



2010 Computing

Intermediate 2

Finalised Marking Instructions

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**2010 Computing
Intermediate 2**

SECTION I Attempt ALL questions in this section		Marking guidelines
1.	Name a code that is used to represent text in a computer system.	<ul style="list-style-type: none"> • ASCII • UNICODE <p>1 mark (accept any one)</p>
2.	State which type of computer system would be used by a bank to process large amounts of data at high speed.	<p>Mainframe computer system Super computer</p> <p>1 mark</p>
3.	Name the part of the processor that carries out calculations.	<p>Arithmetic and Logic Unit (ALU)</p> <p>1 mark</p>
4.	Jane saves her geography report at home using a <i>standard file format</i> . State one “standard file format” suitable for saving word processed files.	<ul style="list-style-type: none"> • RTF • ASCII • Text <p>1 mark (accept any one)</p>
5.	Nile Books is upgrading the computer network in its warehouse.	
(a)	Name this type of computer network.	<p>LAN Client-server</p> <p>1 mark</p>
(b)	State one reason why fibre-optic cable may be used as the <i>transmission medium</i> .	<ul style="list-style-type: none"> • Faster transmission speed than copper cable • More secure data transmission than copper cable • No/reduced interface • NOT FAST <p>1 mark (accept any one)</p>
6.	State one reason why an <i>interface</i> is needed between the processor and a peripheral device.	<ul style="list-style-type: none"> • Compensates for differences in <ul style="list-style-type: none"> • Speed • Code • Format • Voltage <p>(accept one)</p> • Convert from analogue to digital <p>1 mark (accept any one)</p>

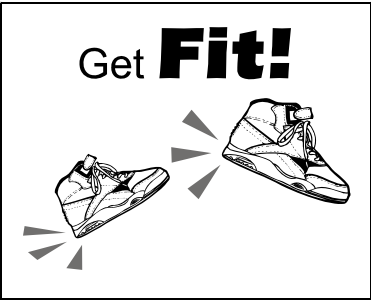
7.	High level languages are translated into machine code using an <i>interpreter</i> or a <i>compiler</i> . Describe one difference between an interpreter and a compiler.	<ul style="list-style-type: none"> • The interpreter works by translating and then executing each line of the program in turn whereas the compiler translates the program code in one operation • The compiler saves a machine code file so the program only needs to be translated once whereas the interpreter must translate the program every time it is run <p>1 mark (accept any one)</p>
8.	<p>A school is having a sponsored walk to raise money for charity. State which one of the following algorithms would be used to find the pupil who raised the most money:</p> <ul style="list-style-type: none"> • Input validation • Linear search • Find maximum • Find minimum • Count occurrences. 	<p>Find maximum</p> <p>1 mark</p>
9.	Orla uses <i>pre-defined functions</i> in her program code.	
(a)	State what is meant by the term “pre-defined function”.	<ul style="list-style-type: none"> • Built-in calculation • A calculation the software already knows how to carry out <p>1 mark (accept any one)</p>
(b)	Give one example of a pre-defined function.	<ul style="list-style-type: none"> • RND • ROUND <p>1 mark (accept any one valid pre-defined function)</p>
10.	Software is evaluated in terms of <i>fitness for purpose</i> . State what is meant by the term “fitness for purpose”.	<ul style="list-style-type: none"> • The program does what it was intended to do • The program meets the specification • The program is correct <p>1 mark (accept any one)</p>

11.	A <i>structure diagram</i> is used to design a solution to a programming problem. Name and describe one other design notation that could be used to design a solution to a programming problem.	<ul style="list-style-type: none"> • Pseudocode (1) with description (1) OR <ul style="list-style-type: none"> • Flow chart (1) with description (1) • Semantic Net <p>2 marks (accept one design notation)</p>
12.	A program stores pupils' contact details. State a suitable data type for storing the postcode EH22 1LE.	<ul style="list-style-type: none"> • String variable • String • Text/alphanumeric <p>1 mark (accept any one)</p>
		(15)

[END OF SECTION I]

SECTION II Attempt ALL questions in this section		Marking guidelines																											
13.	Oro Computers is a company that assembles computer systems according to customer specifications. Some of the options available are shown below.																												
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">PROCESSOR</th> <th style="width: 17%;">RAM</th> <th style="width: 50%;">BACKING STORE</th> </tr> </thead> <tbody> <tr> <td>2.4 GHz</td> <td>1 Gb</td> <td>250 Gb Hard drive</td> </tr> <tr> <td>2.6 GHz</td> <td>2 Gb</td> <td>500 Gb Hard drive</td> </tr> <tr> <td>3.8 GHz</td> <td>4 Gb</td> <td>CD-RW drive DVD-RW drive</td> </tr> <tr> <th>NUMBER OF USB INTERFACES</th> <th colspan="2">SOFTWARE</th> </tr> <tr> <td style="text-align: center;">2</td> <td>Graphics package requires</td> <td>400 Mb RAM</td> </tr> <tr> <td style="text-align: center;">5</td> <td>Word processor requires</td> <td>150 Mb RAM</td> </tr> <tr> <td></td> <td>Operating System requires</td> <td>512 Mb RAM</td> </tr> <tr> <td></td> <td>Expel anti-virus requires</td> <td>512 Mb RAM</td> </tr> </tbody> </table>			PROCESSOR	RAM	BACKING STORE	2.4 GHz	1 Gb	250 Gb Hard drive	2.6 GHz	2 Gb	500 Gb Hard drive	3.8 GHz	4 Gb	CD-RW drive DVD-RW drive	NUMBER OF USB INTERFACES	SOFTWARE		2	Graphics package requires	400 Mb RAM	5	Word processor requires	150 Mb RAM		Operating System requires	512 Mb RAM		Expel anti-virus requires	512 Mb RAM
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(a)	State the fastest <i>clock speed</i> shown above.	3.8 GHz (must have GHz) 1 mark																											
(b)	A customer chooses 2 Gb RAM. He also buys the <i>operating system</i> and the <i>anti-virus program</i> listed above.																												
(i)	If both these programs are stored in RAM at the same time, how much RAM is available for other programs?	1 Gb or 1024 Mb (must have units) 1 mark																											
(ii)	State two functions of an “operating system”.	<ul style="list-style-type: none"> • File management • Memory management • Input output • Error reporting 2 marks (accept any two)																											
(iii)	State the law that is broken by deliberately sending a virus.	Computer Misuse Act 1 mark																											
(c)	A customer buys a computer system with 5 USB interfaces. Suggest one reason why he wants 5 interfaces rather than 2 interfaces.	So he can connect more peripherals at the one time 1 mark																											
(d)	State a task that may require a DVD-RW drive rather than a CD-RW drive.	<ul style="list-style-type: none"> • Save video data • To back up large quantities of data 1 mark (accept any one)																											

	<p>(e) Apart from a hard drive, state one magnetic storage device that would be suitable for storing a backup copy of a 40 Mb file.</p>	<ul style="list-style-type: none"> • Magnetic tape drive • Zip drive <p>1 mark (accept any one)</p>																								
	<p>(f) The company will deliver to addresses within a distance of between 15 miles and 60 miles inclusive from the warehouse.</p>																									
	<p>(i) The Test Data Table below is not complete.</p>																									
	<table border="1"> <thead> <tr> <th>Type</th> <th>Test data</th> <th>Expected result</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>19</td> <td>Can deliver</td> </tr> <tr> <td>Extreme</td> <td>B</td> <td>Can deliver</td> </tr> <tr> <td>Exceptional</td> <td>75</td> <td>C</td> </tr> </tbody> </table> <p>State what is missing from the table at A, B and C</p>	Type	Test data	Expected result	A	19	Can deliver	Extreme	B	Can deliver	Exceptional	75	C	<ul style="list-style-type: none"> • A = Normal • B = 60 or 15 (only 1 required) • C = No delivery <p>3 marks (one mark each)</p>												
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	<p>(ii) Create the complex condition missing from the conditional statement below.</p> <p>IF _____ then Can Deliver.</p>	<table border="1"> <tr> <td>Distance\geq15</td> <td>Distance\geq15</td> </tr> <tr> <td>AND</td> <td>AND</td> </tr> <tr> <td>Distance\leq60</td> <td>\leq60</td> </tr> <tr> <td>2 marks</td> <td>2 marks</td> </tr> </table> <table border="1"> <tr> <td>Distance\geq15</td> <td>Distance$>$15</td> </tr> <tr> <td>OR</td> <td>AND</td> </tr> <tr> <td>Distance\leq60</td> <td>Distance$<$60</td> </tr> <tr> <td>1 mark</td> <td>1 mark</td> </tr> </table> <table border="1"> <tr> <td>Distance\geq15</td> <td>Distance$>$15</td> </tr> <tr> <td>OR</td> <td>AND</td> </tr> <tr> <td>\leq60</td> <td>$<$60</td> </tr> <tr> <td>1 mark</td> <td>1 mark</td> </tr> </table> <p>2 marks</p>	Distance \geq 15	Distance \geq 15	AND	AND	Distance \leq 60	\leq 60	2 marks	2 marks	Distance \geq 15	Distance $>$ 15	OR	AND	Distance \leq 60	Distance $<$ 60	1 mark	1 mark	Distance \geq 15	Distance $>$ 15	OR	AND	\leq 60	$<$ 60	1 mark	1 mark
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		<p>(13)</p>																								

14.	Pupils and staff at Sabio High School are planning a “Get Fit” campaign and have produced the following logo.								
									
	(a)	Pupils used a graphics package to produce the logo. Identify one object and one operation that may have been carried out on that object.	Graphic of shoe – scaled, rotated Text – font, size, bold 2 marks						
	(b) Allan uses an electronic sewing machine to attach the logos to T-shirts.								
	(i)	State the type of computer that is built into the sewing machine.	Embedded 1 mark						
	(ii)	State one suitable output device that could warn Allan of an error when he starts to sew.	<ul style="list-style-type: none"> • Speaker • LCD • Light • Buzzer 1 mark (accept any one)						
	(c) Pupils write a computer program that can calculate a person’s Body Mass Index (BMI) from their height in metres and weight in kilograms.								
	Example: <table border="1" style="margin-left: 40px;"> <tr> <td>Height</td> <td>1.67</td> </tr> <tr> <td>Weight</td> <td>58.9</td> </tr> <tr> <td>BMI</td> <td>21.1</td> </tr> </table>			Height	1.67	Weight	58.9	BMI	21.1
Height	1.67								
Weight	58.9								
BMI	21.1								
	(i)	State the type of variable that should be used to store the weight.	<ul style="list-style-type: none"> • Numeric • Single • Real 1 mark (accept any one)						

	(ii)	Using a programming language with which you are familiar, write code for the formula. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $\text{BMI} = \text{weight divided by } (\text{height})^2$ </div>	<ul style="list-style-type: none"> • BMI = weight/height² Or <ul style="list-style-type: none"> • BMI = weight/(height*height) <p>1 mark for weight/height 1 mark for ² or (height*height)</p> <p>2 marks</p>
	(iii)	Describe one way to make a program <i>readable</i> .	<ul style="list-style-type: none"> • Comment lines • Meaningful variable names • Good use of white space • Indentation • Modular <p>1 mark</p>
	(iv)	Describe why poor <i>readability</i> in a program affects the <i>maintenance</i> of the program.	If code cannot be understood at a later date changing it will be difficult 1 mark
	(d)	The school website gives access to information on the “Get Fit” campaign. Parents can also receive updates by e-mail.	
	(i)	Describe the most efficient way for the school to send the latest update to all the parents by e-mail.	Using a mailing list 1 mark
	(ii)	State one way of directing people from the school website to other websites for further information.	<ul style="list-style-type: none"> • Hyperlink Or <ul style="list-style-type: none"> • Link Or <ul style="list-style-type: none"> • Hotspot <p>1 mark</p>
	(iii)	State the law that may make it illegal for the school to give the parents’ e-mail addresses to companies who sell fitness equipment.	Data Protection Act 1 mark
			(12)

15. One hundred runners are taking part in a charity fun race. Companies can sponsor individual runners. There are three levels of sponsorship:

Bronze – £50
Silver – £100
Gold – £200

A program to process donations is being developed.

Two different versions of the user interface have been designed. These are shown below.

Name

Runner

Enter donation (£50, £100, £200)

Update

Enter the name of your Company

Select the name of runner you are sponsoring

Select a Donation

£50
 £100
 £200


Update **Help**

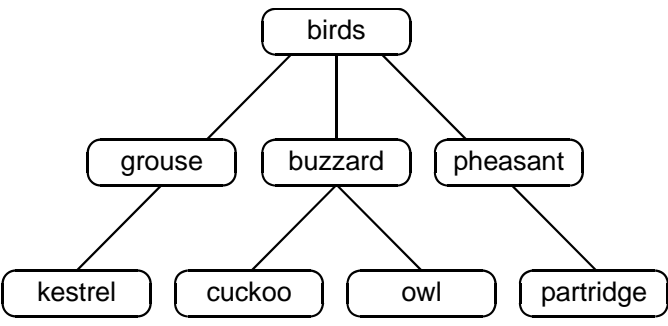
	(a)	State two reasons why Interface B is a more user-friendly interface than Interface A.	<ul style="list-style-type: none"> Labels in B more detailed Labels not as detailed in A Less typing in B, can select in B B has help button <p>2 marks (accept any two)</p>
	(b)	Only Interface A will need to use an <i>input validation</i> algorithm when donations are entered.	
	(i)	Explain why input validation will be needed with Interface A.	To make sure only suitable data is entered 1 mark
	(ii)	Explain why input validation is not required with Interface B.	User can only select 50, 100, 200 so cannot enter invalid amount. 1 mark
	(c)	State the data structure that should be used to store the one hundred runners' names.	Array 1 mark
			(5)

[END OF SECTION II]

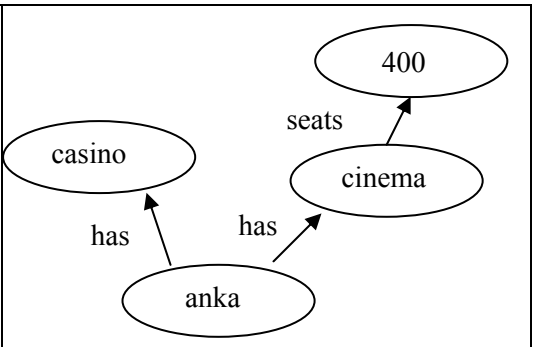
		SECTION III Part A – Artificial Intelligence Attempt ALL questions in this section.	Marking guidelines
16.	(a)	Mateusz wants to invest money by buying shares in a company. He uses an <i>Artificial Neural System</i> to help decide which shares to purchase.	
	(i)	Describe what is meant by an “Artificial Neural System”.	An electronic model of the brain 1 mark
	(ii)	Explain why an Artificial Neural System is used in the stock market.	It will predict if the shares will increase in value 1 mark
	(iii)	State one other use of an Artificial Neural System.	<ul style="list-style-type: none"> • Reading post codes • Debt risk assessment • Pattern recognition 1 mark (accept any one)
	(b)	Mateusz is advised to buy shares in Intellicombat who make multi-player computer games that use artificial intelligence.	
	(i)	State one aspect of human intelligence that artificial intelligence applications aim to copy.	<ul style="list-style-type: none"> • Ability to communicate • Retain knowledge • Solve problems 1 mark (accept any one)
	(ii)	In a game that shows intelligent behaviour, describe what should happen to the abilities of the characters as the game progresses.	Improve through learning from mistakes 1 mark
	(iii)	Name the type of network to which a player must be connected in order to play against a person in another country.	Wide area network 1 mark
			(6)


17.	Serena has a palmtop computer. The software installed includes a diary, e-mail and <i>speech recognition</i> software. The palmtop also has a <i>chatterbot</i> facility.	
(a)	Describe one example of a command that Serena may issue when e-mailing using speech recognition.	<ul style="list-style-type: none"> • Punctuation • E-mail related – send, reply, forward, attach <p>1 mark (accept any one)</p>
(b)	Serena would like to use <i>handwriting recognition</i> software to enter text. State the input device that her palmtop must have for this to be possible.	<p>Touch sensitive screen</p> <p>1 mark</p>
(c)	A chatterbot is a current example of <i>language processing</i> . State one early example of a program that used “language processing”.	<p>Eliza, Parry, SHRDLU</p> <p>1 mark</p>
(d)	Describe one way that a chatterbot could help Serena to be organised at the start of her working day.	<p>It could speak and tell her what is in her e-mails or diary for the day (answer should imply conversation)</p> <p>1 mark</p>
		(4)

18.	Scotia Forest has a large plantation of trees. Part of the forest was flooded to create a reservoir which is 250 metres deep.		
	(a)	The owners of the forest want to remove trees from under the water. Describe one advantage of using <i>intelligent robots</i> for this task rather than robots with no intelligence.	<ul style="list-style-type: none"> • Can navigate round obstacles • Can adapt to different sizes of tree <p>1 mark (accept any one)</p>
	(b)	The owners of the forest use <i>satellite photo interpretation</i> to monitor the health of the trees in the forest. State the area of artificial intelligence that is being used for this task.	<p>Vision system</p> <p>1 mark</p>
	(c)	<p>The forest has a Visitor Centre. Visitors can use a program to identify birds they have spotted in the forest.</p>  <p>Visitors answer questions about the appearance of the bird. The program identifies the bird, then explains how it reached its conclusion.</p>	
	(i)	State the type of artificial intelligence program that is being used to identify the birds.	<p>Expert system</p> <p>1 mark</p>
	(ii)	Describe one advantage to the visitors of using this type of software, rather than asking a human specialist in wildlife.	<ul style="list-style-type: none"> • Available all the time • Combines knowledge of several experts <p>1 mark (accept any one)</p>

	<p>(d) The diagram below shows a search tree for a problem.</p>  <pre> graph TD birds --> grouse birds --> buzzard birds --> pheasant grouse --> kestrel buzzard --> cuckoo buzzard --> owl pheasant --> partridge </pre> <p>The solution to the problem is cuckoo. To reach this solution the nodes were visited in the following order: birds, grouse, buzzard, pheasant, kestrel, cuckoo</p>	
	<p>State the type of search that was used here.</p>	<p>Breadth first</p> <p>1 mark</p>
		<p>(5)</p>

19.	<p>The Castello Cruise Company has three cruise ships – Anka, Perla and Marisa. It uses a knowledge base to store facts about the cruises and rules about destinations and special offers. Part of the knowledge base is shown below:</p> <p>1 departs(anka, southampton). 2 departs(perla, greenock). 3 departs(marisa, greenock). 4 sails_in(anka, july). 5 sails_in(perla, july). 6 sails_in(marisa, august). 7 destination(X, mediterranean):-sails_in(X,july). 8 destinations(X, baltic):-sails_in(X,august). 9 special_offer(X):-departs(X, greenock), sails_in(X, august)</p>	
	<p>(a) State the result of the query: ?departs(anka, southampton).</p>	<p>Yes True 1 mark</p>
	<p>(b) State the first result of the query: ?destination(X, mediterranean).</p>	<p>anka 1 mark</p>
	<p>(c) Using the numbering system to help you, trace how the system evaluates the query: ?special_offer(perla).</p>	<p>Matches at 9 X=perla 1 mark Subgoal 1 departs(perla, greenock) Matches at 2 Succeeds 1 mark Subgoal 2 Sails_in(perla, august) Fails No 1 mark (9,2, fails 1 mark) 3 marks</p>
	<p>(d) The Castello Cruise Company updates the knowledge base to include facts about the following extra cruise. The Anka departs from Rosyth for the Baltic in August. Write the two facts that should be added to the knowledge base.</p>	<p>departs(anka, rosyth). sails_in(anka, august). 2 marks</p>

	<p>(e) Draw a <i>semantic net</i> to represent the facts:</p> <p>has(anka, casino). has(anka, cinema). seats(cinema, 400).</p>	 <p>1 mark for each fact correct 3 marks all correct lose 1 mark if there is an error with arrows lose 1 mark if there is an error with the predicates</p>
		(10)

SECTION III Part B – Computer Networking Attempt ALL questions in this section.		Marking guidelines
20.	TastyKakes has created a website to sell its luxury cupcakes.	
(a)	Describe two economic benefits for the company in having a website.	<ul style="list-style-type: none"> • Increased marketing opportunities • Increased on-line sales • Larger customer base • No shop costs • Available 24/7 <p>2 marks (accept any two)</p>
(b)	<p>The website for TastyKakes has been designed with <i>hyperlinks</i>.</p> 	
(i)	State one function of “hyperlinks” on the web page.	<ul style="list-style-type: none"> • Improves navigation through the website • Can move to another page in the website by clicking on a hyperlink • Idea of clicking to move directly to another part of the website <p>1 mark (accept any one)</p>
(ii)	Name the type of software that will allow the user to view this web page.	<p>Web browser</p> <p>1 mark</p>

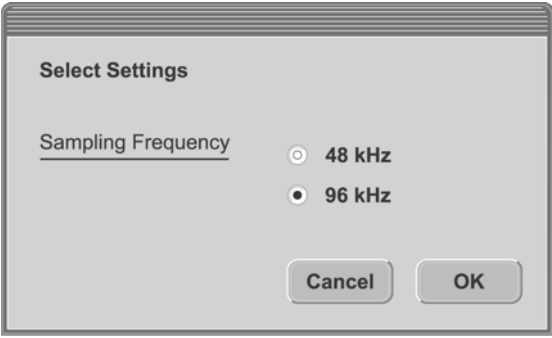
	(c)	The URL for the special offers page is given below: http://www.tastykakes.co.uk/specialoffers	
	(i)	State the domain name of this web page.	www.tastykakes.co.uk tastykakes.co.uk 1 mark
	(ii)	State the term used for the process of changing a domain name into an Internet Protocol Address (IP Address).	Domain name resolution 1 mark
	(d)	Customers can order and pay for cupcakes online using a credit card. The website uses <i>data encryption</i> .	
	(i)	Describe what is meant by the term “data encryption”.	Data is encoded 1 mark
	(ii)	State one reason why “data encryption” is required.	To provide a secure electronic transaction for customers. 1 mark
	(e)	TastyKakes sends a monthly e-mail to customers on a mailing list. State what term is used to describe this method of data transmission.	Multicast 1 mark
			(9)

21.	The charity ActiveMind has installed a wireless local area network (WLAN) in its head office.		
	(a)	Describe one advantage to the charity of a WLAN compared to a LAN.	<ul style="list-style-type: none"> • Computers can be placed anywhere – flexible • Cheaper to install/set-up • No trailing cables (Health & Safety) <p>1 mark (accept any one)</p>
	(b)	State one item of hardware that is required so that a laptop can be connected to a WLAN.	<p>Wireless network interface card, wireless NIC Wireless router</p> <p>1 mark</p>
	(c)	<p>The charity is organising a sponsored fun run to raise funds. The sponsor form is available to download at the address:</p> <p>ftp://activemind.org</p>	
	(i)	Name the Internet service provided at this address.	<p>File transfer</p> <p>1 mark</p>
	(ii)	Describe one problem that can result from downloading files.	<p>Common route for virus attack</p> <p>1 mark</p>
	(iii)	Describe one other method of transferring a file across the Internet.	<p>Attaching a file to an e-mail</p> <p>1 mark</p>
	(d)	The charity is worried about the effect of hardware failure on the operation of the network.	
	(i)	State two other potential threats to the computer network.	<ul style="list-style-type: none"> • Software failure eg failure of network operating system, fault with browser • Data transmission failure eg damaged cables • Physical disaster eg fire, flood, cuts in electricity supply <p>2 marks (accept any two)</p>
	(ii)	Describe an effective backup strategy that would minimise the effect of a hardware failure to the network.	<ul style="list-style-type: none"> • Save a copy of data on a second backing storage medium • Store backup copies away from the original data in a safe location • Make regular backup copies of data <p>2 marks (accept any two)</p>

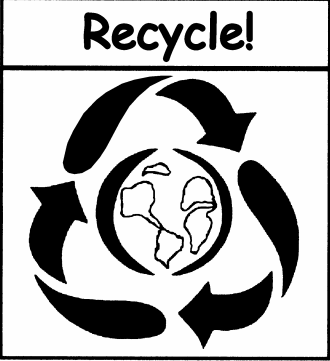
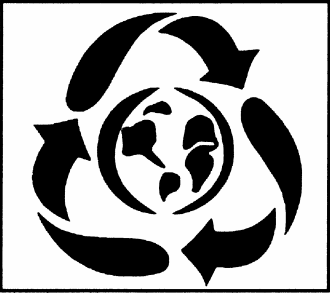
	<p>(e) ActiveMind monitors their employees' use of computer technology at work. Describe two types of monitoring allowed under the Regulation of Investigatory Powers Act 2000.</p>	<ul style="list-style-type: none"> • Employers can monitor e-mail traffic • Employers can track which websites staff visit during work time <p>2 marks</p>
		(11)

22.	Cook-E software allows users to control the operation of their cooker at home from their computer at work.		
	(a)	Cook-E software is an example of <i>converging technology</i> . Describe what is meant by the term “converging technology”.	Home applications that can communicate with other devices and the Internet. 1 mark
	(b)	Describe one reason why a broadband connection would be recommended for controlling the operation of their cooker.	<ul style="list-style-type: none"> • The connection is “always on” • Faster connection 1 mark (accept any one)
	(c)	Cook-E software can also be accessed from a mobile phone.	
	(i)	Name the protocol that allows the software to be accessed from a mobile phone.	<ul style="list-style-type: none"> • WAP • Wireless Application Protocol 1 mark (accept any one)
	(ii)	Name the type of software that is needed to access the World Wide Web using a mobile phone.	Microbrowser 1 mark
	(d)	After testing Cook-E software for two months, the user interface is updated. State which stage in the software development process is being carried out.	Maintenance 1 mark
			(5)

SECTION III		Marking guidelines
Part C – Multimedia Technology		
Attempt ALL questions in this section.		
23.	Marcus is a final year fashion student who has created a multimedia presentation of his fashion show. He recorded a video of his fashion show and then transferred it to the computer to be edited.	
(a)	State one item of hardware that is needed to capture video.	<ul style="list-style-type: none"> • Digital video camera 1 mark (accept any one)
(b)	State one file type that could be used to store the video of the fashion show.	<ul style="list-style-type: none"> • AVI • MPEG • MOV 1 mark (accept any one)
(c)	Marcus created a MIDI soundtrack to play over the images of his fashion show.	
(i)	State one advantage of using a MIDI soundtrack rather than digitised sound.	<ul style="list-style-type: none"> • Smaller file size • Instrument can be changed 1 mark (accept any one)
(ii)	State two attributes of a MIDI instruction.	<ul style="list-style-type: none"> • Type of instrument • Pitch of note • Volume of note • Duration of note • Tempo 2 marks (accept any two)
(d)	The video clip of the fashion show is high quality but the file size is too large. To reduce the size of the video clip, Marcus changes the length of the video clip.	
(i)	Describe two other ways of reducing video file size.	<ul style="list-style-type: none"> • Reduce frame rate/frames per second • Reduce colour depth • Reduce the resolution of the image 2 marks (accept any two)
(ii)	The final size of the file is 4.2 Gigabytes. State an appropriate backing storage medium for distributing the presentation to all fashion stores in Britain.	DVD 1 mark
		(8)

24.	Brian is using a <i>WYSIWYG editor</i> to create a website for a new band.		
	(a)	State one other method of creating the website.	<ul style="list-style-type: none"> • Text editor • HTML • Web – authorising software <p>1 mark (accept any one)</p>
	(b)	Name one device that would allow Brian to capture images of the band for the website.	<ul style="list-style-type: none"> • Digital camera • Digital video camera • Mobile phone • Scanner • Web cam <p>1 mark (accept any one)</p>
	(c)	<p>Brian records the band’s new song “Young Spirit” at their concert. Brian uses audio software to change the <i>sampling frequency</i>. He selects the highest frequency for recording the song.</p> 	
	(i)	State one effect on the size of the sound file of recording the song at the higher setting.	<p>The file size will be larger than if stored at the lower setting</p> <p>1 mark</p>
	(ii)	State one effect on the quality of the sound of recording the song at the higher setting.	<p>The quality will be improved</p> <p>1 mark</p>
	(d)	Brian wants to include part of the song “Young Spirit” on the website.	
	(i)	State the feature of the sound editing software that will allow Brian to create a 60 second sample of the song.	<p>Cropping (or trimming)</p> <p>1 mark</p>
	(ii)	State one other feature of the sound editing software that Brian could use to enhance the sound.	<ul style="list-style-type: none"> • Effects • Echo • Reverb • Reverse • Adjust volume <p>1 mark (accept any one)</p>

	(e)	An interview with the band is available to download from the website as a compressed audio file. The audio file uses <i>lossy compression</i> .	
	(i)	Explain what is meant by the term “lossy compression”.	Reduces file size by removing some of the original. 1 mark
	(ii)	State a sound file type that uses lossy compression.	<ul style="list-style-type: none"> • MP3 • MP4 1 mark (accept any one)
			(8)

25.	<p>Naila designed a black and white logo for the local recycling campaign using a <i>bit-mapped graphics package</i>.</p> <p style="text-align: center;">Logo A</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Recycle!</p>  </div> <div style="text-align: center;"> <p>Logo B</p>  </div> </div>		
	(a)	<p>State two changes that were made to Logo A to create Logo B.</p>	<ul style="list-style-type: none"> • Fill colour • Cropping <p>2 marks</p>
	(b)	<p>Logo B measures 640 pixels across by 480 pixels down. Calculate the storage requirements of Logo B in Kilobytes. Show all working.</p>	<ul style="list-style-type: none"> • $640 \times 480 = 307200 \text{ bits}/8 = 38400 \text{ bytes}$ (1) • $38400/1024 = 37.5 \text{ kb}$ (1) <p>2 marks</p>
	(c)	<p>Naila creates a colour version of Logo B. She then increases the <i>colour depth</i> of Logo B.</p>	<p>The number of bits in each pixel used to represent colour.</p>
	(i)	<p>State what is meant by the term “colour depth”.</p>	<ul style="list-style-type: none"> • The number of colours used • The number of possible colours <p>1 mark (accept any one)</p>
	(ii)	<p>Describe the effect of increasing the colour depth on the size of the file.</p>	<p>Increasing the colour depth increases the file size</p> <p>1 mark</p>
	(d)	<p>When the logo was enlarged and then printed, it did not appear as expected. State one reason why bit-mapped graphics lose their quality when enlarged.</p>	<p>Bit-mapped graphics are resolution dependent.</p> <p>1 mark</p>

	<p>(e) Naila could save Logo B as either a JPEG file or a GIF file. Describe one difference between JPEG files and GIF files.</p>	<ul style="list-style-type: none"> • GIF uses lossless compression to reduce file size. JPEG uses lossy compression • JPEG uses 24 bits per pixel. GIF uses 8-bit colour code • GIF can be amended • GIF can be transparent <p>1 mark (accept one difference)</p>
	<p>(f) The logo could have been created using a <i>vector graphics package</i>. State the effect that this would have had on the file size.</p>	<p>Smaller file size</p> <p>1 mark</p>
		(9)

[END OF SECTION III]

[END OF MARKING INSTRUCTIONS]