a)	<p>Either Messages sent between devices/computers Messages sent across a network / the Internet Electronic messaging systems NOT Email / electronic mail sent across a network</p>	1									
4(b)	<p>Either Saves time typing in the email addresses individually Faster to send message at the same time</p>	1									
4(c)	<p>Virus scan attachments before opening them / use anti-virus software Don't open emails from people you don't know / spam / junk mail Install/use a firewall / to block non-certificated content/allowed users Spam filter</p>	2									
5(a)	To uniquely identify the player / to make each record unique / unique identifier	1									
5(b)	Grant Z	1									
5(c)(i)	3	1									
5(c)(ii)	<p>One mark for each correct field and search criteria x2 One mark if both fields are correct but search criteria incorrect One mark if 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>Instrument</td> <td>=</td> <td>Piano</td> </tr> <tr> <td>Grade</td> <td>=</td> <td>5</td> </tr> </tbody> </table>	Field	Logical Operator	Search Criteria	Instrument	=	Piano	Grade	=	5	2
Field	Logical Operator	Search Criteria									
Instrument	=	Piano									
Grade	=	5									

Question	Answer	Max mark
5(d)	Format check / input mask / 99/99/9999 Type check Presence check Drop down list of three choices for day, month and year Calendar date picker	1
5(e)	Autonumber <input type="checkbox"/> 1 Boolean <input type="checkbox"/> 2✓ Date <input type="checkbox"/> 3 If more than one box is ticked – no marks.	1
6(a)	Friday	1
6(b)	=AVERAGE(B3:B7) =SUM(B3:B7)/5 =(B3+B4+B5+B6+B7)/5 Accept any correct formula and / or ÷ Allow if = not present	1
6(c)	Cell merging / merge and centre Merge cells	1
6(d)	Bar Chart <input type="checkbox"/> 1 Line Chart <input type="checkbox"/> 2✓ Pie Chart <input type="checkbox"/> 3 If more than one box is ticked – no marks.	
6(e)	One mark each for two of: Accurate/correct calculations Automatic re calculation Save formula and data Do 'what ifs' NOT 'can do sums' NOT 'faster' NOT 'easier' NOT just Automatic calculations NOT work out the average NOT create graphs	2

Question	Answer	Max mark
7(a)	<p>Three marks for any of:</p> <ul style="list-style-type: none"> Copy image Add text Crop Zoom Remove red-eye Edit colours Change size of image Change image format Rotate image Edit brightness Transforming Selection Sizing Scaling Moving Cloning Brush settings Layering Spot clearing Skew Distortion Colour palette Contrast Filters Mirroring / flip <p>Accept any suitable answer</p>	3
7(b)(i)	<ul style="list-style-type: none"> Playing computer games Online dating Viewing a place anywhere in the world Advertising e.g. self promotion (creating own videos for uploading to a video streaming website) Accept any reasonable answer Do not accept brand names such as 'skype' NOT Just "take photos" and "make videos" on its own – needs a purpose Condone Monitoring babies in a nursery <p>NOT anything to do with work or business meetings</p>	1
7(b)(ii)	<p>Any of:</p> <ul style="list-style-type: none"> Poor connection/broadband speed Poor quality images Privacy issues / hacking / Can record without you knowing 	1
7(c)(i)	<ul style="list-style-type: none"> Name /surname Username Email address Town /Current location DOB / Age Gender Password Secret Question/Answer 	2

Question	Answer	Max mark
7(c)(ii)	Messages / email Can chat (not talk) Can put comments on the wall Can set up interest groups Create events Upload videos Video calling Tag photographs Play games Share location View notifications View others walls and photographs Locate friends Privacy controls Update status Any reasonable answer	2
7(c)(iii)	Disadvantages Paedophiles / Stalkers / groomers may gain access to the images Employers can view your comments and could lead to a dismissal Sharing too much information / Burglars can see holiday status updates Lack of privacy Identity theft You can be identified from your images / unwanted tagging Cyberbullying Inappropriate content uploaded by others can be viewed	2

Question	Answer	Max mark																		
7(d)	<p>One mark for each hazard and matching prevention.</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 NOT comfortable chair NOT correct posture NOT sit up straight</td> </tr> <tr> <td>Repetitive strain injury/ Carpal tunnel syndrome / wrist strain NOT arthritis</td> <td>Wrist and feet supports / arm supports Ergonomic keyboards Regular joint exercise Key in with your wrist straight NOT 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 <u>strain</u> NOT Eye Problems NOT Eye Damage NOT Square Eyes</td> <td>Regular breaks Focus on distant object Blinds to protect sun glare Screen filters Take regular breaks NOT eye tests</td> </tr> <tr> <td>Radiation</td> <td>Screen filters</td> </tr> <tr> <td>Headaches</td> <td>Take regular breaks / screen filters NOT take breaks - must have time element</td> </tr> <tr> <td>Circulation problems</td> <td>Take regular breaks NOT take breaks - must have time element</td> </tr> <tr> <td>Back problems / back ache</td> <td>Use <u>adjustable</u> chairs / foot supports Take regular breaks NOT comfortable chair NOT correct posture NOT sit up straight</td> </tr> </tbody> </table> <p><i>Do not give same prevention twice Prevention must match for second mark</i> NOT Get fat / heart disease NOT Don't sit / spend too long at computer NOT electrocution NOT Trip up over cables NOT Spill drinks NOT Bacteria NOT 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 NOT comfortable chair NOT correct posture NOT sit up straight	Repetitive strain injury/ Carpal tunnel syndrome / wrist strain NOT arthritis	Wrist and feet supports / arm supports Ergonomic keyboards Regular joint exercise Key in with your wrist straight NOT just 'take breaks' must have time element	Epileptic fits	Screens to reduce screen flicker	Eye <u>strain</u> NOT Eye Problems NOT Eye Damage NOT Square Eyes	Regular breaks Focus on distant object Blinds to protect sun glare Screen filters Take regular breaks NOT eye tests	Radiation	Screen filters	Headaches	Take regular breaks / screen filters NOT take breaks - must have time element	Circulation problems	Take regular breaks NOT take breaks - must have time element	Back problems / back ache	Use <u>adjustable</u> chairs / foot supports Take regular breaks NOT comfortable chair NOT correct posture NOT sit up straight	4
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8(a)	<p>MUST BE A USE OF A VLE BY A STUDENT – <u>NOT TEACHER</u></p> <p>Students can access material uploaded by teachers (homework/ worksheets / revision guides / videos / etc) Students can submit work electronically to be marked Peer assessment to evaluate each other's work A blog could be used by a pupil to record a diary A forum could be used to ask for help with work Instant message / chat function to arrange a meeting Students can have their own storage space Students can access distance learning sites via links Respond to surveys / questionnaires set by teachers Can create / use wikis to work collaboratively Can use checklist to keep track of work completed</p>	2																		

Question	Answer	Max mark
8(b)	On screen keyboard Narrator to read out text / Speech synthesis Change / Edit colour schemes Magnify text / icons / fonts Voice recognition Change mouse settings Accessibility features Enlarging fonts Enlarging icons Any reasonable answer NOT Hardware	3
8(c)	1 mark for device and 1 mark for description of use Educational 'apps' to help you learn French for smart phones Tablets to show how an engine works A podcast to teach you how to set up a new tablet Body technology (e.g. Smart watch) to monitor fitness levels in PE Augmented reality spectacles that displays map information from the Internet via voice commands Any suitable device with sensible use	2
9(a)	1 3 4 5	4
9(b)	One mark for advantage from: Avoids double booking Can book 24/7 Can choose seat Compare prices to get best deal Easier for disabled who don't have to leave home to book Read online reviews before booking Virtual tour of hotel room / virtual clips Can check availability before booking Save on travel costs (must be qualified) Save travel time (must be qualified) On-line discounts Can select alternative performances E-tickets NOT just 'easier to book'	1
9(c)	Double entry Visual check / proof reading	2
10(a)(i)	Pressure sensor / passive infrared / light beam = Speaker sounds / Alarm sounds Temperature sensor = Air Conditioning turns on / Heater switches off / motor opens window CONDONE: Heat sensor NOT one word answer for the output e.g. NOT Alarm, Window, Heater Air conditioning on its own Can get the output mark even if sensor incorrect	4

Question	Answer	Max mark
10(a)(ii)	To measure the moisture in the air in the greenhouse / library / swimming pool / weather station Any reasonable answer	1
10(b)	Saving on heating / lighting costs Increases security in a school Operates 24/7 More accurate than humans /set intervals for readings and recordings Easy to re-programme Can work in dangerous places whereas a human can't No human interaction needed	1

Question	Answer	Max mark
11	<p>10-13 marks Candidates give a clear, coherent answer fully and accurately describing how to find products on a website and listing advantages and disadvantages. They use appropriate terminology and accurate spelling, punctuation and grammar.</p> <p>6-9 marks Candidates describe some aspects of how to find products on a website and listing some advantages and disadvantages, but responses lack clarity. There are a few errors in spelling, punctuation and grammar.</p> <p>1-5 marks Candidates simply give a brief description of how to find products on a website and listing a few advantages and disadvantages. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.</p> <p>0 marks No valid response.</p> <p>Guidance One mark for each point relating to searching for products on a website (Max 3). Up to ten marks for describing advantages and disadvantages of shopping online to the customer. To get full marks must have at least two advantages and two disadvantages. No marks for advantages and disadvantages to the company.</p> <p>Methods of searching for products on websites: Search Box to enter key word searches Hotspots Hyperlinks Drop down menus Using the menus to navigate to the product</p> <p>Advantages for the customer:</p> <ul style="list-style-type: none"> • Ability to order goods 24/7/ buy 24/7 • Cost savings are passed to customers with cheaper goods /online deals • Allows disabled people to do their own shopping • Saves travel time • Saves travel costs • Greater choice of goods from a global marketplace • Price comparisons • Read reviews • Allows customised design features in products • Can listen to samples before you buy / virtual reality displays • Get goods delivered / don't have to carry back from shops • Instant downloads of videos/books/music/games/apps • Online tracking of orders • Reminder emails when goods in stock • Can get suggested/alternative items <p>Disadvantages for the customer:</p> <ul style="list-style-type: none"> • Problems with fraudulent sites • Harder to assess the quality of goods before ordering • Loss of the social pleasure of shopping • Hidden costs of postage or duties • Customers worried about security of credit / debit card details • Could download a virus if qualified e.g. when downloading a music file • Getting an increase in spam email • Have to wait for some items to be delivered / goods don't arrive <p>NOT network crashes/power cuts</p>	13
	TOTAL	80

UNIT 3 - 4333

Question	Answer		Max mark
1	1 mark for naming each ICT device x 4 1 mark for each correct input/output x 4 e.g. Monitor – Output Webcam – Input NOT camera	4 4	8
2(a)	Image A: Bitmap Image B: Vector	1 1	2
2(b)	Any two of: <ul style="list-style-type: none"> • Reduced/lesser quality image • Reducing memory size / make the file size smaller • Reducing the <u>number</u> of colours • Uploads/downloads faster NOT 'saves space'	1 1	2
3(a)(i)	Local Area Network	1	1
3(a)(ii)	Wide Area Network	1	1
3(b)(i)	Any two of: <ul style="list-style-type: none"> • Share hardware • Share resources (if qualified) • Share software • Share data / files • <u>Central</u> backup / shared memory • Easier to monitor network activity • Centrally controlled security 	1 1	2
3(b)(ii)	Any one of: <ul style="list-style-type: none"> • A <u>network manager</u> may need to be employed – expensive • Files sent between computers could <u>spread</u> a virus • More opportunity for hackers to gain access to data • If the <u>server</u> is down, all workstations on the network are affected • Initial cost of servers, communication devices etc. can be expensive MUST be qualified by the hardware NOT just 'expensive' 	1	1
3(c)	Intranet	1	1
3(d)	Gateway: Connect two dissimilar networks (<i>Accept</i> connect a LAN to a WAN) Bridge: Connect two similar networks (<i>Accept</i> connect a LAN to another LAN)	1 1	2
3(e)	A switch analyses each packet of data and sends it to the computer it was intended for	1 1	2
4(a)	1 mark for each advantage: Can investigate different effects Play into it and it converts it to music automatically Allows the user to print their own music Cheaper to produce music than to hire a music studio / service / facilities Allows music to be stored <u>digitally</u> / Preserve music performance Can use different instruments (without having to purchase them) Music can be edited Music files can be compressed (to save memory / faster transmission) No need to be able to play an instrument to compose music. Allow 1 mark for each distinctly different example of music editing, e.g. auto-tuning, change tempo, change volume, overlay tracks, enveloping, looping etc	1 1 1	3
4(b)	Digital Analogue	1 1	2

Question	Answer		Max mark
5(a)(i)	Computer/software generates (1) the in-between frames (1) between <u>two</u> key frames or start and end frames (1)	3	3
5(a)(ii)	Previous frames are still visible (1) to help plan the next frame (1)	2	2
5(b)	Increase: If the frame rate is too fast it will blur the details of the animation Decrease: A frame rate that is too slow will have a stop and start / jittery / jumpy / flickering / non-fluid effect. NOT affect the size of your file/movie NOT will run faster/slower	1 1	2
5(c)	The human eye continues to see an image for a short period after the image has disappeared	1	1
6(a)(i)	A VISUAL check is when a user carefully reads what has been typed in and compares it with the original data source	1	1
6(a)(ii)	A PARITY check ensures that the data sent is the same as the data received when data is transmitted from one computer to another	1	1
6(a)(iii)	DOUBLE-KEYING checks if the same data entered twice matches	1	1
6(b)	Validation: Check data is sensible / reasonable / within stated ranges	1	1
6(c)	Hash: Checks meaningless data / adds up a total which makes no sense Batch: Checks meaningful data / adds data which is meaningful Accept an example illustrating the difference	1 1	2
7(a)	Sensor: Heat Output devices: Fan (1), <i>Accept</i> Air conditioning unit Heater (1) Motor (on windows) / actuator (1)	1 2	3
7(b)	B: Turn the <i>cooling device</i> on / open the window C: Is the temperature below 18° Centigrade? D: Turn the <i>heating device</i> on	1 1 1	3
7(c)	The output affects the input or explained example	1	1
8(a)	Any one of: <ul style="list-style-type: none"> • Alarms • Security locks / bars on windows • Fireproof doors / fireproof boxes • Inert gas systems • Physical relocation, e.g. backup stored off-site NOT cloud backup • Guards, write-protect tabs, CCTV, camera, do not keep computers on the ground floor. 	1	1
8(b)	Any two of: <ul style="list-style-type: none"> • Access levels • Encryption NOT 'encoding' • Backups • Password • Read-only file • Hidden file • Activity log • Usernames • Monitoring the network • Anti-virus software 	1 1	2

Question	Answer		Max mark
9a	<p><i>Either Banking (any two of)</i></p> <ul style="list-style-type: none"> • Cheque processing – paying bills – obtaining cash • EFTPOS – paying for goods at checkout • ATMs – obtaining cash • Card services – Credit / Debit / Smart cards • Homebanking / telebanking • view statements / check balance • transfer money between accounts • make payments • apply for loans • Bluetooth / wi-fi services – key encryption for remote banking <p><i>Or e-Commerce Systems</i></p> <ul style="list-style-type: none"> • Selling / buying goods online • Advertising/selling goods internationally <p><i>Or Expert Systems (any two of)</i></p> <ul style="list-style-type: none"> • A medical diagnosis expert system • Medical screening • Matching people to jobs • Training on oil rigs • Diagnosing faults in car engines • Legal advisory systems • Mineral prospecting • GUI helpline 	1	1
			2

Question	Answer		Max mark
9(b)	<p><i>Either Banking (any two of)</i></p> <ul style="list-style-type: none"> • Cheque processing <ul style="list-style-type: none"> ○ Accuracy (read accuracy 100%) ○ Security - Difficult to forge ○ MICR speeds up data entry • EFTPOS / Card services – Credit / Debit / Smart cards <ul style="list-style-type: none"> ○ Pay by credit card automatic transfer from one account to another ○ Don't need to carry money ○ Can make international transfers ○ Volume of transactions • ATMs <ul style="list-style-type: none"> ○ Provide 24-hour services for the customers ○ Customers can access ATM's in many locations ○ Cuts down on queues in banks / faster service for customers NOT shorter queues at the ATM ○ Save on staff costs ○ Allows staff to concentrate on other work e.g. selling mortgages, etc ○ Increased sales ○ Increased security • Homebanking / telebanking <ul style="list-style-type: none"> ○ Security – encrypted data / user names / passwords ○ Can check 24/7 ○ No need to travel to bank / saves travel costs/time <p><i>Or e-Commerce Systems (any two of)</i></p> <ul style="list-style-type: none"> • Can sell 24/7 • Customers can check availability • Customers can check/compare prices • Online discounts / savings • Can change prices from day to day (fluid) • Low start up and running costs compared to traditional shops • Fewer staff needed • Online catalogues more easily updated • Global marketplace <p><i>Or Expert Systems (any two of)</i></p> <ul style="list-style-type: none"> • The computer can store far more information than a human. It can draw on a wide variety of sources such as stored knowledge from books case studies to help in diagnosis and advice. • The computer does not 'forget' or make mistakes. • Data can be kept up-to-date. • The expert system is always available 24 hours a day and will never 'retire'. • The system can be used at a distance over a network. So rural areas or even poorer third world countries have access to experts. • Provides accurate predictions with probabilities of all possible problems with more accurate advice. • Some people prefer the privacy of talking to a computer. 	1 1	2

Question	Answer		Max mark
9(c)	<p><i>Either</i> Banking (any two of)</p> <ul style="list-style-type: none"> • Cheque processing <ul style="list-style-type: none"> ○ Cost of installing MICR readers ○ Loss of banking staff ○ Crumpled cheques cannot be read ○ Limited range of characters ○ Cheques not filled in correctly are rejected causing delays • EFTPOS <ul style="list-style-type: none"> ○ Cost to provider ○ Card fraud ○ Could forget PIN ○ Wrong amount of money issued ○ Card could be retained ○ Card might get damaged • ATMs <ul style="list-style-type: none"> ○ Could be attacked/security ○ Could forget PIN ○ Wrong amount of money issued ○ Card could be retained ○ Card might get damaged • Card services – Credit / Debit / Smart cards <ul style="list-style-type: none"> ○ Could forget PIN ○ Wrong amount of money issued ○ Card could be retained ○ Card might get damaged • Homebanking / telebanking <ul style="list-style-type: none"> ○ Card fraud / hacking accounts ○ Identity theft ○ Can't make deposits ○ Phishing scams ○ Could forget pin number ○ Hacking (if qualified) <p><i>Or</i> e-Commerce Systems (any two of)</p> <ul style="list-style-type: none"> • Network downtime can be expensive • Increased competition from further afield/abroad • Cost of delivery may make goods expensive • Reliance on third party delivery companies who may be unreliable. • No personal contact • Initial cost of purchasing system • Local stores / high street stores closing down <p><i>Or</i> Expert Systems (any two of)</p> <ul style="list-style-type: none"> • Over reliance upon computers some doctors could be de-skilled by over dependence upon computer advice. • Fewer medical staff could be needed • Lacks the 'human touch' – lack of personal contact • Dependent upon the correct information being given. If data or rules wrong the wrong advice could be given. 	1 1	2

Question	Answer		Max mark												
10(a)	Payroll	1	1												
10(b)	OCR	1	1												
10(c)(i)	Processing Method: Batch processing	1	1												
10(c)(ii)	Reason: Maximise use of resources / Can be done overnight No user interaction required Any explanation why non real-time processing is applicable	1	1												
10(d)	Any one of: • Payroll Number / Employee ID / Employee Number / Key field	1	1												
10(e)	Any three of: • NI Number • Date of birth • Gross pay <u>to date</u> • Tax rate/tax code • Net pay <u>to date</u> • Holiday pay • Sick pay • Overtime pay • Job title • Bonuses • Pension contribution • Date of pay • Union contribution • Date started • Bank account • Student loan contributions • National Insurance number Accept any reasonable field	1 1 1	3												
11(a)	<table border="0" style="width: 100%; text-align: center;"> <tr> <td style="width: 33%;">Computer Misuse Act</td> <td style="width: 33%;">Electronic Communications Act</td> <td style="width: 33%;">Copyright Act</td> </tr> <tr> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table>	Computer Misuse Act	Electronic Communications Act	Copyright Act	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1 1 1	3				
Computer Misuse Act	Electronic Communications Act	Copyright Act													
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>													
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>													

Question	Answer		Max mark
11(b)	Any two of: <ul style="list-style-type: none"> • Data holders should protect the data against loss, theft or corruption • Data must be accurate and where relevant kept up to date • Data must be fairly and lawfully processed • Data must be processed within the rights of subjects • Data must be deleted when no longer needed • Data can only be used for the purpose collected <i>Accept slightly different wording if answer given is clear</i> NOT Data must not be transferred outside EU to countries without adequate provision NOT Data must be adequate, relevant, not excessive	1 1	2
11(c)	Any one of: <ul style="list-style-type: none"> • Detect / prevent terrorism • Detect / prevent crime 	1	1
12	HCI – 3 x 1 mark Unique Advantage – 3 x 1 mark Unique Disadvantage – 3 x 1 mark Maximum of 3 marks to be awarded per HCI. <u>HCI:</u> <ul style="list-style-type: none"> • Graphical User Interface / GUI • Menu driven • Voice recognition / command / speech synthesis • Command line • Biometrics • Touch sensitive <u>Graphical User Interface / GUI</u> Advantages: <ul style="list-style-type: none"> • Intuitive • Easy to navigate • Uses Windows. Icons, Menus, Pointers – easier for novices • Help Guides and keyboard shortcuts for experts • You do not have to learn complicated commands • They let you exchange data between different software applications Disadvantages: <ul style="list-style-type: none"> • Takes a lot memory • A lot of processor power is needed • Slow for experts who just want to get things done: e.g. programmers • GUIs take up a much larger amount of hard disk space than other interfaces • They need significantly more memory (RAM) to run than other interface types <u>Menu driven</u> Advantages: <ul style="list-style-type: none"> • No need to learn a lot of commands • Ideal for beginners – everything is in a logical place/order • Little processing power needed • Extremely easy to use. Someone who has never seen the interface before can work out what to do • Step-by-step options are given so that the user doesn't have to remember anything • Menu interfaces don't have to be visual, they can be spoken - good for telephones or for visually impaired people 	3 3 3	9

Question	Answer	Max mark
	<p>Disadvantages:</p> <ul style="list-style-type: none"> • Poorly designed menu interface may be slow to use • It can be irritating if there are too many menu screens to work through - users get annoyed or bored if it takes too long • You often can't go to the exact place you want right at the start. You have to work your way through the menu screens even if you know where you want to get to • If the menu isn't organised properly it could cause frustration trying to find things • Can be tedious for experts <p><u>Voice recognition</u></p> <p>Advantages:</p> <ul style="list-style-type: none"> • Speech input is much faster than keyboard input NOT writing in • No need to learn to type • Less danger of RSI • Reduces typing mistakes such as spelling / hitting wrong key • Keyboard takes up room on the desk • Faster to issue commands (e.g. open word processor) • People with a disability that prevents typing can use speech input / helps with dyslexia • Users can do something else with their hands • Increased security (setting a voice password) NOT just recognise the user <p>NOT No training required NOT quicker, faster without qualifying</p> <p>Disadvantages:</p> <ul style="list-style-type: none"> • It takes a long time to train the computer to understand how someone speaks • Background noise interferes with speech recognition – cannot use computer with music in background • Unable to have a chat or use telephone and perform input at same time • Computer will never know all the proper nouns, for example Nantyllyn • Will not understand user when they have a speech impediment, sore throat or cold NOT accept ill or reference to illness which does not affect voice. • Will not understand user when they have a strong accent • Will always need a keyboard for special keys e.g. function keys, ctrl, alt / to make alterations / as a backup if the voice recognition system fails • People with a disability that prevents speech could use a keyboard • Can't use in a quiet environment like library or quiet train • Can't keep private as people can hear what you are saying so no good for entering passwords • May not recognise words that sound the same such as 'too' and 'two' <p><u>Command line</u></p> <p>Advantages:</p> <ul style="list-style-type: none"> • Quicker to type commands (NOT 'quicker' must be qualified) • Little memory needed • Little processing power needed • No need for expensive hardware • If the user knows the correct commands then this type of interface can be much faster than any other type of interface • This type of interface needs much less memory (RAM) in order to use it than other user interfaces • This type of interface does not use as much CPU processing time as others • A low resolution, cheaper monitor can be used with this type of interface 	

Question	Answer	Max mark
	<p>Disadvantages:</p> <ul style="list-style-type: none"> • For someone who has never used a CLI, it can be very confusing • Commands have to be typed precisely. If there is a spelling error the command will fail • There are a large number of commands which need to be learned • You can't just guess what the instruction might be and you can't just 'have a go'. • Not suitable for a novice <p><u>Biometrics</u></p> <p>Advantages:</p> <ul style="list-style-type: none"> • Each individual has unique biometric characteristics, e.g. unique fingerprints, unique retina. • It's difficult to forge biometric properties • A biometric property of an individual cannot be lost • Biometric properties cannot be shared • Eliminate problems caused by lost IDs or forgotten passwords • Reduce password administration costs • Replaces hard to remember passwords which may be shared or observed by others <p>Disadvantages:</p> <ul style="list-style-type: none"> • Very expensive technology • If biometric data is stolen a fingerprint cannot be changed • Security issues with storing biometric data • Biometric identification systems undermine privacy • For people affected with diabetes, the eyes get affected resulting in differences <p><u>Touch sensitive</u></p> <p>Advantages:</p> <ul style="list-style-type: none"> • A touch screen is very intuitive • Easy to use as the user simply touches what they see on the display • Save space as no keyboard or mouse is required • Touch monitors can even be mounted on the wall • Touching a visual display of choices requires little thinking and is a form of direct manipulation that is easy to learn • Touch screens are the fastest pointing devices • Touch screens have easier hand eye coordination than mice or keyboards • No extra work space is required as with other pointing devices <p>Disadvantages:</p> <ul style="list-style-type: none"> • Difficult for people with accessibility issues: no feedback • Can be easily damaged/scratched • Dirty screens difficult to read • Users must be within arm's reach of the display • It is difficult to select small items • User's hand may obscure the screen • Screens need to be installed at a lower position and tilted to reduce arm fatigue • Some reduction in image brightness may occur • They cost more than alternative devices 	
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WJEC
245 Western Avenue
Cardiff CF5 2YX
Tel No 029 2026 5000
Fax 029 2057 5994
E-mail: exams@wjec.co.uk
website: www.wjec.co.uk