



**2007 Computing**

**Intermediate 2**

**Finalised Marking Instructions**

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**2007 Computing  
Intermediate 2**

<b>SECTION I</b>		<b>Marking guidelines</b>
<b>Attempt ALL questions in this section</b>		
<b>1.</b>	Three types of computer are listed below:  <b>desktop, palmtop, mainframe</b>	
<b>(a)</b>	Put the three types of computer in order of processing speed, starting with the slowest.	<ul style="list-style-type: none"> <li>• Palmtop, desktop, mainframe</li> </ul> <b>1 mark</b>
<b>(b)</b>	Name <b>one</b> other type of computer <b>not</b> listed above.	<ul style="list-style-type: none"> <li>• Laptop</li> <li>• Embedded</li> </ul> <b>1 mark</b>
<b>2.</b>	Describe <b>two</b> benefits of networking computers.	<ul style="list-style-type: none"> <li>• Sharing of hardware resources eg printers</li> <li>• Easier communication eg e-mail (NOT sharing of software unless appropriate licenses mentioned)</li> </ul> <b>1 mark each, max 2 marks</b>
<b>3.</b>	Floppy disk and hard disk are examples of <i>magnetic storage media</i> . What type of storage medium is a CD-R?	<ul style="list-style-type: none"> <li>• Optical</li> </ul> <b>1 mark</b>
<b>4.</b>	A computer processor is made up of three parts. Name the part responsible for the temporary storage of data within the processor.	<ul style="list-style-type: none"> <li>• Register</li> </ul> <b>1 mark</b>
<b>5.</b>	The Internet is a series of interconnected computers throughout the world.	
<b>(a)</b>	Name <b>one</b> of the <i>transmission media</i> that is used to connect computers on the Internet.	<ul style="list-style-type: none"> <li>• Telephone cables</li> <li>• Satellites</li> <li>• Fibre optic cable</li> <li>• Coaxial cable</li> <li>• WIF</li> <li>• Phone line</li> </ul> <b>1 mark</b>
<b>(b)</b>	When using the World Wide Web, a user can type in the web address of a page they wish to look at.  Suggest <b>one</b> other way that a user could go to a web page.	<ul style="list-style-type: none"> <li>• Click a hyperlink</li> <li>• Use bookmarks/favourites</li> <li>• Use history</li> <li>• Use back/forward button</li> <li>• Use search engine</li> <li>• Home button</li> <li>• IP address</li> </ul> <b>Any one – 1 mark</b>

6.	Jean has compiled a high level language macro into machine code.	
	(a) Explain why the machine code program runs faster than the high level language program.	<ul style="list-style-type: none"> <li>Machine code program does not need to be translated</li> </ul> <b>1 mark</b>
	(b) Jean can run the macro by choosing it from a menu. Suggest <b>one</b> other way that she would be able to run the macro.	<ul style="list-style-type: none"> <li>By using a keyboard combination (hotkey /shortcut/button)</li> </ul> <b>1 mark</b>
7.	State the purpose of a <i>string variable</i> .	<ul style="list-style-type: none"> <li>To store text (both store and text essential)</li> </ul> <b>1 mark</b>
8.	Using a high level language with which you are familiar, show how you would assign the value 6 to the variable “wage”.	<ul style="list-style-type: none"> <li>wage = 6</li> </ul> <b>1 mark</b>
9.	A programmer is checking to see if a program is <i>fit for purpose</i> . Which stage of the software development process is being carried out?	<ul style="list-style-type: none"> <li>Evaluation</li> </ul> <b>1 mark</b>
10.	<p>The pseudocode shown below uses a <i>simple condition</i>.</p> <p style="padding-left: 40px;">IF age &lt; 5 THEN display “nursery school”</p> <p>Create a <i>complex condition</i> that will display “primary school” if a person is between the ages of 5 and 11 inclusive.</p>	<ul style="list-style-type: none"> <li>IF age &gt;=5 AND age &lt;=11 THEN display “primary school” <b>2 marks</b></li> <li>age &gt;=5 age &lt;= 11 <b>1 mark</b></li> <li>Use of AND <b>1 mark</b></li> </ul> <b>Max 2 marks</b>

[END OF SECTION I]

<b>SECTION II</b> <b>Attempt ALL questions in this section</b>		<b>Marking guidelines</b>
<b>11.</b>	Jenna is a computer programmer. She is trying to decide whether it would be better to upgrade her existing computer or to buy a new computer system.	
<b>(a)</b>	What effect would upgrading the processor have on Jenna's computer?	<ul style="list-style-type: none"> <li>• Computer would work faster</li> </ul> <b>1 mark</b>
<b>(b)</b>	Jenna looks at a laptop computer that has an LCD screen.	
<b>(i)</b>	What does LCD stand for?	<ul style="list-style-type: none"> <li>• Liquid Crystal Display</li> </ul> <b>1 mark</b>
<b>(ii)</b>	State <b>two</b> reasons why a laptop uses an LCD screen.	<ul style="list-style-type: none"> <li>• Takes up less space/lighter/thinner</li> <li>• Uses less power</li> </ul> (NOT gives better picture) <b>1 mark each, max 2 marks</b>
<b>(c)</b>	Jenna decides to buy a new computer from her local computer shop. The shop keeps the customer's personal details.	
<b>(i)</b>	Name the legislation that allows Jenna to see her personal details.	<ul style="list-style-type: none"> <li>• Data Protection Act</li> </ul> <b>1 mark</b>
<b>(ii)</b>	Under this legislation, describe <b>one</b> right that Jenna has other than seeing her personal information.	<ul style="list-style-type: none"> <li>• To have any data that is incorrect changed</li> <li>• Claim compensation if data is incorrect</li> <li>• To have name removed from list</li> </ul> <b>1 mark</b>

	<b>(d)</b>	<p>Having bought her new computer, Jenna decides to sell her old computer that she bought in the year 2005. She has created the following advert to put in the local paper.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;"><b>FOR SALE</b></p> <p>Two year old computer  RAM - 256  Hard Disk - 80  Clock Speed - 2.4 gigahertz (GHz)</p> </div> <p>Jenna has forgotten to put in the units for storage capacity of both RAM and hard disk.</p> <p>What units should Jenna have used for:</p>	
	<b>(i)</b>	RAM;	<ul style="list-style-type: none"> <li>• Megabytes</li> <li>• Mb</li> </ul> <p><b>1 mark</b></p>
	<b>(ii)</b>	hard disk?	<ul style="list-style-type: none"> <li>• Gigabytes</li> <li>• Gb</li> </ul> <p><b>1 mark</b></p>
	<b>(e)</b>	Jenna uses a text editor to enter the code to create her programs.	
	<b>(i)</b>	Describe <b>one</b> feature of a text editor.	<ul style="list-style-type: none"> <li>• Indentation</li> <li>• Command word highlight</li> <li>• Copy and paste code</li> <li>• Search and replace</li> <li>• Any type of editing</li> </ul> <p><b>1 mark</b></p>
	<b>(ii)</b>	The documentation that came with the text editor contained a <i>technical guide</i> . Suggest <b>one</b> item of information that should be included in a “technical guide”.	<ul style="list-style-type: none"> <li>• Hardware requirements</li> <li>• Software requirements</li> <li>• Amount of memory required</li> <li>• Amount of hard disk space required</li> <li>• Processor required</li> <li>• Operating system required</li> <li>• Installation instructions</li> </ul> <p><b>1 mark</b></p>

12.	The Olympic Games are coming to London in 2012. One of the events will be the 100 metres. A program is being created to control the organisation of the 100 metres.		
	(a)	<p>40 competitors have entered the race. These competitors need to be randomly divided into 5 heats of 8 runners. Part of the algorithm to do this is shown below.</p> <p>2.1 loop 5 times for heats  2.2 loop 8 times for runners  2.3 pick a random runner  2.4 display runner name, heat number, runner number  2.5 end runners loop  2.6 end heats loop</p>	
	(i)	Both loops use a <i>fixed loop</i> . Describe why a “fixed loop” is used in this situation.	<ul style="list-style-type: none"> <li>• You know how many times the loop has to run</li> </ul> <p><b>1 mark</b></p>
	(ii)	The ‘runners loop’ is completely contained within the ‘heats loop’. What term is used to describe this situation?	<ul style="list-style-type: none"> <li>• Nested Loop</li> </ul> <p><b>1 mark</b></p>
	(iii)	Step 2.3 uses a <i>pre-defined function</i> to pick a random runner. Explain what is meant by the term “pre-defined function”.	<ul style="list-style-type: none"> <li>• Built-in calculations</li> <li>• A calculation the software already knows how to carry out</li> </ul> <p><b>1 mark</b></p>
	(iv)	The 40 names need to be stored. What data structure would be used to store the 40 names?	<ul style="list-style-type: none"> <li>• Array</li> <li>• List</li> <li>• Linked list</li> </ul> <p><b>1 mark</b></p>

	<b>(b)</b>	As each competitor crosses the finishing line, a photograph will be taken and their time stored by the computer. The winner will be the first person to cross the line.	
	<b>(i)</b>	Which of the following standard algorithms should the program use to decide the winner?  <ul style="list-style-type: none"> <li>• Input validation</li> <li>• Finding the maximum</li> <li>• Counting occurrences</li> <li>• Finding the minimum</li> <li>• Linear search</li> </ul>	<ul style="list-style-type: none"> <li>• Finding the minimum</li> </ul> <b>1 mark</b>
	<b>(ii)</b>	The photograph is stored as a <i>bitmap</i> . Describe how information is stored in a “bitmap”.	<ul style="list-style-type: none"> <li>• Each pixel is stored in different memory location</li> <li>• A black dot is stored as a 1 and white dot as a 0</li> </ul> <b>1 mark</b>
	<b>(iii)</b>	Each pixel in the photograph uses 1 bit of memory. The photograph measures 256 pixels across by 80 pixels down. How much memory in kilobytes will it take to store each photograph? <b>Show all working.</b>	<ul style="list-style-type: none"> <li>• 2.5 <b>2 marks</b></li> <li>• 256 x 80 (20480) <b>1 mark</b></li> <li>• / 8 /1024 <b>1 mark</b></li> </ul> <b>Max 2 marks</b>
	<b>(iv)</b>	Describe <b>one</b> advantage of saving the photograph using a <i>standard file format</i> .	<ul style="list-style-type: none"> <li>• Many different types of packages would be able to open the photos.</li> <li>• Photos could be used on different <b>types</b> of computers.</li> </ul> <b>1 mark</b>
	<b>(v)</b>	Give <b>one</b> reason why hard disk rather than magnetic tape is used as the main backing storage medium.	<ul style="list-style-type: none"> <li>• Has random access</li> <li>• Has fast data access</li> <li>• Higher data transfer speed (NOT fast on its own, or high capacity)</li> </ul> <b>1 mark</b>

13.	<p>Rohit is writing a program that will calculate the amount of memory in kilobytes needed to store a square black and white photograph. The length of the photograph must be between 1 and 8 inches inclusive.</p> <p>The main steps of the solution are shown below:</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <ol style="list-style-type: none"> <li>1. Take in length of photograph</li> <li>2. Calculate memory in kilobytes</li> <li>3. Display memory</li> </ol> </div>	
(a)	<p>Show how the above steps would be represented using a <i>graphical design notation</i> with which you are familiar.</p>	<div style="text-align: center;"> <pre> graph TD     A[Calculate size of graphic] --&gt; B[Take in length of photograph]     A --&gt; C[Calculate memory in Kb]     A --&gt; D[Display memory] </pre> </div> <p>Or diagram using flow charts or similar</p> <p><b>2 marks</b></p>
(b)	<p>Input validation is required for Step 1. Using a high level language with which you are familiar, write the <b>program code</b> that will take in a number and validate it is between 1 and 8 inclusive.</p>	<p>DO  PRINT "Give me a number "  INPUT number  LOOP UNTIL number &gt;= 1 AND number &lt;= 8</p> <p>Obviously pupil answers will differ. Rough guideline is</p> <ul style="list-style-type: none"> <li>• Conditional loop – <b>1 mark</b></li> <li>• Taking in number – <b>1 mark</b></li> <li>• Correct range of numbers – <b>1 mark</b></li> </ul>
(c)	<p>Rohit tests his completed program three times using the test data 5, 6, 7. What type of testing is Rohit carrying out?</p>	<ul style="list-style-type: none"> <li>• Normal testing</li> </ul> <p><b>1 mark</b></p>
(d)	<p>When Rohit tries to translate his program, he sees the error messages shown below.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Line 4 - missing "  Line 6 - not found  Line 8 - no END statement</p> </div> <p>What type of translator is Rohit using?</p>	<ul style="list-style-type: none"> <li>• Compiler</li> </ul> <p><b>1 mark</b></p>

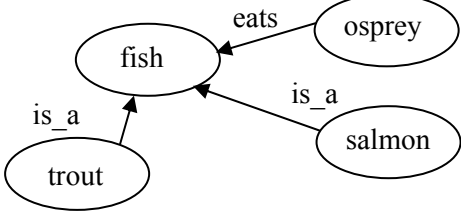
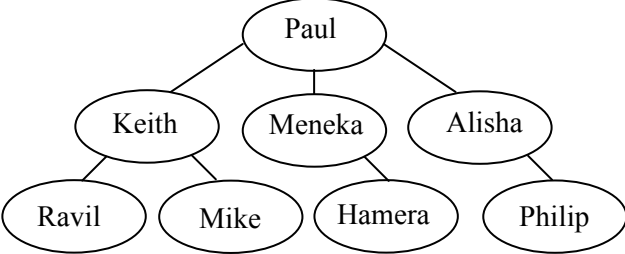
	(e)	Rohit fixes all the errors in his code, but before he can save the code, the computer reboots unexpectedly.	
	(i)	Why might Rohit's computer have rebooted unexpectedly?	<ul style="list-style-type: none"> <li>• It has a computer virus</li> </ul> <b>1 mark</b>
	(ii)	Suggest a possible solution to this problem.	<ul style="list-style-type: none"> <li>• Use an anti-virus program <i>(Answer must relate to their answer in part i), so if answer in part i) is incorrect, they can still gain the mark in part ii) if it is a continuous error from part i)</i></li> </ul> <b>1 mark</b>
	(iii)	When the computer rebooted, Rohit's program was lost. What part of the computer was storing Rohit's program?	<ul style="list-style-type: none"> <li>• RAM</li> </ul> <b>1 mark</b>

[END OF SECTION II]

<b>SECTION III</b>		<b>Marking guidelines</b>
<b>Part A – ARTIFICIAL INTELLIGENCE</b>		
<b>Attempt ALL questions in this section</b>		
<b>14.</b>	Jasmine visits her local computer shop.	
<b>(a)</b>	She is interested in the computer advertised below. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px auto;"> 8Mb RAM  OS v 5.2  320 X 320 colour screen  Address book  Memo pad  Handwriting Recognition  Software </div>	
<b>(i)</b>	What type of computer is described above?	<ul style="list-style-type: none"> <li>• Palmtop</li> </ul> <b>1 mark</b>
<b>(ii)</b>	Describe what Jasmine may need to do when using the handwriting recognition software for the first time.	<ul style="list-style-type: none"> <li>• Computer gives word – <b>1 mark</b></li> <li>• Person writes it – <b>1 mark</b></li> </ul> or <ul style="list-style-type: none"> <li>• Train software – <b>1 mark</b></li> <li>• to recognize words – <b>1 mark</b></li> </ul> <b>2 marks</b>
<b>(b)</b>	Jasmine buys a computer game where you design your own robot and then send it into battle against other robots controlled by the computer. Each time Jasmine plays, she finds it harder to win.	
<b>(i)</b>	What feature should Jasmine include in her robot so that it can detect other robots?	<ul style="list-style-type: none"> <li>• Sensors</li> </ul> <b>1 mark</b>
<b>(ii)</b>	Explain why this game shows more intelligence than early computer games.	<ul style="list-style-type: none"> <li>• Game learns from previous play</li> <li>• Early games just followed fixed rules</li> </ul> <b>1 mark for either</b>
<b>(iii)</b>	Describe <b>one</b> use of intelligent robots by the military in real life.	<ul style="list-style-type: none"> <li>• Bomb disposal</li> </ul> <b>1 mark</b>
<b>(iv)</b>	Name the test used to decide if a computer is intelligent.	<ul style="list-style-type: none"> <li>• Turing test</li> </ul> <b>1 mark</b>

<b>15.</b>	YesToFinance is a company that specialises in loans, investments and house sales.		
	<b>(a)</b>	YesToFinance uses a software package that learns by being trained with examples. It is then able to predict the answer to similar problems.	
		<b>(i)</b> What is this type of system called?	<ul style="list-style-type: none"> <li>• Artificial neural system (or neural network)</li> <li>• ANS</li> </ul> <b>1 mark</b>
		<b>(ii)</b> Suggest <b>one</b> task for which a finance company could use this type of software.	<ul style="list-style-type: none"> <li>• Predict stocks and shares</li> <li>• Debt risk assessment</li> </ul> <b>1 mark</b>
	<b>(b)</b>	YesToFinance also uses a software package called an <i>expert system</i> .	
		<b>(i)</b> State <b>two</b> ways the customer will benefit from an “expert system” being used, rather than a human expert.	<ul style="list-style-type: none"> <li>• Contains advice of more than one expert</li> <li>• More reliable advice</li> <li>• May get expert advice quicker</li> <li>• Available 24/7</li> </ul> <b>1 mark for each way</b> <b>Max 2 marks</b>
		<b>(ii)</b> Larger hard drive capacity is one example of a development in technology. Explain why this has allowed “expert systems” to be more effective.	<ul style="list-style-type: none"> <li>• Allow more facts to be stored</li> </ul> <b>1 mark</b>
	<b>(c)</b>	Mrs Harris is buying a flat specially adapted for the elderly. It has a <i>vision system</i> which can detect if Mrs Harris has fallen and then alert medical services. Describe how a “vision system” could detect if Mrs Harris has fallen.	<ul style="list-style-type: none"> <li>• Ceiling mounted camera</li> <li>• Match image against database of images of rooms</li> </ul> <b>1 mark each</b> <b>2 marks</b>

16.	<p>A television company is holding auditions for a talent show. The knowledge base below shows some facts and rules about the competitors.</p> <p>1 voice(kabira, excellent).  2 voice(sharon, excellent).  3 voice(ryan, fair).  4 voice(jumoke, excellent).  5 dance(kabira, fair).  6 dance(sharon, good).  7 dance(ryan, excellent).  8 dance(jumoke, excellent).</p> <p>9 is_selected(X) if voice(X, excellent) and dance(X, excellent).  10 is_reserve(X) if voice(X, excellent) and dance(X, good).</p>	
(a)	<p>What would be the result of the following query?  ? voice (ryan, fair).</p>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• True</li> </ul> <p><b>1 mark</b></p>
(b)	<p>What would be the first result of the following query?  ? dance(X, excellent).</p>	<ul style="list-style-type: none"> <li>• ryan</li> </ul> <p><b>1 mark</b></p>
(c)	<p>What would be the result of the following query?  ? is_selected(kabira).</p>	<ul style="list-style-type: none"> <li>• No</li> <li>• False</li> </ul> <p><b>1 mark</b></p>
(d)	<p>Using the numbering system above to help you, <i>trace</i> how the system will evaluate the query  ? is_reserve(X).  as far as the first solution.</p>	<ul style="list-style-type: none"> <li>• Matches at 10  Subgoal voice(X, excellent)  matches at 1 X=kabira – <b>1 mark</b></li> <li>• Subgoal dance(kabira,good)  fails – <b>1 mark</b></li> <li>• Subgoal voice(X, excellent)  matches at 2  X=sharon – <b>1 mark</b></li> <li>• Subgoal dance(sharon,good)  Matches at 6 – <b>1 mark</b></li> <li>• (1 mark for sharon on its own)</li> </ul> <p><b>4 marks</b></p>

17.	<p><i>Semantic nets</i> and <i>search trees</i> are graphical methods used with knowledge bases. <i>Semantic nets</i> are used to represent knowledge. <i>Search trees</i> illustrate a search through a knowledge base.</p>	
	<p>(a) Draw a semantic net to represent the facts below:  eats(osprey, fish).  is_a(trout, fish).  is_a(salmon, fish).</p>	 <p><b>all correct 2 marks</b>  <b>1 error, 1 mark</b></p>
	<p>(b) A problem is represented using the search tree below.</p>  <p>The solution to the problem is Mike.  List which nodes will be visited to reach the solution 'Mike' if the search is:</p>	
	<p>(i) a <i>breadth first search</i>?</p>	<p>Paul, Keith, Meneka, Alisha, Ravil, Mike</p> <p><b>1 mark</b></p>
	<p>(ii) a <i>depth first search</i>?</p>	<p>Paul, Keith, Ravil, Mike  (accept Paul, Keith, Ravil, Keith, Mike)  (accept Paul, Keith, Ravil)</p> <p><b>1 mark</b></p>

<b>SECTION III</b>		<b>Marking guidelines</b>				
<b>Part B – COMPUTER NETWORKING</b>						
<b>Attempt ALL questions in this section</b>						
<b>18.</b>	A conference attended by Members of Parliament (MPs) is being held in the Ninian Hotel. Susan is a journalist going to the conference where she will be able to access a wireless LAN and the Internet.					
<b>(a)</b>	What hardware will Susan’s laptop need so that it can connect to the wireless LAN?	<ul style="list-style-type: none"> <li>• Wireless network interface card</li> <li>• Wlan adapter card</li> </ul> <p><b>1 mark</b></p>				
<b>(b)</b>	Susan logs on to the website for the Ninian Hotel. <table border="1" style="margin: 10px auto; width: 80%;"> <thead> <tr> <th colspan="2" style="text-align: center;">Ninian Hotel</th> </tr> </thead> <tbody> <tr> <td style="width: 30%; vertical-align: top;"> <a href="#">Home</a>  <a href="#">Accommodation</a>  <a href="#">Restaurant</a>  <a href="#">Contact Us</a> </td> <td style="vertical-align: top;">           Availability             Number of rooms <input style="width: 40px;" type="text"/>            Arrival date <input style="width: 40px;" type="text"/>            Departure date <input style="width: 40px;" type="text"/> <input style="float: right; margin-left: 10px;" type="button" value="Search"/> </td> </tr> </tbody> </table>	Ninian Hotel		<a href="#">Home</a> <a href="#">Accommodation</a> <a href="#">Restaurant</a> <a href="#">Contact Us</a>	Availability  Number of rooms <input style="width: 40px;" type="text"/> Arrival date <input style="width: 40px;" type="text"/> Departure date <input style="width: 40px;" type="text"/> <input style="float: right; margin-left: 10px;" type="button" value="Search"/>	
Ninian Hotel						
<a href="#">Home</a> <a href="#">Accommodation</a> <a href="#">Restaurant</a> <a href="#">Contact Us</a>	Availability  Number of rooms <input style="width: 40px;" type="text"/> Arrival date <input style="width: 40px;" type="text"/> Departure date <input style="width: 40px;" type="text"/> <input style="float: right; margin-left: 10px;" type="button" value="Search"/>					
<b>(i)</b>	Susan needs to book one room from 15/08/07 to 17/08/07. Describe how she would check availability using the screen shown above.	<ul style="list-style-type: none"> <li>• Enter 1 room</li> <li>• Enter dates</li> <li>• Click Search</li> </ul> <p><b>All 3 points – 2 marks</b> <b>1 mistake – 1 mark</b></p>				
<b>(ii)</b>	The hotel’s website has been designed with four <i>hyperlinks</i> appearing on every page as shown above. Explain the advantage of using “hyperlinks”.	<ul style="list-style-type: none"> <li>• Improves navigation through website</li> <li>• Can move to another page in website by click on hyperlink</li> <li>• Idea of click to move directly to another part of website</li> </ul> <p><b>1 mark</b></p>				

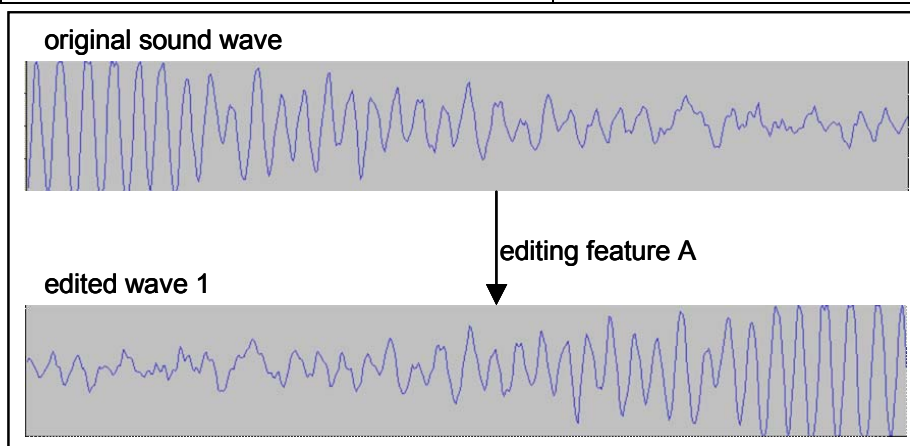
	<p><b>(c)</b> Susan sends an e-mail to her MP to arrange an interview. Susan's e-mail is shown below.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>To: <input type="text" value="alistairlennon@forth.gov.uk"/></p> <p>From: <input type="text" value="susangordon@todaysnews.org.uk"/></p> <p>Subject: <input type="text"/></p> <p>I WOULD LIKE TO INTERVIEW YOU AT THE CONFERENCE. PLEASE CONTACT ME TO ARRANGE A TIME.</p> <p>SUSAN GORDON</p> </div>	
	<p><b>(i)</b> Suggest <b>two</b> ways that Susan's e-mail may have broken the code of conduct for the use of e-mails at her work.</p>	<ul style="list-style-type: none"> <li>• Capital letters</li> <li>• Nothing in subject line</li> </ul> <p><b>1 mark each, 2 marks</b></p>
	<p><b>(ii)</b> Susan receives a reply which is <i>encrypted</i>. What will Susan need so that she can read the "encrypted" e-mail?</p>	<ul style="list-style-type: none"> <li>• The key to decode it, password</li> </ul> <p><b>1 mark</b></p>
	<p><b>(iii)</b> Explain <b>one</b> feature of the Regulation of Investigatory Powers Act 2000 that applies to encrypted e-mails.</p>	<ul style="list-style-type: none"> <li>• The law states that encrypted emails must be disclosed if required by government for national security, detecting crime</li> </ul> <p><b>1 mark</b></p>
	<p><b>(d)</b> At the conference a website explaining e-government is launched. Describe <b>one</b> example of e-government.</p>	<ul style="list-style-type: none"> <li>• Up to date info on recent laws, local authority services</li> <li>• On-line survey of opinion</li> <li>• Voting in elections using the Internet</li> </ul> <p><b>1 mark for any one</b></p>

19.	Simon enjoys computer games. His favourite game called Granalan has a multiplayer option that allows him to play against other people on the Internet.		
	(a)	The game recommends a <i>broadband</i> connection to the Internet.	
	(i)	Explain what is meant by “broadband”.	<ul style="list-style-type: none"> <li>• A high speed connection to the Internet</li> </ul> <b>1 mark</b>
	(ii)	Suggest <b>one</b> reason why a broadband connection would be recommended for the game.	<ul style="list-style-type: none"> <li>• High speed means game is more realistic</li> <li>• Response to input is faster</li> <li>• Game plays faster</li> </ul> <b>1 mark for any one</b>
	(b)	Simon accesses a web page which gives tips on how best to play the game. The URL is: <a href="http://www.granalan.com/tips/faq.html">http://www.granalan.com/tips/faq.html</a>	
	(i)	What server is hosting this web page?	<ul style="list-style-type: none"> <li>• <a href="http://www.granalan.com">www.granalan.com</a></li> </ul> <b>1 mark</b>
	(ii)	What is the name of the file being accessed?	<ul style="list-style-type: none"> <li>• faq (accept faq.html)</li> </ul> <b>1 mark</b>
	(c)	The software company that created the game has produced software updates that will fix errors in the program or add extra features to the game. This software is available at the address: <a href="ftp://granalanpatch.com">ftp://granalanpatch.com</a>	
	(i)	Simon accesses this address and downloads the updates. Which Internet service is Simon using?	<ul style="list-style-type: none"> <li>• File transfer</li> <li>• FTP</li> </ul> <b>1 mark</b>
	(ii)	Simon can log on to the Internet at work but he is unable to access this address. Suggest a reason for this.	<ul style="list-style-type: none"> <li>• Filtering</li> <li>• Firewall</li> </ul> <b>1 mark</b>
	(iii)	What stage of the software development cycle is being carried out when the company produces these software updates?	<ul style="list-style-type: none"> <li>• Maintenance</li> </ul> <b>1 mark</b>

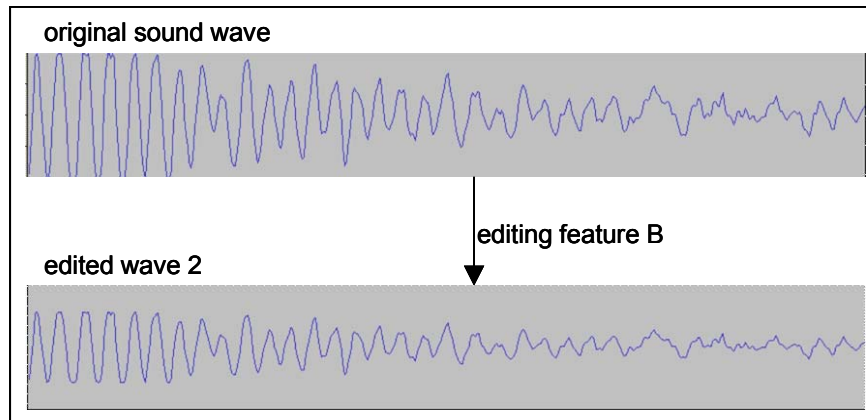
	<b>(d)</b>	Simon has recently installed new e-mail software on his computer. After installing this software, Simon is annoyed to find that his address book is empty.	
	<b>(i)</b>	State <b>one</b> advantage of an address book.	<p>Stores e-mail addresses so:</p> <ul style="list-style-type: none"> <li>• no need to remember e-mail addresses</li> <li>• no need to type in address</li> <li>• less chance of error entering address.</li> </ul> <p><b>1 mark for any one</b></p>
	<b>(ii)</b>	What should Simon have done to prevent loss of his address book before installing the new software?	<ul style="list-style-type: none"> <li>• Backup address book</li> <li>• Export address book</li> <li>• Copy address book</li> </ul> <p><b>1 mark for any one</b></p>
<b>20.</b>		Mr Harris repairs gas appliances in people's homes. While in the customer's house he forms a network connecting his laptop, PDA and printer. There are no cables connecting the hardware.	
	<b>(a)</b>	What type of network is this?	<ul style="list-style-type: none"> <li>• Wireless Personal Area Network</li> <li>• WPAN</li> <li>• Bluetooth</li> </ul> <p><b>1 mark for any one</b></p>
	<b>(b)</b>	Due to network failure, Mr Harris has difficulty printing a bill for the customer. Suggest <b>one</b> reason that could cause a network to fail.	<ul style="list-style-type: none"> <li>• Hardware fault</li> <li>• Software fault</li> <li>• A physical disaster</li> <li>• Data transmission failure</li> </ul> <p><b>1 mark for any one</b></p>
	<b>(c)</b>	Mr Harris is checking for spare parts on the Internet. Suggest <b>one</b> reason why Mr Harris may prefer to search the World Wide Web using his laptop, rather than using the microbrowser on his WAP phone.	<ul style="list-style-type: none"> <li>• Microbrowser may only be able to access WAP sites</li> <li>• Limited search facilities</li> <li>• Small screen on WAP phone</li> <li>• Faster access</li> <li>• Cheaper</li> </ul> <p><b>1 mark</b></p>

	<b>(d)</b>	The software on the laptop allows Mr Harris to create <i>macros</i> .	
	<b>(i)</b>	State <b>one</b> reason why Mr Harris would recommend using the “macro” feature.	<ul style="list-style-type: none"> <li>• Complex tasks can be carried out easily by running the macro</li> <li>• Faster than carrying out several steps manually</li> </ul> <p><b>1 mark for either</b></p>
	<b>(ii)</b>	When using the gas company’s database, Mr Harris can enter his password and then order parts. Suggest <b>one</b> reason why Mr Harris should <b>not</b> create a macro for the steps needed to reach the ordering stage.	<ul style="list-style-type: none"> <li>• An unauthorised person who does not know the password could gain access to the ordering process</li> </ul> <p><b>1 mark</b></p>
	<b>(e)</b>	Mr Harris tells the customer that <i>converging technology</i> can be used when collecting data on gas used and informing the customer of the cost of gas used.	
	<b>(i)</b>	What is meant by “converging technology”?	<ul style="list-style-type: none"> <li>• Home appliances that can communicate with other devices and with the Internet</li> </ul> <p><b>1 mark</b></p>
	<b>(ii)</b>	Suggest how “converging technology” could be used for the processing of gas bills.	<ul style="list-style-type: none"> <li>• Gas appliance communicates with gas company computer</li> </ul> <p><b>1 mark</b></p>



<b>SECTION III</b>		<b>Marking guidelines</b>
<b>Part C – MULTIMEDIA TECHNOLOGY</b>		
<b>Attempt ALL questions in this section</b>		
<b>21.</b>	Sophie is creating a multimedia CD.	
<b>(a)</b>	The sound quality of Sophie’s CD will depend on: <i>sampling resolution</i> and <i>sampling frequency</i> . Describe what is meant by the term:	
<b>(i)</b>	“sampling resolution”;	<ul style="list-style-type: none"> <li>Sampling resolution is the number of bits used to store a sound</li> </ul> <b>1 mark</b>
<b>(ii)</b>	“sampling frequency”.	<ul style="list-style-type: none"> <li>Sampling frequency is the number of times per second the sound is sampled</li> </ul> <b>1 mark</b>
<b>(b)</b>	When Sophie’s voice is captured with a microphone, the interface must change the signal so it can be used by the computer. What change must be made to the signal?	<ul style="list-style-type: none"> <li>Analogue to digital</li> <li>Digitised</li> </ul> <b>1 mark</b>
<b>(c)</b>	The software used to edit Sophie’s voice has a number of editing features.	
<b>(i)</b>	Name editing feature A that changed the original sound wave into edited wave 1 as shown below.	<ul style="list-style-type: none"> <li>Reverse</li> </ul> <b>1 mark</b>



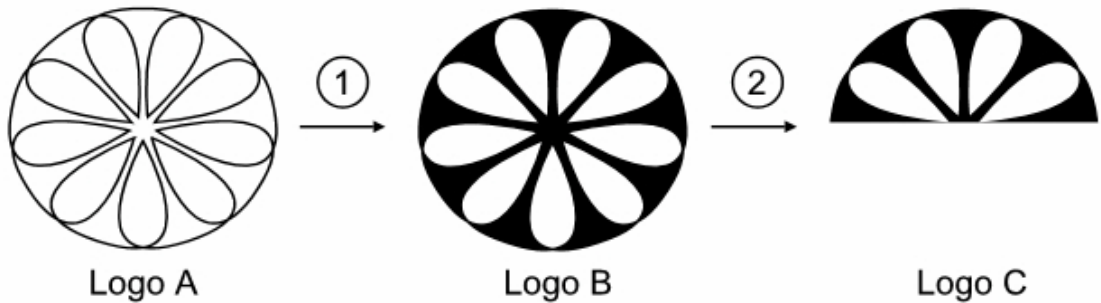
	(ii)	Describe how editing feature B was used to change the original sound wave into edited wave 2 as shown below.	<ul style="list-style-type: none"> <li>• The volume was decreased (both parts necessary)</li> <li>• The amplitude was decreased (both parts necessary)</li> <li>• The gain was decreased (both parts necessary)</li> </ul> <p><b>1 mark</b></p>
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	(d)	The keyboard track for Sophie’s CD has been stored as a MIDI file. Name <b>one</b> attribute of a MIDI instruction.	<ul style="list-style-type: none"> <li>• Instrument</li> <li>• Pitch</li> <li>• Volume</li> <li>• Duration</li> <li>• Tempo</li> </ul> <p><b>1 mark</b></p>
	(e)	<p>When the CD is inserted into the CD-ROM drive, the following menu appears.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">MENU</p> <p>Play samples from CD View Photos Watch interview with Sophie</p> <p>Type Choice: <input style="width: 100px; height: 20px;" type="text"/></p> </div> <p>Evaluate the multimedia application in terms of difficulties in using the User Interface.</p>	<ul style="list-style-type: none"> <li>• The user interface is hard to use as the user needs to type in commands which can lead to spelling errors.</li> </ul> <p><b>1 mark</b></p>

	<b>(f)</b>	<p>The cover for the CD was created in a vector graphics package. After it had been selling for a year, the cover was edited from CD Cover 1 to CD Cover 2 as shown below.</p> <div style="text-align: center;">  <p>CD Cover 1</p>  <p>CD Cover 2</p> </div>	
	<b>(i)</b>	<p>What feature of a vector graphics package was used to edit CD Cover 1 to CD Cover 2?</p>	<ul style="list-style-type: none"> <li>• Layering</li> <li>• Move to back</li> <li>• Move to front</li> </ul> <p><b>1 mark</b></p>
	<b>(ii)</b>	<p>What file type is likely to have been used to save the CD Cover 1?</p>	<ul style="list-style-type: none"> <li>• SVG (Scaleable Vector Format)</li> <li>• SWF (Shockwave Flash)</li> <li>• AI (Adobe Illustrator)</li> <li>• CDR (CorelDRAW)</li> <li>• CMX (Corel Exchange)</li> <li>• CGM Computer Graphics Metafile</li> <li>• DXF AutoCAD</li> <li>• WMF Windows Metafile</li> </ul> <p><b>1 mark</b></p>

		<b>(iii)</b>	The record company wishes to scale the CD cover up to poster size. Explain why scaling a vector graphic to poster size would not affect printout quality.	<ul style="list-style-type: none"> <li>• Vector graphics are independent of resolution</li> </ul> <b>1 mark</b>
		<b>(iv)</b>	If the CD cover had been created using a bit-mapped package instead of a vector graphics package, what effect would this have had on the file size?	<ul style="list-style-type: none"> <li>• Larger</li> <li>• More memory used</li> </ul> <b>1 mark</b>
<b>22.</b>	Debra has been asked to create a logo for a new gardening show on digital television.			
	<b>(a)</b>	Debra created Logo A using a bitmap graphics package then altered it to Logo B and Logo C.		



		Name the tool that Debra used to alter:		
		<b>(i)</b>	Logo A into Logo B;	<ul style="list-style-type: none"> <li>• Fill tool</li> </ul> <b>1 mark</b>
		<b>(ii)</b>	Logo B into Logo C.	<ul style="list-style-type: none"> <li>• Crop tool</li> <li>• Eraser tool</li> </ul> <b>1 mark</b>

	<b>(b)</b>	Debra saved two copies of the logo. She saved one copy as a JPEG file and the other as a GIF file.	
	<b>(i)</b>	State the difference in colour depth between a JPEG file and a GIF file.	<ul style="list-style-type: none"> <li>• JPEG = 24 bit colour (accept millions of colours)</li> <li>• GIF has a maximum of 256 colours</li> </ul> <p><b>1 mark for both</b></p>
	<b>(ii)</b>	JPEG uses <i>lossy compression</i> . Explain what is meant by the term “lossy compression”.	<ul style="list-style-type: none"> <li>• Pixels are removed from the picture</li> </ul> <p><b>1 mark</b></p>
	<b>(iii)</b>	What type of compression does GIF use?	<ul style="list-style-type: none"> <li>• GIF uses a lossless compression</li> </ul> <p><b>1 mark</b></p>
	<b>(c)</b>	Debra and the television company use identical monitors. When the logo was displayed on the company’s monitor, it did not appear as Debra designed it. Suggest <b>one</b> possible hardware reason why the logo does not display as designed.	<ul style="list-style-type: none"> <li>• Graphics card is different (not as good)</li> </ul> <p><b>1 mark</b></p>
	<b>(d)</b>	Describe <b>two</b> tasks that are possible with digital television services that demonstrate the convergence of technology.	<ul style="list-style-type: none"> <li>• Downloading videos on demand</li> <li>• Sending quiz answers</li> </ul> <p><b>1 mark each, max 2 marks</b></p>
<b>23.</b>		Selicon is a video production company that wishes to put samples of their videos on the company web pages.	
	<b>(a)</b>	Selicon uses a WYSIWYG web page creator when creating the web pages. Suggest <b>one</b> other type of software they could use to create the web pages.	<ul style="list-style-type: none"> <li>• Text editor</li> <li>• HTML</li> </ul> <p><b>1 mark</b></p>

	<b>(b)</b>	Selicon has received a phone call asking what hardware and software are required to view their web pages. They replied: <ul style="list-style-type: none"> <li>• A multimedia computer system</li> <li>• A modem and Internet Service Provider</li> <li>• Doors 2005 operating system or better.</li> </ul>	
	<b>(i)</b>	Describe the purpose of the operating system software.	<ul style="list-style-type: none"> <li>• Controls the running of the computer system</li> </ul> <b>1 mark</b>
	<b>(ii)</b>	Name <b>one</b> type of application software that would be required to view Selicon’s web pages.	<ul style="list-style-type: none"> <li>• Browser</li> </ul> <b>1 mark</b>
	<b>(c)</b>	One customer has complained that the videos on the web pages are very jerky when they are played. In future, how should Selicon alter the settings in the video recording software to ensure the videos are not jerky?	<ul style="list-style-type: none"> <li>• Increase the frame rate (both parts necessary)</li> </ul> <b>1 mark</b>
	<b>(d)</b>	As video files take up so much memory, they are compressed using <i>lossy compression</i> . What effect will “lossy compression” have on the video playing time?	<ul style="list-style-type: none"> <li>• No effect</li> </ul> <b>1 mark</b>
	<b>(e)</b>	One of Selicon’s employees wishes to make videos at home. She cannot afford a digital video camera. Suggest <b>one</b> other digital hardware device she could use to capture the video.	<ul style="list-style-type: none"> <li>• Digital camera</li> <li>• Webcam</li> <li>• Mobile phone</li> </ul> <b>1 mark</b>

[END OF SECTION III]

[END OF MARKING INSTRUCTIONS]