



# **GCE MARKING SCHEME**

**ICT  
AS/Advanced**

**Summer 2012**

## INTRODUCTION

The marking schemes which follow were those used by WJEC for the Summer 2012 examination in GCE ICT. 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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IT1

<p>1.</p>	<p>Data consists of raw facts and figures.          Information is data which has been processed by the computer (given context or meaning).          Knowledge is derived from information by applying rules to it.</p> <p><b>Any appropriate example</b>, such as 9:00, 135/75, 10:00, 135/75, 11:00, 120/60.          To render the data as information, it first must be given a context, e.g. medical – a patient’s blood pressure reading or to make it more understandable it is put into a table.</p> <table border="0" style="margin-left: 40px;"> <tr> <td style="padding-right: 20px;">Reading time</td> <td>Patient’s BP</td> </tr> <tr> <td>9:00</td> <td>135/75</td> </tr> <tr> <td>10:00</td> <td>125/70</td> </tr> <tr> <td>11:00</td> <td>80/60</td> </tr> </table> <p>The doctor can now apply her knowledge to this information. The patient’s blood pressure is dropping (information) and their condition is deteriorating (knowledge).</p> <p>(Do not give mark if the figures are totally unrealistic)</p>	Reading time	Patient’s BP	9:00	135/75	10:00	125/70	11:00	80/60	<p>1 1 1 1 1 1</p>
Reading time	Patient’s BP									
9:00	135/75									
10:00	125/70									
11:00	80/60									
<p>2.(a)</p>	<p>Any four from. (A description or an example is required. The candidate must name the characteristic).</p> <ul style="list-style-type: none"> <li>• <b>Accurate</b> - Data without any mistakes</li> <li>• <b>Correctly targeted</b> - The question should be targeted at the people who are going to use it <b>OR</b> e.g. if asking for information about motorbikes there is no point asking car drivers. No good asking vegetarians about meat eating.</li> <li>• <b>Understandable</b> - The meaning of any information should be clear to the user <b>OR</b> if the information is in a very complicated format then it will waste time and people could draw the wrong conclusions from it.</li> <li>• <b>Complete</b> - Has to include all the information. <b>OR</b> e.g. letters not having postcodes take longer to deliver</li> <li>• <b>Relevant</b> - Data has to be related to the task you are trying to investigate. <b>OR</b> there is no point using information about babies from people whose children are in their late teens. No good collecting information on ice-cream sales in Alaska in the winter if you want to open your kiosk in California</li> <li>• <b>Up-to-date</b> - Information changes with time and without a date stamp could be too old to be useful <b>OR</b> means that the data is not too old i.e. a travel company would not have much profit from using 10 year old data on holiday patterns to decide which resorts to offer this year. (Time has to be either stated or implied). (Condone timely as an alternative word to up-to-date).</li> </ul> <p><b>Accept Reliable</b> if refers to source of information.</p> <p><b>A plain list of three or four gets 1 mark.</b></p>	<p>4</p>								

2 (b)	<p>Two other costs: time (1), human resources / people / staff / employees (1) both must have different stages and real example (1 mark for naming the cost x 2)</p> <p>Appropriate example, such as: the time consuming nature and the specialist staff requirements</p> <p>Accept also, time to re-train (could come under time or HR issues) time to analyse the data</p> <p>e.g. Designing/Creating Data Collection sheets</p> <p>e.g. employ someone to create the forms.</p> <p>Takes time to trial the sheets before using for real.</p> <p>Data Collection</p> <p>e.g. New staff have to be employed to go and ask people questions.</p> <p>Training needed to show the team how to collect the data.</p> <p>Maintenance/Updating</p> <p>Staff have to be employed to keep the hardware running and to modify the software when legislation changes or bugs are found.</p> <p>Data Entry</p> <p>New staff have to be employed to type in the results of the data collection.</p> <p>OMR devices have to be purchased.</p> <p>It takes time for someone to type in the data which takes them away from another job.</p>	2x2
3.	<p>Any two from:</p> <p>1 mark naming check <b>AND</b> description 1 mark for the error it is designed to stop (this may be obtained by the candidate giving an example)</p> <p><b>Just naming gets no marks</b></p> <p><b>No marks for producing a list</b></p> <p><b>Presence</b> – requires that a value must be entered, the details of an order are being input, the order cannot be processed unless an order number is entered and the routine will return an error if the box is left empty.</p> <p><b>Format</b> – the data must conform to a prescribed layout, a NI number consists of 2 letters 6 digits and then a letter. If the operator tries to enter a different combination an error is returned. (Input mask)</p> <p><b>Range</b> – the data must be a value that falls between 2 prescribed values, the date of birth of a pupil must lie between 01/09/83 and 31/08/95, any date that falls out of the range is rejected.</p> <p><b>Data type</b> – data must be of a specified type i.e. numerical, text, Boolean, image, data entered for the number in stock must be numerical, if a text item is entered it must be rejected.</p> <p><b>Fixed value</b> (Lookup)(File check) – data must conform to one of the values in a predefined list i.e. for gender only m or f is allowed, entering anything else will result in an error message,</p> <p><b>Check digit</b> – numerical calculation on a code number and comparing it with the final digit, if the same value is not found then an error message is displayed.</p> <p>Also accept <b>Length check, Input mask, Integrity check</b> with examples</p>	2x2

4. (a)	<p>A Hyperlink is: An area of a web page usually a section of text or an image, that contains a link to another location on the Web. OR A <u>connection to another related page</u>, when activated sends a request for another web page (Or object) to be downloaded. (1)</p> <p><b>Any suitable example (1)</b></p> <p>A Frame is a section of a web page in which semi-independent activities can take place. (1) Suitable example e.g. an area with a menu or group of links. (1)</p>	2x2
4 (b)	<p><b>Any two of:</b> Can place graphics more accurately Can have more control over the layout / allows better customisation Likely to take up less memory / <b>less</b> demanding on the system Loads faster than using a template Compatibility - enables to be displayed on a number of different platforms</p>	2
5.	<p><b>Must name the Act</b> <b>Max 3 marks for each Act i.e. name (1) purpose (1) consequence (1).</b> <b>Cannot use the same consequence twice.</b> <b>To get the three marks must give at least one consequence.</b> <b>Can get marks for other Acts</b> <b>No more than two marks for naming Acts</b></p> <p><i>Data Protection Act, Copyright Act, Computer Misuse Act, Malicious Communication Act (Could mention Freedom of Information Act and Intellectual Property Rights).</i></p> <p><b>Misuse Act</b> - Crimes against the <i>Misuse Act</i> are backed up with fines and prison (differing scales). <b>The Computer Misuse Act</b> (1) was introduced to make it illegal for people hacking into your computer (1) by giving the hackers a fine (of £2000). (1) / the Act also made it illegal to use the information you see for blackmail purposes (1) and you could get a further (£2000) fine and go to prison. (1) Identity theft Spreading viruses, etc Phishing <b>DPA</b> - The DPA (1) makes companies who keep personal data keep the data secure (1) or they could be heavily fined (1)</p> <p>Onus on companies in <i>DPA</i> to register. Currency of data. Obtain data lawfully. Used for given purpose.</p> <p><b>Copyright Act</b> - copying software / images / music</p> <p><b>NOT</b> Pornography, Cyberbullying, Paedophilia</p>	6

6. (a)	<p>This question asks for benefits the network gives the network <b>manager</b></p> <p><b>Any three from:</b>  The hospital's IT manager can monitor what work staff are doing from a central point.  IT manager can install software from a central point without going around each machine. (not just install software)  Backups can be done centrally  User security policies can be centrally administered  Can send Pop up messages with important information about down time  He can ensure that all anti-virus software is kept up-to-date  Remote management of stations (a good answer could gain three marks for three distinct points)</p> <p>Sharing data is wrong as the question is about the network manager</p>	3
6 (b)	<p>A private internet OR a closed / private network only accessible within the organisation</p> <p><b>Any 1 from</b>  Allows consultants to access privileged information from home.  Allows users access to information which non medical staff cannot have  Allows additional security to information as stays inside the hospital / health trust.  Allows doctors to see X-rays / patient information at the bedside</p> <p><b>NOT</b> GP accessing it (extranet)</p>	1  1
7. (a)	<p><b>Electronic Funds Transfer (1)</b></p> <p>is moving money (electronically) from one account to another e.g. from a customer account to pay for goods purchased (1)</p>	2
7. (b)	<p><b>Electronic Point Of Sale (1)</b></p> <p>is the hardware and software needed to automate the checkout process (1)</p> <p>Any three from:</p> <p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Need for less staff as no need to put price on each item</li> <li>• Money taken straight out of customer account so the company is guaranteed it</li> <li>• Less need for physical security as not have to carry as much cash</li> <li>• Allows 'just in time', better stock control, (less waste)</li> <li>• Less time in queues so happier customers and greater throughput</li> <li>• Better management statistics / monitoring staff e.g. checkout performance</li> <li>• Allows better targeting</li> <li>• Automatic re-ordering</li> <li>• Attract / retain customers by allowing additional services e.g. cashback, topping up your phone, allows a variety of payment methods, allows special offers – loyalty cards, BOGOF, vouchers</li> </ul>	5

8. (a)	<p><b>Three marks for description of any 3 of the following methods. No mark for just naming the method. No list mark awarded. Can award marks for general answers within a method but only award once.</b></p> <p><b>3 marks for the method, 3 for the disadvantages and 4 for the advantages</b></p> <p><b>OMR</b> Teachers are given an OMR form with class lists each week and they put a black mark whether present or absent. The form is read by computer and an absent list produced. The teacher marks the reason for the absence in the correct space on the OMR form.</p> <p><b>Radio tags</b> As pupils enter a classroom the PC detects their presence from the tag and adds the information to the central register.</p> <p><b>Admin software on PC / laptop / tablet / phone</b> Teachers take the register on their machines and the information is transferred electronically to the central server.</p> <p><b>Bromcom</b> In some schools the teachers have a specialised device with a wireless link to the admin server. Teachers fill in an attendance form at the beginning of every lesson and this is wireless up to the office</p> <p><b>Smart cards</b> Each pupil has their own smart/swipe card which they swipe through a computer at the beginning of registration and every lesson. This data is sent to the office either by wireless or by file transfer.</p> <p><b>Biometrics (Once)</b> Each pupil as they enter the classroom they place their thumb on the finger print reader. This data is sent electronically to the office. (same for retina scanning).</p> <p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Saves teachers/teaching time</li> <li>• Improved attendance</li> <li>• Easier to spot absence patterns</li> <li>• Improved tracking of attendance cuts down internal truancy</li> <li>• Automatic SMS messages to parents</li> <li>• Automatic creation of statistics, automatic archiving</li> <li>• Know which pupils are in and are late</li> <li>• Know where pupils are all times if year tutor wants to see them</li> <li>• Printout report summary to check pupils % attendance</li> <li>• Multiple access points to the data</li> </ul> <p><b>Condone</b> - marks for method specific advantages</p> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Wireless - Wireless coverage for all rooms / grounds may not be available.</li> <li>• Any (but only once) - Initial cost of purchasing electronic equipment</li> <li>• Biometric - Cost of maintenance and repair / dirt causes problems – need technical support</li> <li>• Swipe cards - Pupils might swipe their friends cards into a lesson - teacher has not checked - relied upon the machine to do it</li> <li>• Any – In a Fire cannot use the system and might not know who is there</li> <li>• OMR – Cannot be done sensibly every lesson, too much labour involved, paper can easily be damaged, tends be done daily/weekly and thus can be out of date. Only 1 access point</li> <li>• Any – communications failure can mean that no lists are available</li> </ul> <p><b>7-10 marks</b> Candidates give a clear, coherent answer fully and accurately describing three methods, discussing advantages and a specific disadvantage for each. They use appropriate terminology and accurate spelling, punctuation and grammar.</p> <p><b>4-6 marks</b> Candidates give brief descriptions of three methods, and give advantages and a specific disadvantage for each but responses lack clarity. There are a few errors in spelling, punctuation and grammar.</p> <p><b>1-3 marks</b> Candidates simply list methods but may not give advantages or a disadvantage, or give a brief description of one. The response lacks clarity and there are significant errors in spelling, punctuation and grammar.</p> <p><b>0 marks</b> No appropriate response.</p>	10
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8 (b)	<p>For full marks, candidates need to discuss three of the following with appropriate advantages and disadvantages (at least two of each for full marks). No mark for naming the use. No marks for a list. Maximum 5 marks for advantages / disadvantages (i.e. 2 + 3 or 3+ 2) and 3 marks for methods</p> <p>CAL CBT Blogs Distance learning Video conferencing Online learning / Internet researching / e-learning Chat rooms Revision programs Authoring software Interactive whiteboards Specialist hardware e.g. for disabled VLEs</p> <p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Greater interactivity holds a pupils attention</li> <li>• Quicker feedback in online tests</li> <li>• Offers a variety of different ways to learn and a variety of information sources. More dynamic learning</li> <li>• Allows user to learn at own pace and can learn at times suitable for themselves</li> <li>• Allows user to 'go over' earlier work again in case they did not understand i.e. repeat sections they found difficult earlier</li> <li>• Computer based training significantly reduces costs for the employers and can be safer if it is a danger</li> <li>• Cuts down on travelling for staff or pupils</li> <li>• Disabled can carry on with learning</li> </ul> <p><b>Accept any other reasonable answer</b></p> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Lack of collaborative learning</li> <li>• Need to be self motivated</li> <li>• Lack of social interaction</li> <li>• Cost of installation and maintenance (must be well qualified)</li> <li>• Work / life balance of teacher</li> <li>• Communication failure</li> <li>• Inequality of learning experience (them and us)</li> </ul> <p><b>No marks for repeated items.</b></p> <p><b>Accept any other reasonable answer.</b></p>	8
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9. (a)	<p>Use of a program to predict the behaviour of a real life system.  <i>Answer should have software and at least one of real life / investigative (what if)</i>          Computer uses a mathematical formula implies use of software</p>	1
9 (b)	<p><b>Must be at least one advantage and one disadvantage</b></p> <ul style="list-style-type: none"> <li>• Cheaper as do not have to physically destroy cars</li> <li>• Safer as nobody is really hurt</li> <li>• Much more flexible</li> <li>• Can explore different scenarios more easily</li> <li>• Model could oversimplify the situation and not be accurate enough</li> <li>• Bad data errors in formulas will spoil accuracy</li> <li>• No model is ever 100% accurate</li> </ul>	3
<p>Before starting to mark question 10 look through the spreadsheet printouts to determine how the candidate has identified pages and screenshots.          In reading each answer to questions 10 (a), 10 (b), 10 (c) and 10 (d) look for the page or printout indicated. If you cannot see the item, look at the page (printout) before and after the one indicated. If you cannot see the item then no mark can be awarded.</p>		
10. (a)	<p>Two marks for each formula (1 from A and 2 from B)  <b>No mark for naming formula up to 2 marks for description of what it Does. Purpose plus extension or purpose plus detailed description of data used gains both marks. (What and why)</b>          A: SUM, COUNT, MAX, MIN, AVERAGE, RAND          B: Single IF, Multiple IF, DATE, ROUND  <b>e.g.</b></p> <p>My Count formula on page 5, cell D24, counts the number of numbers in cell range A23 to D23 (1) It can help you work out the mean of a set of numbers by giving you the number to divide the total by (1). COUNTIF, etc, are also acceptable</p> <p>RAND generates a random number between 0 and 1 (1) in my range, on page 10, it is used to generate the number of sales of hot cross buns in cell E25 (1).  <b>NOTE The use of RAND to generate a unique number is incorrect</b></p> <p>I used the SUM function (SUM C2:C24) in column C of page 3 to add up all the costs of the different items sold every week (What) to work out my total income (Why).</p> <p>I used SINGLE IF in cell E14 on page 5 to work out if the account holders were overdrawn =IF (D2 &lt;0, "ACCOUNT OVERDRAWN", "Account in credit") the message "ACCOUNT OVERDRAWN" appears and if the amount is not negative then the message "Account in credit" appears.</p> <p>I used the DATE function in cell F3 on page 2 to work out the difference in days between when the payment should have been made and when it was actually made so that interest could be charged on the outstanding balance.</p> <p><b>NB</b> - NOW or TODAY are acceptable but must refer to a printed invoice otherwise the candidate could use DATE which is also acceptable. DATE function can reduce data entry errors</p> <p><b>Must be specific and related to work in their sheet.</b></p>	6

10 (b)	<p><b>Example</b> Can be seen on page 13 cell D6 and F9 in the table on page 14. I enter the name of an item and the price is then found from the information I have already put in the prices sheet. (1)</p> <p><b>Advantage (1)</b> reducing data entry errors increasing efficiency supported by a suitable example If a price changes you only have to change it in the reference table Speed of data entry</p> <p><b>Disadvantage (1)</b> If the item changes value then I will have to go and change the price sheet as well Complexity (explained) If you rename or move the table it will not work. Data has to be sorted into order (generally true) If there are errors in the look up table there will be errors in the result.</p> <p><b>HAVE TO SHOW WHERE THE FUNCTION IS USED TO GAIN MARKS</b></p>	3
10 (c)	<p><b>One mark for naming a validation technique. Up to two marks for detailed description. Do not have to name the technique if adequately described</b></p> <p>e.g. I put a range check on my customer order number (1) of between 1 and 9999 (1) to ensure numbers were within the correct range (1), (any of these other points are worth a mark).</p> <p>I used conditional formatting (1) by putting a preset formula (1) e.g. to work out the date (1) for data in another cell (1).</p> <p>I set the text length on customer Postcode (to 8 characters to put a limit (1) to prevent extra data being entered. (1) (Max 2 for this answer as length check not named.)</p> <p>Can accept a customised error message. Must be described <b>HAVE TO SHOW WHERE THE FUNCTION IS USED TO GAIN ANY MARKS</b></p>	3
10 (d)(i)	<p><b>What and why</b> I sorted the names of my customers on page 13 as it made it a lot easier to look for people when their surnames <b>were</b> in alphabetic <b>order</b>. / to make a list ready for Vlookup</p>	2
10(d)(ii)	<p><b>What and why</b> I used a breakeven graph on page 12, in my profit loss graph, this allowed me to find the number of items I had to sell before I was going to start making a profit. <b>NOTE</b> 'A visual representation of the data' is insufficient for the mark</p>	2

### IT3

1	<p><i>Needs of the user (up to 2 marks if mention both)</i></p> <ul style="list-style-type: none"> <li>• The novice user's priority will be ease of learning.</li> <li>• The expert user will want to get the job done in the shortest possible time.</li> </ul> <p><i>How these could be met (Max 3 marks)</i></p> <ul style="list-style-type: none"> <li>• Could provide tutorials for novice users / Novices will need easy access to help.</li> <li>• Step by step approach / novice users should never be left wondering what to do next.</li> <li>• Novice users tend to stick to the mouse/touch screen / Graphical user interface (gui)</li> <li>• Provide shortcuts for experts / command line interface.</li> <li>• Experts often type at high speed and can memorise key combinations and this is faster than using the mouse and clicking on icons.</li> <li>• Increased numbers of ways of performing the same operation – interfaces have a number of routes and allow the user the choice. i.e. a novice user would prefer to use a drop down menu or click on an icon to print whilst an expert will want to use CTRL/P.</li> </ul> <p><b>Must be clear that answer refers to novice or expert and not general points about HCI.</b></p>	5
2	<p><b>1 mark per point (need to state need and how helped)</b></p> <ul style="list-style-type: none"> <li>• Visually impaired people can have their screens configured using large fonts.</li> <li>• Magnify areas of the screen for people with poor eyesight.</li> <li>• If a person is visually impaired, then ICT can help them by getting the computer to speak the words when they are being typed in.</li> <li>• Visually impaired people can also use special Braille keyboards to enter the data and can use Braille printers to produce output which other blind people can read.</li> <li>• Use of correct colour schemes for colour blind people.</li> <li>• Use large mouse or trackerball for people with poor co-ordination.</li> <li>• Use of speech recognition rather than keyboard/mouse who cannot use their arms, etc.</li> <li>• Blow pipes (sip and puff switches) or eye movements for entering text / controlling devices.</li> <li>• Brainwave controlled devices for physically handicapped.</li> </ul> <p><b>Other examples might be given - Accept any suitable point.</b></p>	4
3	<p>Description involving:</p> <p>Physical configuration of network / shape of network / map of network / layout of network (1)</p> <p>How Linked / connected together (1)</p> <p><b>Accept alternative wording</b></p> <p>No marks for naming shapes e.g. bus, ring</p>	2

4	<p>3 x (1 mark for giving each factor and a 2nd mark for a fuller description)</p> <p><b>Size of the organisation ( NOT Size of the Network)</b></p> <ul style="list-style-type: none"> <li>Needs can range from a small LAN to a global WAN.</li> <li>Some communications media are limited by the distance they have to travel.</li> <li>Amount of data processing required must also be considered.</li> </ul> <p><b>NOT</b> Need to be able to add more computers to the network.</p> <p><b>How the system will be used</b></p> <ul style="list-style-type: none"> <li>What type of applications do users require? / Are the users going to require a wide range of applications?</li> <li>Will they need large data storage? / Are they going to store a large number of data files?</li> <li>From where will they operate the network e.g. at home in office or remote access from different locations. / Where does the processing get done?</li> </ul> <p><b>Existing systems to integrate</b></p> <ul style="list-style-type: none"> <li>More often networks are not developed from scratch but need to fit in with existing systems.</li> <li>Sometimes an extension is required e.g. when a new branch office opens.</li> <li>Therefore any new network must fit in with the existing operating systems and protocols.</li> <li>It must support any peripherals already in use e.g. bar code readers, printers, etc.</li> <li>Can the current stock of PC's and peripherals be used on the new network?</li> </ul> <p><b>Performance in terms of: reliability / user friendliness / capacity / speed of processing</b></p> <ul style="list-style-type: none"> <li>Different parts of the organisation may have different performance requirements.</li> <li>Real-time e-commerce system may require greater speeds / capacity / reliability.</li> </ul> <p><b>NOT just 'faster networks'</b></p> <p><b>If candidates only list factors then maximum mark is 1</b></p> <p><b>Condone security if reference to level of risk NOT hacking / viruses</b></p>	3x2																										
5	<p>Answers should compare the following factors of the two networks. Any 6 comparisons <b>Only give cost factors once and knowledge factors once</b></p> <table border="1" data-bbox="225 987 1442 1926"> <thead> <tr> <th data-bbox="225 987 788 1025"><u>Peer to peer</u></th> <th data-bbox="793 987 1442 1025"><u>Client server</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="225 1025 788 1122"><b>Cost saving</b> – no server is needed, so all the computers can be the same</td> <td data-bbox="793 1025 1442 1122">More expensive – servers are expensive to buy</td> </tr> <tr> <td data-bbox="225 1122 788 1182"><b>Lower operating costs</b> – less set up and maintenance costs</td> <td data-bbox="793 1122 1442 1182">Cost of setup and maintenance is higher</td> </tr> <tr> <td data-bbox="225 1182 788 1220"><b>Status</b> – All machines have same status</td> <td data-bbox="793 1182 1442 1220">One machine more important than the rest</td> </tr> <tr> <td data-bbox="225 1220 788 1317"><b>No network manager is needed</b> – all users take responsibility for the network <b>(Knowledge)</b></td> <td data-bbox="793 1220 1442 1317">Need specialist knowledge – need a person with technical knowledge to manage network</td> </tr> <tr> <td data-bbox="225 1317 788 1406"><b>Knowledge</b> - Users need more IT knowledge</td> <td data-bbox="793 1317 1442 1406">Network manager allocates access to resources on the network</td> </tr> <tr> <td data-bbox="225 1406 788 1467"><b>Easy to set up</b> – they are the simplest of computer networks, can be set up by anyone</td> <td data-bbox="793 1406 1442 1467">Network operating systems require technical knowledge to set up and maintain</td> </tr> <tr> <td data-bbox="225 1467 788 1563"><b>No reliance on a server</b> – no worry about the server breaking down</td> <td data-bbox="793 1467 1442 1563">If server breaks down network is unusable</td> </tr> <tr> <td data-bbox="225 1563 788 1624"><b>Peer responsibility</b> – users decide what resources others can use on their computer</td> <td data-bbox="793 1563 1442 1624">Users need little specialist knowledge as administration is performed centrally</td> </tr> <tr> <td data-bbox="225 1624 788 1720"><b>Security</b> - Poorer security as resources are shared</td> <td data-bbox="793 1624 1442 1720">Security is better as it is centralised and one persons responsibility ( not just hierarchy of passwords)</td> </tr> <tr> <td data-bbox="225 1720 788 1809"><b>Back ups</b> cannot be made centrally – this places the responsibility on all the users to back up their own data</td> <td data-bbox="793 1720 1442 1809">Backups and software installation can be done centrally</td> </tr> <tr> <td data-bbox="225 1809 788 1870"><b>Harder to find files</b> which are not stored centrally</td> <td data-bbox="793 1809 1442 1870">Centrally stored files are easier to find</td> </tr> <tr> <td data-bbox="225 1870 788 1926"><b>Network size</b> - Only suitable for very small networks (15 or less)</td> <td data-bbox="793 1870 1442 1926">More efficient / load tolerant for large networks</td> </tr> </tbody> </table>	<u>Peer to peer</u>	<u>Client server</u>	<b>Cost saving</b> – no server is needed, so all the computers can be the same	More expensive – servers are expensive to buy	<b>Lower operating costs</b> – less set up and maintenance costs	Cost of setup and maintenance is higher	<b>Status</b> – All machines have same status	One machine more important than the rest	<b>No network manager is needed</b> – all users take responsibility for the network <b>(Knowledge)</b>	Need specialist knowledge – need a person with technical knowledge to manage network	<b>Knowledge</b> - Users need more IT knowledge	Network manager allocates access to resources on the network	<b>Easy to set up</b> – they are the simplest of computer networks, can be set up by anyone	Network operating systems require technical knowledge to set up and maintain	<b>No reliance on a server</b> – no worry about the server breaking down	If server breaks down network is unusable	<b>Peer responsibility</b> – users decide what resources others can use on their computer	Users need little specialist knowledge as administration is performed centrally	<b>Security</b> - Poorer security as resources are shared	Security is better as it is centralised and one persons responsibility ( not just hierarchy of passwords)	<b>Back ups</b> cannot be made centrally – this places the responsibility on all the users to back up their own data	Backups and software installation can be done centrally	<b>Harder to find files</b> which are not stored centrally	Centrally stored files are easier to find	<b>Network size</b> - Only suitable for very small networks (15 or less)	More efficient / load tolerant for large networks	6
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6	<p><b>Any three of the following <i>described</i> appropriately</b></p> <ul style="list-style-type: none"> <li>• Introduction of viruses</li> <li>• Using an organisation's hardware/printers for personal work / using the internet and running up telephone bills for own purposes or tying up the bandwidth</li> <li>• Using company time for personal email / social networking</li> <li>• Distribution of material that is racially or sexually offensive / cyber bullying</li> <li>• Misuse of data for their own business</li> <li>• Blackmail, computer fraud or selling to other organisations</li> <li>• Violating terms of copyright or software agreements / by downloading illegal software onto the system</li> </ul> <p>Hacking needs to be explained in terms of one of the above  <b>NOT</b> theft of hardware</p>	3
7	<p><b>Description of any four from: List gets 1 mark</b></p> <ul style="list-style-type: none"> <li>• Responsibilities</li> <li>• Respecting rights of others</li> <li>• Abiding by current legislation</li> <li>• Protecting hardware and software from malicious damage</li> <li>• Complying with licensing agreements</li> <li>• Authorisation – what parts of the system they can use</li> <li>• Permissions on data access</li> <li>• Security defining rules about password disclosure, data transfer rules and personal use of emails and the Internet</li> <li>• Consequences of breaking the code</li> </ul>	4
8	<p><b>Any four of the following, discussed in suitable detail:</b></p> <ul style="list-style-type: none"> <li>• Maintaining a company website / need for trained staff</li> <li>• Catalogue of stock, stock database/table so that one can immediately see if something is available or whether there will be a delay.</li> <li>• Methods of secure payment / shopping trolley</li> <li>• Database/table of customer orders/bids so that immediate searches can be made to find and update customer information.</li> <li>• Order/bid tracking / email confirmation.</li> </ul> <p><b><i>If candidate just states four points then maximum mark is 1</i></b></p>	4

9	<p><b>Evaluation of any valid point one mark (max 7). Very well argued point could be worth two. To get full marks must have at least one advantage and one disadvantage NB Context must be e-commerce business.</b></p> <p><b><u>Advantages to customers</u></b></p> <ul style="list-style-type: none"> <li>• It enables people to find out what they do and what they sell.</li> <li>• There is no travelling – it can be done from home so saving in costs and time / delivered to the door</li> <li>• Allows disabled people to do more shopping</li> <li>• Can be done 24/7*</li> <li>• Much quicker to do a price comparison</li> <li>• Can find obscure goods not available locally</li> <li>• See other customer reviews</li> <li>• Order tracking</li> <li>• Better deals available online</li> </ul> <p><b><u>Advantages to businesses</u></b></p> <ul style="list-style-type: none"> <li>• People can email them with enquiries, orders, requests.</li> <li>• Technology has advanced and now made a lot more possible.</li> <li>• Overheads cut / Large savings on shop, warehouse and office space / Less money tied up in stock / less stock wastage</li> <li>• Wider customer base / Can reach an international audience.</li> <li>• More efficient customer targeting</li> <li>• Can target sales because you can see rivals prices on their website and alter your prices<sup>#</sup></li> <li>• Can sell 24/7 (but not if given as an advantage for customers)*</li> </ul> <p><b><u>Disadvantages</u></b></p> <ul style="list-style-type: none"> <li>• Credit card fraud</li> <li>• Fake websites - goods do not exist</li> <li>• Copycat websites to extract bank account info</li> <li>• Fewer shops on the High Street</li> <li>• Lack of social interaction</li> <li>• Increase in delivery vans</li> <li>• Cost of maintaining a company website</li> <li>• Need for trained staff</li> <li>• Can't fully assess the quality of the goods / can't try it on</li> <li>• Competitors can see your prices and target your company<sup>#</sup></li> </ul> <p><b><u>Other effects</u></b></p> <ul style="list-style-type: none"> <li>• Security issues e.g. hackers stealing bank account details</li> </ul> <p><b>Do not give duplicates (see * and # above)</b></p>	7
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10	<p><b>One mark each for discussion of any eight points (Concern and consequence/effect) further marks for discussion of any point with greater detail/example.</b></p> <ul style="list-style-type: none"> <li>• There is little control over the content of the material on the Internet, although some governments have started to control what can be seen. – Censorship / inciting violence /blacklist</li> <li>• There is also no control over the people who can access the material on the Internet. - Privacy / Plagiarism / Hacking.</li> <li>• The lack of ‘policing’ of the Internet also means that the information is not checked to make sure that it is accurate, very hard for children to be able to check the accuracy of the information. Not monitored.</li> <li>• There are laws covering the production and distribution of some material but as much of this material comes from other countries, where the material is perfectly legal, there is not much that can be done to stop it.</li> <li>• Children can easily gain access to pornographic or violent images and be influenced.</li> </ul> <p><b>Examples worth two marks</b></p> <ul style="list-style-type: none"> <li>• Increased risk of stalking / grooming / paedophiles. Real worry is that paedophiles use the Internet for distributing pornographic pictures of young children and they also can use it to lure children into meetings with them after they have spoken to them in chat rooms. (2)</li> <li>• Increased risk of cyberbullying / spreading rumours / trolling / misuse of social media / etc. Can lead to lack of confidence, children skipping school, depression, suicide, etc. ISPs / social networking sites are refusing to give prominence to ‘reporting’ button. (2)</li> </ul> <p><b>Examples of additional points worthy of credit:</b></p> <ul style="list-style-type: none"> <li>• It is up to the users of the Internet to check the material's accuracy.</li> <li>• Offensive material such as pictures of hounds ripping a fox to pieces.</li> <li>• Even with a software filter it is hard to be completely sure material is excluded.</li> <li>• If a site is banned it could make it more popular.</li> <li>• Illegal downloading of music / films / action starting to be taken to prosecute.</li> <li>• There are a lot of pornographic images/videos on the Internet.</li> <li>• The main worry adults have is that young children could accidentally access this material unless special software (net nanny/ blocking) is used.</li> </ul> <p><b>CONDONE</b> Addiction to computer games / social networking - many children spend hours playing computer games and their social skills and schoolwork can suffer as a result / could suffer rsi.</p> <p><b>Any relevant point but be careful not to credit duplicate points</b></p> <p><i>If candidate just states four points then maximum mark is 1</i></p>	8
11	<p><b>One mark for each factor and one for each further explanation x 2</b>  <b>Context must relate to Banking or be neutral</b></p> <p><b>Identify potential risks</b> - e.g. viruses / fire / natural damage / hacking / systems failure / fraud, etc  <b>Likelihood of risk occurring</b> - some things such as power cut are inevitable but explosions much less likely - senior managers have to assess the likelihood of each risk occurring and put in the necessary security</p> <p><b>Short and long term consequences of threat</b> - resources (staff, equipment, etc) need to be directed towards recovering the data / may have to pay compensation / financial loss due to loss of business through not being able to sell mortgages, etc. / embarrassment/ prosecution / loss of integrity / bankruptcy / cost of replacing equipment</p> <p><b>How well equipped is the company to deal with the threat</b> (What procedures are in place) - has to be reviewed periodically because of changing needs - disaster recovery programme - backup strategy - cost (how much they are prepared to spend), use of firewalls - use of anti virus</p> <p><b>NB</b> Should not be talking about Health &amp; Safety</p>	2x2





19	<p><b>One mark explanation per relevant point, up to nine: Answers must be sentences and not a list. Consequences must match threats. List of consequences 1 mark. List of threats 1 mark.</b></p> <p><b>Note:</b> Hacking and viruses are not a threat in themselves. Inserting a virus to deliberately destroy data is sabotage. Hacking to take data is theft.</p> <p><b>Must have three different consequences.</b></p>		9
	<p><b>Threat</b></p>	<p><b>Example</b></p>	<p><b>Consequence (could be interchangeable)</b></p>
	Terrorism	Cyber attacks to slow down or prevent online services	Loss of reputation
	Criminal vandalism/sabotage	Attacks on firewalls by viruses to destroy data  Deliberate destruction of the physical data	Loss of business and income
	Theft by Hacker/employee (White collar crime)	Hacking into data to steal company private details Or copying company records onto disc and selling it to rivals / and misuse it for own purpose	Legal action
	Natural disasters	Floods, earthquakes	Costs of recovering data
	Accidental altering of data	Overwriting files: accidental deletion of files	
	Theft of data	Stealing storage media containing data	Legal action
	Fire	Electrical fire in building	Loss of business and income

20

**One mark for discussion of each factor and one for each further explanation/example saying how a company carries out each one**

4x2

Screening potential employees	Ensure staff are controlled Fit employee to the task CRB checks
Routines for distributing updated virus information and virus scanning procedures	Ensuring virus signatures are <b>updated</b> daily and distributed around the network when a station logs in Establish firewalls
Define procedures for downloading from the Internet, use of removable media, personal backup procedures	Staff codes of conduct Penalties for misuse How often done, have they got to use special machines, etc
Establish security rights for updating web pages	Who/what /when
Establish a disaster recovery programme	Who does what and when, including checking the standby equipment Backup plans, i.e. how often <b>NOT RISKS ANALYSIS</b>
Set up auditing procedures (Audit trails) to detect misuse	Who/what /when Contiguous investigation of regularities Query any transaction out of the ordinary
Logon on procedures / User id's and passwords  (expansion would be to do with <u>rules for passwords</u> )	Allocating access rights, etc Change regularly Don't write it down Use upper and lower case mix, etc
Call back procedures for remote access	Who/what /when/why
Establish procedures for training staff	Who/what /when

**Accept any reasonable example or expansion such as who or what or when or how.**

**Note**

This topic is about **establishing procedures**.

The question is all about the administrative procedures that organisations **can put in place** to minimise or prevent the threats, which is why we expect answers about updating virus checkers, etc, **NOT** running virus checks.

**NOT** making sure backups are made, kept offsite, in fireproof boxes, etc, - It is **about planning a backup strategy** to avoid future problems.



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