



2008 Computing

Intermediate 2

Finalised Marking Instructions

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**2008 Computing
Intermediate 2**

	SECTION I Attempt ALL questions in this section	Marking guidelines
1.	State two advantages of using binary numbers rather than decimal numbers in a computer system.	<ul style="list-style-type: none"> • Fewer arithmetic rules • 0 and 1 easily represent on and off • signal degradation has no effect <p>1 mark each, max 2 marks</p>
2.	State one function of a <i>server</i> on a network.	<ul style="list-style-type: none"> • Shares resources <p>1 mark</p>
3.	A printer is connected to a computer using an <i>interface</i> . Describe one function of an “interface”.	<ul style="list-style-type: none"> • Compensates for different speeds • Converts data • Temporarily stores data <p>1 mark</p>
4.	Describe one use of an LCD panel on a printer.	<ul style="list-style-type: none"> • To display an error message • To warn out of paper, ink low • Status signals • Preview tasks <p>1 mark</p>
5.	Describe one benefit of using a mailing list when contacting a large number of people by email.	<p>Pre-prepared list of email addresses lets you contact many people without typing in all the addresses.</p> <p>1 mark</p>
6.	Sunita can store 75 photographs on a 256 Mb memory card in her digital camera. She alters the settings and can now store 101 photographs on the same memory card. Describe the alteration she has made to the settings.	<ul style="list-style-type: none"> • Decrease resolution • Reduce colour depth • Use compression <p>1 mark</p>
7.	Name the stages labelled X and Y which are missing from the software development process listed below: X Design Y Testing Documentation Evaluation Maintenance.	<p>X = Analysis, Y = Implementation</p> <p>1 mark each, max 2 marks</p>

8.	A teacher evaluates new software and decides it carries out the tasks she wants but the menus and screen layout could be better.	
(a)	Which one of the following has she not evaluated: <ul style="list-style-type: none"> • fitness for purpose • readability • user interface? 	Readability 1 mark
(b)	Each morning the teacher has to go through a number of steps on the computer to print a list of absent pupils in alphabetical order. Describe what she could do, so that this can be done efficiently in one step.	Record/use a macro 1 mark
9.	A travel agent wants a program to store an alphabetical list of winter holiday destinations. State the most efficient way to store lists using a programming language.	Array 1 mark
10.	A conditional statement is used in a program to decide if a discount is given to customers buying theatre tickets. IF day is Monday OR (age>60 AND day is NOT Saturday) then Discount given ELSE No discount End if What are the expected results for the following sets of test data?	
(a)	age = 58, day = Monday	Discount given 1 mark
(b)	age = 65, day = Saturday	No discount 1 mark
11.	State one use for an embedded computer in the home.	Washing machine, fridge, microwave oven, CD player 1 mark
		(15)

[END OF SECTION I]

SECTION II Attempt ALL questions in this section		Marking guidelines
12.	Azam draws the diagram below to represent a computer system.	
(a)	The part labelled X contains the <i>Arithmetic and Logic Unit</i> , the <i>Control Unit</i> and the <i>Registers</i> . Name part X .	Processor 1 mark
(b)	Name the part labelled Y .	Backing store 1 mark
(c)	Azam visits his local computer shop and notes down the specification of a laptop computer as shown below. <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <ul style="list-style-type: none"> • 2.83 GHz • 1 Gb RAM • 512 Mb ROM • 80 Gb hard drive • CD-RW drive </div>	
(i)	What is the <i>clock speed</i> of the laptop?	2.83 GHz (must have units) 1 mark
(ii)	Describe two differences, other than cost, between a CD-R disk and a hard disk.	<ul style="list-style-type: none"> • Hard disk has larger capacity, stores more • Hard disk is magnetic storage, CD-R is optical • Speed of data transfer is faster on hard disk • CDs are portable • Hard disk is re-writeable 1 mark each, max 2 marks.

		<p>(iii) Azam looks at a website that advertises laptops. When he clicks on the words “Laptop Guide” another Web page opens with tips for buying laptops.</p> <p>Explain why this happens.</p>	<p>Laptop guide is a hyperlink</p> <p>1 mark</p>
		<p>(iv) Name a suitable input device that Azam should buy so that he can use his laptop for video conferencing.</p>	<p>Webcam, microphone, sound card, graphics card, digital camcorder, smart phone</p> <p>1 mark</p>
		<p>(d) Azam designs a program that uses the formula below to convert terabytes to kilobytes.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>kilobytes = terabytes multiplied by 2^{30}</p> </div> <p>Using a high level language with which you are familiar, write the line of code for the formula shown above.</p>	<p>Kilobytes = terabytes * 2^{30}</p> <p>1 mark for terabytes * 2 1 mark for 2^{30} (linked to correct calculation)</p>
		<p>(e) Azam writes a program in a high level language and it is translated using a compiler. After successfully running the program a few times, he decides to make some changes to it.</p> <p>Explain why Azam will find it difficult to edit the compiled program.</p>	<p>It is in machine code – 0 and 1</p> <p>1 mark</p>
			(10)

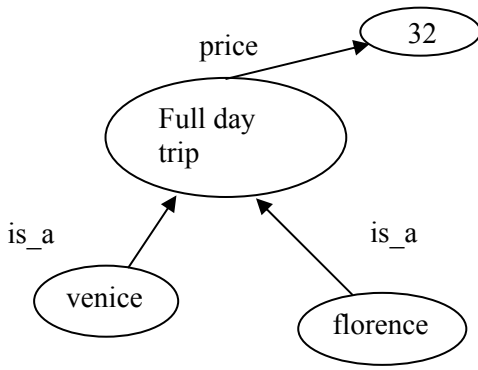
13.	<p>Roseanne owns a Garden Centre. She has developed a program that asks the user to enter the name and the price of a plant. The program then calculates and displays a table of prices as shown below.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p>Plant: Geranium</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;">Number</th> <th style="text-align: left;">Cost (£)</th> </tr> </thead> <tbody> <tr><td>1</td><td>1.50</td></tr> <tr><td>2</td><td>3.00</td></tr> <tr><td>3</td><td>4.50</td></tr> <tr><td>4</td><td>6.00</td></tr> <tr><td>5</td><td>7.50</td></tr> </tbody> </table> </div>	Number	Cost (£)	1	1.50	2	3.00	3	4.50	4	6.00	5	7.50	
Number	Cost (£)													
1	1.50													
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	<p>The design for the program is shown below with step 4 blank:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <ol style="list-style-type: none"> 1. get name and price of plant 2. display the name of plant 3. display the words “Number” and “Cost (£)” 4. 5. display number, number times price 6. end loop </div>													
	<p>(a) What should step 4 of the design be?</p>	<ul style="list-style-type: none"> • Loop from 1 to 5 • Do 5 times <p>1 mark for idea of loop, 1 mark for 5</p>												
	<p>(b) What type of variable should be used to store the name of the plant?</p>	<p>String</p> <p>1 mark</p>												
	<p>(c) Pseudocode has been used to represent the design. Name one graphical design notation.</p>	<p>Structure diagram, flow chart, data flow diagram</p> <p>1 mark</p>												
	<p>(d) After using the program for several months, Roseanne decides to improve the program by adding a new feature.</p> <p>Name the stage of the software development process which is being carried out when Roseanne changes her program.</p>	<p>Maintenance</p> <p>1 mark</p>												

	(e) Roseanne wants the program to check that the price entered in pounds is more than 1 but less than 4. Roseanne refines step 1 as follows:																									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;"> 1.1 ask for name of plant 1.2 repeat 1.3 ask for price of plant 1.4 if price \leq 1 OR price \geq 4 then 1.5 display error message 1.6 end if 1.7 until _____ </td> </tr> </table>	1.1 ask for name of plant 1.2 repeat 1.3 ask for price of plant 1.4 if price \leq 1 OR price \geq 4 then 1.5 display error message 1.6 end if 1.7 until _____																								
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	(i) Name the standard algorithm being used to check the price.	Input validation 1 mark																								
	(ii) Write the condition needed to complete step 1.7	Price $>$ 1 and price $<$ 4 <ul style="list-style-type: none"> • Price $>$ 1 • and • price $<$ 4 2 marks all three correct, 1 mark two correct.																								
	(iii) Once Roseanne has coded the algorithm she tests it with the price £6. Explain why Roseanne used this test data.	<ul style="list-style-type: none"> • Exceptional testing • Outside range • Testing string 1 mark for any one																								
	(f) Roseanne uses a database to store details of books stocked by the Garden Centre. She uses the database to produce lists of books on special offer.																									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left;">List A</th> <th colspan="2" style="text-align: left;">List B</th> </tr> <tr> <th style="text-align: left;">Title</th> <th style="text-align: left;">Price</th> <th style="text-align: left;">Title</th> <th style="text-align: left;">Price</th> </tr> </thead> <tbody> <tr> <td>Bulbs for Spring</td> <td>£8</td> <td>Orchids</td> <td>£9</td> </tr> <tr> <td>Green Lawns</td> <td>£5</td> <td>Bulbs for Spring</td> <td>£8</td> </tr> <tr> <td>Orchids</td> <td>£9</td> <td>Green Lawns</td> <td>£5</td> </tr> <tr> <td>Bonsai for Beginners</td> <td>£3</td> <td>Bonsai for Beginners</td> <td>£3</td> </tr> </tbody> </table> <p>Identify one object and one operation that was carried out on that object to change List A into List B.</p>	List A		List B		Title	Price	Title	Price	Bulbs for Spring	£8	Orchids	£9	Green Lawns	£5	Bulbs for Spring	£8	Orchids	£9	Green Lawns	£5	Bonsai for Beginners	£3	Bonsai for Beginners	£3	Object records, Operation SORT 1 mark object, 1 mark operation
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		(11)																								

14.	Harry buys anti-virus software on the Internet. He downloads the software and he also downloads a <i>user guide</i> and a <i>technical guide</i> for the software.		
	(a)	Name the stage of the software development process at which a “user guide” and a “technical guide” are produced.	Documentation 1 mark
	(b)	The format of the files for both guides is <i>rich text</i> . Explain why “rich text” is used in this situation.	Standard format that can be opened on most computers. 1 mark
	(c)	State the type of network to which Harry’s computer is connected when he is downloading the software.	Wide Area Network. 1 mark
	(d)	Harry cannot remember where he saved the file for the user guide. He uses a program which asks him to enter the name of the file and then it finds the file for him. Which of the following standard algorithms does the program use to find the file: <ul style="list-style-type: none"> • Input validation • Linear search • Find maximum • Find minimum • Count occurrences? 	Linear search 1 mark
	(e)	Once installed on Harry’s computer the anti-virus icon appears on the desktop as a black and white bitmapped graphic. The graphic is 20 pixels by 64 pixels. Calculate the storage requirements of the icon in bytes. Show all working.	20 x 64 bits or 1280 1 mark for multiplying 160 bytes or 160 1 mark for /8 accept 160 2 marks
	(f)	When Harry runs the anti-virus software it detects a virus in the <i>operating system</i> .	
	(i)	State one way in which his computer could have been infected by this virus.	Floppy disk, USB flash drive, website, infected CD, email attachment. 1 mark
	(ii)	What is the purpose of an “operating system”?	To control the running of a computer system. 1 mark
	(g)	Harry gives a copy of the anti-virus software to his brother. Name the law which Harry may have broken.	Copyright, design and patents act 1 mark
			(9)

	SECTION III – Artificial Intelligence Attempt ALL questions in this section		Marking guidelines
15.	Newtown Hospital uses <i>artificial intelligence</i> applications for some tasks. One example is MedicTalk language processing software. This is installed on the doctors’ computers to help communication with foreign patients. The doctor speaks a sentence in English, selects the required language and MedicTalk repeats it in that language.		
	(a)	Describe one aspect of human intelligence, other than the ability to communicate.	<ul style="list-style-type: none"> • Retain knowledge • Solve problems • Recognise objects 1 mark
	(b)	Eliza is an early example of language processing which imitates a conversation with a psychologist.	
	(i)	Describe one reason why it could be argued that Eliza does not show intelligence.	Only repeats keywords, has no understanding 1 mark
	(ii)	Name the test that can be used to decide if a program is intelligent.	Turing test 1 mark
	(iii)	MedicTalk has a much larger vocabulary than Eliza. Describe one hardware development that made this improvement possible.	<ul style="list-style-type: none"> • Larger hard drive capacity • Larger memory • Faster processor 1 mark
	(iv)	MedicTalk uses <i>speech recognition</i> . State one factor that could affect the accuracy of the “speech recognition”.	Background noise, accent, sore throat, not speaking clearly. 1 mark
	(c)	RoboCarrier is an intelligent robot used to deliver medical records within the hospital. If it meets an obstacle it stops and asks the obstacle to move.	
	(i)	State how RoboCarrier could detect an obstacle in its path.	Infra red Sensors, touch sensor, vision sensor 1 mark
	(ii)	As an intelligent robot, describe what RoboCarrier should do if the obstacle does not move.	Navigate round the object 1 mark
			(7)

16.	Mr MacDonald is a fruit farmer who is using <i>artificial intelligence</i> to improve his crop production. He uses an <i>expert system</i> to select the best method of pest control.		
	(a)	Explain what is meant by an “expert system”.	A program that can give advice like a human expert 1 mark
	(b)	State one advantage of using an “expert system” rather than a human expert.	<ul style="list-style-type: none"> • Expertise always available • Combines expertise of several experts • Less chance of error 1 mark
	(c)	A <i>vision system</i> is used to grade apples as perfect or damaged based on their appearance. Describe how a “vision system” could be used to grade the apples.	<ul style="list-style-type: none"> • Camera photographs apple 1 mark • Image compared to database 1 mark
	(d)	Mr MacDonald needs a loan from his bank. The bank uses an <i>artificial neural system</i> to assess the risk in giving a loan to Mr MacDonald.	
	(i)	Explain what is meant by an “artificial neural system”.	Electronic model of the human brain 1 mark
	(ii)	Describe one disadvantage of relying on an “artificial neural system”.	<ul style="list-style-type: none"> • It may not contain the most up to date data • It may not be able to take special circumstances into account 1 mark
	(e)	Mr MacDonald is using the World Wide Web to find dates and locations of Farmers’ Markets in Scotland. Describe how he should use the search engine below to obtain this information.	
		<div style="border: 1px solid black; padding: 10px; width: fit-content;"> <p>keywords <input style="width: 150px;" type="text"/> GoFind!</p> </div>	Enter Farmers’ Market Scotland 1 mark Click GoFind or press enter 1 mark
			(8)

17.	A travel agent requires a knowledge base about the cost of excursions. A software developer working on this project is creating a <i>semantic net</i> .	
(a)	Name the stage of the software development process which is being carried out.	Design 1 mark
(b)	<p>Draw a semantic net to represent the facts below:</p> <p>Venice is a full day trip Florence is a full day trip The price of a full day trip is £32.</p>	 <p style="text-align: center;">2</p> <p>2 marks for all correct or 1 missing item 1 mark for 2 missing items.</p>
		(3)

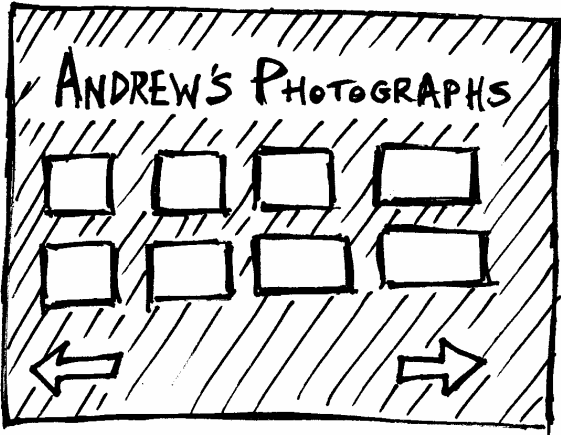
18.	The solar ultraviolet index (UV index) can be used as a guide to the risk of skin damage from the sun. The knowledge base below shows facts about a UV index forecast for British towns and rules about the level of risk of skin damage.	
	<ol style="list-style-type: none"> 1. <code>uv_index(blackpool, 2)</code> 2. <code>uv_index(london, 5)</code> 3. <code>uv_index(edinburgh, 3)</code> 4. <code>uv_index(inverness, 4)</code> 5. <code>uv_index(oban, 5)</code> 6. <code>high_risk(X)</code> if <code>uv_index(X,Y)</code> and $Y > 4$. 7. <code>medium_risk(X)</code> if <code>uv_index(X,Y)</code> and $Y = 4$. 8. <code>medium_risk(X)</code> if <code>uv_index(X,Y)</code> and $Y = 3$. 	
	(a) What would be the result of the following query: <code>? uv_index(london, 5).</code>	Yes 1 mark
	(b) What will be the first solution to: <code>? medium_risk(X).</code>	$X = \text{inverness}$ 1 mark
	(c) Using the numbering system to help you, trace how the system evaluates the query: <code>? high_risk(oban).</code>	<code>high_risk(oban)</code> matches at 6, $X = \text{Oban}$ 1 mark Subgoal <code>uv_index(oban, Y)</code> Matches at 5 $Y = 5$ 1 mark Subgoal $Y > 4$ Succeeds Yes 1 mark <i>Note: call might be used instead of subgoal</i> 3 marks
	(d) A UV index below 3 is regarded as low risk. Use this information to complete the following rule: <code>Low_risk(X)</code>	<code>low_risk(X)</code> if <code>uv_index(X,Y)</code> and 1 mark $Y < 3$ 1 mark Accept: – instead of if And , instead of and 2 marks
		(7)

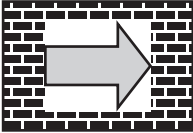
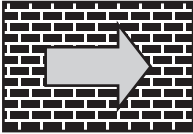
SECTION III – Computer Networking Attempt ALL questions in this section		Marking guidelines
19.	Emiko has purchased a new laptop computer.	
(a)	When Emiko switches on her laptop, it asks if she wants to connect to a wireless LAN (WLAN). Emiko does not have a WLAN but her neighbour does.	
(i)	Name the type of transmission that her neighbour’s network is using.	<ul style="list-style-type: none"> Broadcast 1 mark
(ii)	Emiko tries to connect to the WLAN. Which part of her neighbour’s wireless network hardware is Emiko communicating with?	<ul style="list-style-type: none"> Receiver/Transmitter Wireless router 1 mark
(iii)	Emiko was unable to connect to her neighbour’s WLAN because of <i>software security</i> . Describe one method of implementing “software security”.	<ul style="list-style-type: none"> Passwords Firewall WEP/encryption 1 mark
(b)	Emiko emails her friends once a week. She writes her emails off-line then connects to the Internet and sends her emails.	
(i)	Explain why Emiko writes her emails off-line.	<ul style="list-style-type: none"> If using dial-up then she will not be charged while she is typing the email if off-line. 1 mark
(ii)	Name the type of Internet connection Emiko is most likely to have.	<ul style="list-style-type: none"> Dial-up Wireless 1 mark

	(c)	<p>Emiko uses a computer at work to send the following email to one of her friends.</p> <table border="1"> <tr> <td>To</td> <td>charlesyounger@xyz.org</td> </tr> <tr> <td>From</td> <td>emiko@warmmail.com</td> </tr> <tr> <td>Subject</td> <td>Video Clip</td> </tr> <tr> <td>File(s)</td> <td>Slipping on a banana.mpg (300Mb)</td> </tr> </table> <p>Hi, Not sure if you will be interested in this video clip but I thought it was quite funny. Emiko</p>	To	charlesyounger@xyz.org	From	emiko@warmmail.com	Subject	Video Clip	File(s)	Slipping on a banana.mpg (300Mb)	
To	charlesyounger@xyz.org										
From	emiko@warmmail.com										
Subject	Video Clip										
File(s)	Slipping on a banana.mpg (300Mb)										
	(i)	<p>Describe how sending this email may have broken the code of conduct concerning the use of Networks and the Internet at her workplace.</p>	<ul style="list-style-type: none"> • Not to send large unnecessary attachments • Use email for professional purposes only <p>1 mark</p>								
	(ii)	<p>By looking at Charles Younger's email address, suggest the type of organisation that he works for.</p>	<ul style="list-style-type: none"> • Non profit organisation (organisation on its own is not enough) • Charity <p>1 mark</p>								
	(iii)	<p>Name the term used to describe a file that is included as part of an email.</p>	<ul style="list-style-type: none"> • Attachment <p>1 mark</p>								
			(8)								

20.	Rachel is a mother of two young children. She works from her home in Livingston and uses the Internet for both business and pleasure. Her two children also use the computer for Internet access.		
	(a)	Rachel and her children use a search engine to find information.	
	(i)	Describe how Rachel would use the search engine to get information on tennis clubs in Livingston.	<ul style="list-style-type: none"> • Enter Tennis clubs and Livingston in the search box • Press return or click search <p>1 mark each bullet point to max 2 marks.</p>
	(ii)	Sometimes when the children are using the search engine they get the message “content blocked”. Describe one reason why this message appeared.	<ul style="list-style-type: none"> • The filtering software would not allow the search <p>1 mark</p>
	(iii)	Rachel contacts her ISP to find out why some searches have been blocked. What does ISP stand for?	<ul style="list-style-type: none"> • Internet Service Provider <p>1 mark</p>
	(b)	Rachel has written an <i>encryption</i> computer program which she is going to sell from her website.	
	(i)	Describe the purpose of an “encryption” program.	<ul style="list-style-type: none"> • To code a document so that it cannot be read by anyone who is not supposed to. <p>1 mark</p>
	(ii)	The Government has told Rachel that she must give them a copy of the key to her encryption program. Name the law which states that Rachel should give them a copy of the key.	<ul style="list-style-type: none"> • Regulation of Investigatory Powers Act <p>1 mark</p>
	(iii)	Describe one economic implication of deciding to sell the program using her website rather than from a shop.	<ul style="list-style-type: none"> • Increased sales due to worldwide customer base • Investment needed for webserver/ Web page creation • Savings on printing manuals and packaging <p>1 mark</p>

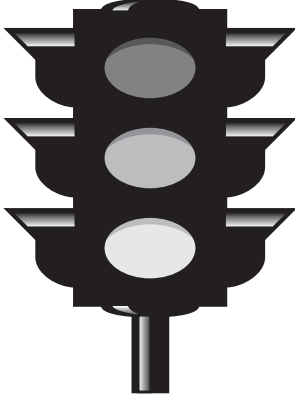
	(c)	One customer has contacted Rachel and asked if he could have a <i>user guide</i> for the encryption program. Rachel replied that he can download it from: http://www.sekrets.com/encrypt/downloads/manual.dok	
	(i)	When the customer enters the URL into his browser, the file is found on the server and downloaded. Describe how the file is found.	<ul style="list-style-type: none"> • Convert the domain name (1 mark) to an IP address (1 mark) • Using DNS software (1 mark) to find the IP address (1 mark) 2 marks
	(ii)	What is the pathname of the “user guide” in the URL above?	<ul style="list-style-type: none"> • Encrypt/downloads/manual • Encrypt/downloads/manual.dok 1 mark
	(iii)	Describe the purpose of a “user guide”.	<ul style="list-style-type: none"> • Describe the basic functions of the program 1 mark
	(d)	Rachel is concerned that she might lose all the information on her computer, so she copies all her files onto a DVD-RW. Describe two further actions that should be part of Rachel’s backup strategy.	<ul style="list-style-type: none"> • Backup regularly • Store in a safe place in a different location from the original copy. 1 mark each bullet point, max 2 marks.
			(13)
21.		Horst has recently returned home from hospital where he had a heart monitor fitted. This monitor will measure his heart rate and send the information to his palmtop computer.	
	(a)	Name the type of communication network described above.	<ul style="list-style-type: none"> • WPAN • PAN 1 mark
	(b)	When the heart monitor is communicating with the palmtop computer, the analogue signal from the monitor must be converted into a digital signal that the computer can understand. Name the part of the computer that converts the analogue signal into a digital signal.	<ul style="list-style-type: none"> • Interface • ADC 1 mark
	(c)	If his heart rate gets too high, Horst may need medical treatment. Describe a suitable use for converging technologies in this situation.	<ul style="list-style-type: none"> • Monitor (or palmtop) could use built-in telecommunications to send message to hospital/doctor/ambulance alerting them of situation. 1 mark
	(d)	Horst notices a “signal failure” message on his palmtop. Name the threat to the network that has occurred.	<ul style="list-style-type: none"> • Data transmission failure 1 mark
			(4)

	SECTION III – Multimedia Technology Attempt ALL questions in this section	Marking guidelines
22.	Andrew is a photographer who would like to sell his photographs on the World Wide Web.	
	(a) When Andrew takes a photograph with his digital camera, the light passes through the lens and onto the CCD. Explain the purpose of the CCD in a digital camera.	<ul style="list-style-type: none"> Convert the light into an electrical signal 1 mark
	(b) Andrew produces a plan on paper for the Web page that will display his photographs.	
		
	(i) Name the stage of the software development process which Andrew is carrying out.	<ul style="list-style-type: none"> Design 1 mark
	(ii) Each photograph takes up 29360128 bits of memory. Calculate how many megabytes of memory are equal to 29360128 bits. Show all working.	<ul style="list-style-type: none"> Bits to bytes ($/8$) = 3670016 Bytes to kilobytes ($/1024$) = 3584 Kilobytes to Megabytes ($/1024$) All 3 bullet points – 2 marks Any 2 bullet points – 1 mark < 2 bullet points – 0 marks Accept 3.5 for 2 marks.
	(c) Andrew could either use a WYSIWYG editor or a text editor to create his Web page.	
	(i) Describe how a WYSIWYG editor would be used to create the Web page.	<ul style="list-style-type: none"> Description of using a toolbar or dragging and dropping pictures and text frames to create the Web page. 1 mark
	(ii) Describe how a text editor would be used to create the Web page.	<ul style="list-style-type: none"> Code for Web page would be typed. HTML would be created 1 mark

	<p>(d) Andrew adds a button saved in GIF format to the Web page. He finds that an outline of the button appears.</p>  <p>He alters the graphic of the button so that he is able to see through the graphic to the background.</p> 	
	<p>Name the feature of a GIF graphic which allows the background to be seen.</p>	<ul style="list-style-type: none"> • Transparency <p>1 mark</p>
	<p>(e) Some customers complain that Andrew's Web page is very slow to load over their Internet connection. Describe one alteration Andrew could make to the photographs that would allow faster loading of the Web page.</p>	<ul style="list-style-type: none"> • Reduce the resolution • Reduce the colour depth • Increase degree of compression <p>1 mark</p>
		(8)

23.	DigiPhones is developing a video telephone system that allows users to see and hear the person phoning them.		
	(a)	Apart from a digital video camera, name one other piece of multimedia input hardware the video telephone system would require.	<ul style="list-style-type: none"> • Microphone • Graphics card • Sound card <p>1 mark</p>
	(b)	DigiPhones is unsure whether to use <i>synthesised sound data</i> or <i>digitised sound data</i> when capturing the user's voice.	
	(i)	Explain why "synthesised sound data" would be unsuitable for this purpose.	<ul style="list-style-type: none"> • Synthesised sound would sound unnatural • Voice cannot be stored as part of a MIDI file <p>1 mark</p>
	(ii)	When digitising sound, one of the factors affecting <i>sound quality</i> is the <i>sampling rate</i> . Describe the relationship between the "sampling rate" and the "sound quality".	<ul style="list-style-type: none"> • Increasing the sampling rate increases the sound quality • Decreasing the sampling rate decreases the sound quality <p>1 mark</p>
	(c)	MP3 files use <i>lossy compression</i> to reduce the amount of memory used.	
	(i)	Describe how "lossy compression" reduces the filesize.	<ul style="list-style-type: none"> • Sounds not heard by human ear are not encoded • Sounds drowned out by others are not encoded • Some sounds are recorded in mono • Huffman encoding used <p>1 mark</p>
	(ii)	Name one uncompressed sound file format.	<ul style="list-style-type: none"> • RAW • AIFF • CD-DA (Compact Disc Digital Audio) • WAV • MIDI <p>1 mark</p>

	(d)	When testing the video telephone system, several people complained that the <i>resolution</i> of the video was poor.	
	(i)	Describe what is meant by the term “resolution”.	<ul style="list-style-type: none"> • The number of pixels in a fixed area • The number of pixels on the screen 1 mark
	(ii)	Apart from altering the “resolution”, describe two ways in which the video quality could be improved.	<ul style="list-style-type: none"> • Increase the frame rate • Increase the colour depth • Reduce the degree of compression 1 mark each bullet point to max 2 marks.
	(e)	DigiPhones would like to create a new ringtone.	
	(i)	Describe how DigiPhones could create the music for a new ringtone and store it on the computer without using a microphone.	<ul style="list-style-type: none"> • Play a MIDI instrument connected to the computer • Use MIDI software to play the notes (Just the term MIDI on its own is not enough) 1 mark
	(ii)	The ringtone is tested on the computer and heard through a loudspeaker. Apart from a loudspeaker, what other hardware would be required to output the ringtone?	<ul style="list-style-type: none"> • Sound card 1 mark
	(f)	Name the correct term used to describe a mobile phone that integrates the functionality of a palmtop computer.	<ul style="list-style-type: none"> • SmartPhone 1 mark
			(11)

24.	The image shown below was created using a graphics package.	
		
	<p>(a) Describe two methods you could use to decide if the above graphic was created in a vector graphics package or bit-mapped graphics package.</p>	<ul style="list-style-type: none"> • If it scales without loss of quality (resolution) then in vector. • Each object is editable then vector • Look for a vector file extension <p>Accept similar answers for bit-mapped</p> <ul style="list-style-type: none"> • Each pixel can be edited • If scaled larger then picture will pixelate • Two dimensional array of pixels (no layers) • Look for a bitmap file extension <p>1 mark each bullet point to max 2 marks.</p>
	<p>(b) The graphic was saved using the SVG file type. State what the letters SVG stands for.</p>	<ul style="list-style-type: none"> • Scalable Vector Graphics <p>1 mark</p>
	<p>(c) Describe how a vector graphic file stores information about each object in the graphic.</p>	<ul style="list-style-type: none"> • Stores the attributes of the object • Accept examples of attributes eg shape, position, size, rotation etc. <p>1 mark</p>
	<p>(d) From the graphic shown above, identify one object and one operation that may have been carried out on that object.</p>	<ul style="list-style-type: none"> • Object – 1 mark eg ellipse, rectangle • Operation – 1 mark eg filled with colour <p>2 marks</p>
		(6)

[END OF SECTION III]

[END OF MARKING INSTRUCTIONS]