



2012 Computing

Intermediate 2

Finalised Marking Instructions

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**2012 Computing
Intermediate 2**

	SECTION I Attempt ALL questions in this section	Marking guidelines
1.	Name the part of the processor that temporarily stores data and program instructions.	Registers 1 mark
2.	State one reason why computer systems use binary numbers rather than decimal numbers.	<ul style="list-style-type: none"> • Simple two state system where ON is represented by a 1 and OFF is represented by a 0. • Arithmetic calculations are simpler since there are fewer combinations of 1s and 0s. • It is easier to represent two states physically on backing storage devices. 1 mark (any one)
3.	John's computer is infected by a virus.	
(a)	Describe one way in which a computer virus could be spread.	<ul style="list-style-type: none"> • Via floppy disks • Homemade CDs • 'Fun' websites • E-mail (attachments) • Sharing infected files 1 mark (any one)
(b)	State the law that is broken by deliberately spreading a computer virus.	The Computer Misuse Act 1 mark
4.	State the type of <i>main memory</i> that stores programs and data permanently.	ROM 1 mark
5.	Describe one economic factor that has led to the widespread use of computer networks.	<ul style="list-style-type: none"> • Falling cost of telecommunication technologies and services • Shared access to expensive equipment • Geographical spread of organisations • Demand for up-to-date information 1 mark (any one)
6.	A digital camera has a built-in computer system. Name this type of computer system.	Embedded computer system 1 mark

7.	A scanner is connected to a computer system using an <i>interface</i> . Explain why an interface is required.	<ul style="list-style-type: none"> • Communicate • Analogue to digital (vice-versa) • Buffering • Compensates for differences in <ul style="list-style-type: none"> • Speed • Code • Voltage Between the CPU and the peripheral 1 mark (any one)
8.	A <i>macro</i> is used to carry out a function in an application program. Describe one method of creating a macro.	<ul style="list-style-type: none"> • Record user actions (as a series of mouse clicks/moves and assign actions to keystroke) • Use a scripting language 1 mark (any one)
9.	A program asks the user to enter an eight character password. Name the <i>standard algorithm</i> that a program would use to check the number of characters in a password.	Input validation 1 mark
10.	A program asks the user to enter an address. State the type of variable used to store the name of a city.	String 1 mark
11.	Program code must be <i>readable</i> . Describe one way of improving the readability of a program.	<ul style="list-style-type: none"> • Use of meaningful variable names • Internal commentary • Using indentation • Use of blank lines (white space) • Modular code 1 mark (any one)
12.	State one use of a <i>text editor</i> at the implementation stage of the software development process.	<ul style="list-style-type: none"> • Enter program code • Edit program code • Formatting program code 1 mark (any one)
13	A program written in a <i>high level language</i> must be translated. Describe one benefit to the programmer of using an <i>interpreter</i> rather than a <i>compiler</i> to translate the program code.	Reports mistakes made in the program code as it is being developed. 1 mark
14	New computer software must be documented. State the name of the document that explains the features available in the new software.	User guide 1 mark
		(15)

[END OF SECTION I]

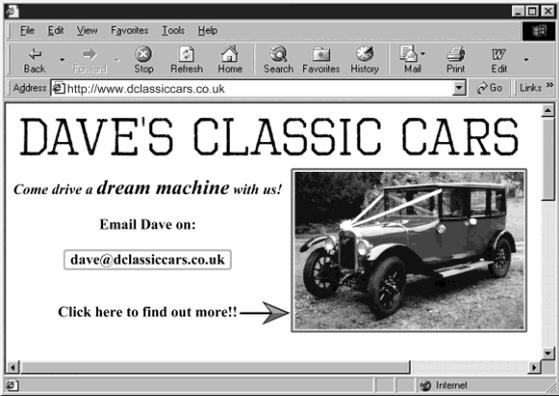
SECTION II Attempt ALL questions in this section		Marking guidelines												
15.	<p>Kirsten wants to buy a new laptop. The specifications of two possible laptops are shown below:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Name</th> <th style="text-align: center;">RACER</th> <th style="text-align: center;">CAM12</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><i>Processor</i></td> <td style="text-align: center;">2.6 GHz</td> <td style="text-align: center;">2.3 GHz</td> </tr> <tr> <td style="text-align: center;"><i>RAM</i></td> <td style="text-align: center;">3 Gb RAM</td> <td style="text-align: center;">2 Gb RAM</td> </tr> <tr> <td style="text-align: center;"><i>Magnetic Drive</i></td> <td style="text-align: center;">500 Gb Hard Drive</td> <td style="text-align: center;">750 Gb Hard Drive</td> </tr> </tbody> </table>	Name	RACER	CAM12	<i>Processor</i>	2.6 GHz	2.3 GHz	<i>RAM</i>	3 Gb RAM	2 Gb RAM	<i>Magnetic Drive</i>	500 Gb Hard Drive	750 Gb Hard Drive	
Name	RACER	CAM12												
<i>Processor</i>	2.6 GHz	2.3 GHz												
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<i>Magnetic Drive</i>	500 Gb Hard Drive	750 Gb Hard Drive												
	(a) The RACER has a 2.6 GHz processor. Explain what is meant by 2.6 GHz.	<p>The clock speed of the processor (ticks/pulses 2.6 billion times per sec).</p> <p>1 mark</p>												
	(b) Kirsten buys the RACER laptop as it has more RAM. Describe one advantage of having more RAM.	<ul style="list-style-type: none"> • More RAM means more data can be stored as Kirsten is working on the laptop. • Kirsten can use memory intensive programs (eg video editing) or data (eg high colour bit depth graphics) etc. <p>1 mark (any one)</p>												
	(c) Kirsten's old laptop has a <i>floppy disk drive</i> . State one reason why modern computers do not have floppy disk drives.	<ul style="list-style-type: none"> • Low storage capacity • Slower data transfer times • Comparison to other drives, eg flash drives, etc, store more data <p>1 mark (any one)</p>												
	(d) Kirsten buys an <i>optical drive</i> for the laptop. State a suitable optical disk that she could use with this drive to save and delete data.	<ul style="list-style-type: none"> • CD-RW • DVD-RW • DVD-RAM <p>1 mark</p>												
	(e) Kirsten buys a printer to attach to her new laptop. She decides to buy a <i>laser printer</i> rather than an <i>inkjet printer</i> . State one reason why she has chosen the laser printer.	<ul style="list-style-type: none"> • Fast printing speeds • Dry print outs • Larger capacity paper trays • Cheaper running costs <p>1 mark (any one)</p>												
	(f) The laptop uses a <i>character set</i> . Explain what is meant by a character set.	<p>The list of characters a laptop/device recognises (list of characters on own not enough for mark).</p> <p>1 mark</p>												

	(g)	The laptop is installed with an <i>operating system</i> . State one function of an operating system.	<ul style="list-style-type: none"> • File management • Memory management • Error reporting • Controlling peripherals • HCI (GUI) <p>1 mark (any one)</p>
	(h)	Kirsten uses her laptop to create a letter to send to her insurance company. She saves the letter using a <i>standard file format</i> .	
	(i)	State the standard file format that keeps the formatting of the letter.	Rich Text Format (RTF) 1 mark
	(ii)	The finished letter requires 32 Kb of storage. Convert this file size into bytes .	$32 \times 1024 = 32\,768$ 1 mark
	(iii)	A laptop is a type of portable computer system. Name one other type of portable computer.	<ul style="list-style-type: none"> • Palmtop • PDA • Smartphone • Tablet <p>1 mark (any one)</p>
			(10)
16.		An international language school uses a <i>mainframe computer system</i> to process candidates' exam results from 50 different countries. A program is being created to analyse these results.	
	(a)	State two reasons why the language school uses a mainframe computer system to run the program.	<ul style="list-style-type: none"> • Mainframes can store large quantities of data • Mainframes have high speed data processing • Mainframes can multitask • Multi-Access <p>1 mark each (any two)</p>
	(b)	State the <i>standard algorithm</i> the program should use to find the country that has the lowest number of candidates sitting exams.	Finding the minimum 1 mark
	(c)	The number of candidates for each of the 50 countries needs to be stored. State the data structure required.	(One dimensional) array 1 mark

	<p>(d) One of the program's tasks is to calculate the total number of candidates for all 50 countries. Part of the design is shown below:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <ol style="list-style-type: none"> 1. Set overall total to zero 2. 3. get country total 4. add country total to overall total 5. end loop 6. display overall total </div> <p>Complete step 2 of the design.</p>	<ul style="list-style-type: none"> • Loop 50 times • For 50 countries do <p>1 mark (any one)</p>
	<p>(e) The candidate's date of birth is printed on their exam certificate. The program checks that the date of birth is valid.</p> <p style="padding-left: 40px;">Date of birth: day/month/year Example: 10/06/1994</p> <p>Part of the design used to validate the month input is shown below:</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <ol style="list-style-type: none"> 2.1 get month 2.2 if _____ then 2.3 display error message 2.4 end if </div>	
	<p>(i) Complete step 2.2 of the design above.</p>	<ul style="list-style-type: none"> • month<1 OR month>12 • month<=0 OR month>=13 <p>2 marks (1 mark for correct month condition, 1 mark for operator)</p>
	<p>(ii) This part of the design needs to be repeated until correct. State the type of loop required.</p>	<p>Conditional (do not accept programming syntax such as Repeat, While etc)</p> <p>1 mark</p>

	(f)	The following test data is used to check the month of the candidate's date of birth: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td><i>Normal</i></td> <td>06</td> </tr> <tr> <td><i>Extreme</i></td> <td></td> </tr> <tr> <td><i>Exceptional</i></td> <td>13</td> </tr> </table>	<i>Normal</i>	06	<i>Extreme</i>		<i>Exceptional</i>	13	
<i>Normal</i>	06								
<i>Extreme</i>									
<i>Exceptional</i>	13								
	(i)	What could be the missing input for extreme data?	1, 01, 12 1 mark (any one)						
	(ii)	Explain the importance of thoroughly testing a program.	<ul style="list-style-type: none"> To ensure the software contains no errors when distributed. Fit for purpose. 1 mark						
17.		<p>Dave owns a company called Classic Cars. He decides to employ a software developer to create a program to help him process data. The following design has been created:</p> <pre> graph TD A[Process Customer Data] --- B[Input and store customer data] A --- C[Calculate customer bills] A --- D[Output customer bills] </pre>	10						
	(a)	State the <i>graphical design notation</i> used above.	Structure diagram/Chart 1 mark						
	(b)	State the stage of the software development process that involves creating the program code.	Implementation 1 mark						
	(c)	The software developer decides to use a <i>high level language</i> to create the program. State two reasons why a high level language is used rather than <i>machine code</i> :	<ul style="list-style-type: none"> HLLs are written in English like terms Easier to understand Easier to edit Easier to find errors HLLs are problem orientated (not machine) HLLs are portable 1 mark each (any two)						

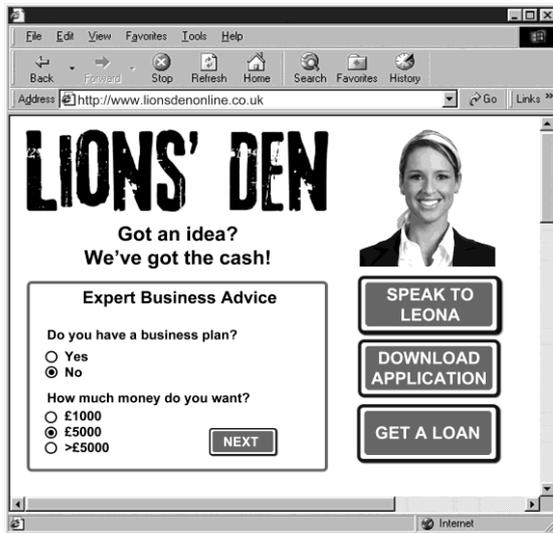
	(d) The software developer uses <i>pre-defined functions</i> within the program. Explain one benefit to the software developer of using pre-defined functions.	<ul style="list-style-type: none"> • Saves time to write the code for the function • Can be used many times in different programs • Saves time during testing as pre-tested • Saves design time as already designed <p>1 mark (any one)</p>
	(e) The software developer creates <i>readable</i> program code. State one reason why readable code helps future maintenance.	<ul style="list-style-type: none"> • Program will be easier to understand • Program will be easier to change later • Original programmer may not be available when changing the code <p>1 mark (any one linking to “maintenance”)</p>
	(f) The program is now complete and fully tested. State one reason why it is important to produce a <i>technical guide</i> .	<ul style="list-style-type: none"> • User needs to know how to install program properly or it won't run • User may encounter problems and won't know how to fix them • User's computer may not be compatible with program and hence can't be installed <p>1 mark (any one)</p>
		10

	(g)	<p>Dave decides to advertise his company using a website:</p> 	
	(i)	<p>When a user clicks on the graphic of the car, another page on Dave's website is shown. Name this navigation feature.</p>	<ul style="list-style-type: none"> • Hyperlink • Hotspot <p>1 mark (any one)</p>
	(ii)	<p>Dave adds a video clip to the website. State why high <i>bandwidth</i> is recommended for viewing this video clip.</p>	<ul style="list-style-type: none"> • Video files tend to be large and streaming or downloading video data requires a high bit rate. • Run more smoothly (not jerky) • No buffering <p>1 mark</p>
	(iii)	<p>Apart from cost, state one advantage to Dave of using <i>e-mail</i> to communicate with customers.</p>	<ul style="list-style-type: none"> • Available 24/7 for sending and receiving mail • He can set up mailing lists • He can send attachments • Faster communication method compared to snail mail etc <p>1 mark (any one)</p>
			(30)

[END OF SECTION II]

SECTION III		Marking guidelines
Part A – Artificial Intelligence		
Attempt ALL questions in this section.		
18.	DomesticDiva is an intelligent robot that has been programmed to clean floors.	
(a)	DomesticDiva has been fitted with sensors so that it can move about the house without bumping into the furniture. Name two sensors that would help the robot detect the furniture.	<ul style="list-style-type: none"> • Touch/proximity/pressure • Infrared • Magnetic • Light • Sonar • Vision (camera) <p>2 marks (any two)</p>
(b)	DomesticDiva responds to spoken commands such as START, STOP and CLEAN.	
(i)	State the area of artificial intelligence that is being used by the robot to understand spoken commands.	<ul style="list-style-type: none"> • Speech recognition • Language/voice recognition <p>1 mark</p>
(ii)	State two factors that may make communication with the robot difficult.	<ul style="list-style-type: none"> • Background noise • Sore throat/cold • Slang words • Regional/foreign accents • Speaking quickly <p>2 marks (any two)</p>
(c)	DomesticDiva uses artificial intelligence to understand the layout of the house from photographs. State the area of artificial intelligence that is being used for this task.	<ul style="list-style-type: none"> • Computer Vision • Vision systems <p>1 mark</p>
(d)	State one development in hardware, other than faster processors, that has made progress in the field of artificial intelligence research possible.	<ul style="list-style-type: none"> • More memory (RAM) • Increased backing storage capacity <p>1 mark (any one)</p>
		(7)

19. The TV favourite Lions' Den has launched a website to help people get cash investment for their business ideas.



(a) An expert system can be accessed from the website.

(i) Explain what is meant by an "expert system".

A computer program that mimics the advice of a human expert.

1 mark

(ii) State **two** advantages of using the expert system rather than consulting a human expert.

- Expertise always available
- Reduced wage bill
- Combines expertise of several experts
- Less chance of errors

2 marks (any two)

(b) A natural language program called 'Leona' is used to answer simple questions. Leona simulates conversation with a human. Name this type of natural language processing application.

Chatterbot

1 mark

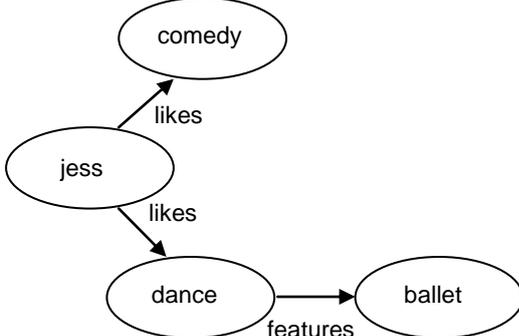
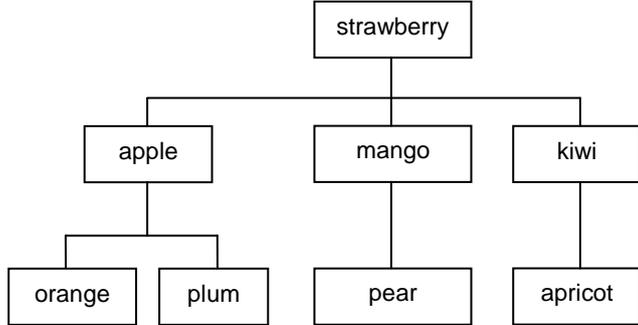
(c) A user downloads an application form to a palmtop computer system. State **one** input device that could be used to complete the application form.

- Touchscreen
- Microphone
- Keyboard

1 mark (any one)

	(d)	Business users can apply online for loans. An <i>artificial neural system</i> is used to assess the risk of giving loans.	
	(i)	Explain what is meant by an artificial neural system.	Electronic model of the human brain (consisting of many interconnected processors). 1 mark
	(ii)	Describe one disadvantage of using an artificial neural system for this task.	<ul style="list-style-type: none"> • Setting up of an artificial neural system is very time-consuming and requires a lot of technical expertise. • An artificial neural system cannot explain the reasoning behind how it made its prediction or decision. 1 mark (any one)
			(7)

20.	The Royal Theatre in Newtown is organising a weekend of special events. It uses a knowledge base to store facts and rules about events and tickets. Part of the knowledge base is shown below:		
	1	showing_on(opera,saturday). <i>(Opera is showing on Saturday)</i>	
	2	showing_on(dance,saturday).	
	3	showing_on(storytelling,sunday). <i>(Dance costs £3)</i>	
	4	costs(dance,3).	
	5	costs(opera7).	
	6	costs(storytelling4). <i>(Dance is suitable for adults)</i>	
	7	suitable_for(dance,adults).	
	8	suitable_for(opera,adults).	
	9	suitable_for(storytelling,children). <i>(X is a family show if X is suitable for children)</i>	
	10	family_show(X) if suitable_for(X,children). <i>(Get a free ticket for X if X costs Y and Y is greater than £5)</i>	
	11	get_free_ticket(X) if costs(X,Y),Y>5.	
	(a)	(i) State the result of the following query: ?showing_on(dance,sunday).	<ul style="list-style-type: none"> • No • False 1 mark (accept one)
		(ii) State the result of the following query: ?family_show(X).	<ul style="list-style-type: none"> • X=storytelling • storytelling 1 mark (accept one)
	(b)	Using the numbering system to help you, <i>trace</i> how the system will evaluate the query: ?get_free_ticket(X).	as far as the first solution. Match at line 11 Subgoal 1 costs(X,Y) Match at line 4 X = dance, Y = 3 1 mark Subgoal 2 costs(3>5) Subgoal fails 1 mark Backtrack to subgoal costs(X,Y) Match at line 5 X = opera, Y = 7 1 mark Subgoal 2 costs(7>5) Subgoal succeeds X=opera 1 mark 4 marks

(c)	One way of representing information before creating a knowledge base is by using a <i>semantic net</i> .	
	<p>(i) Draw a semantic net to represent the facts:</p> <p>likes(jess,comedy) likes(jess,dance) features(dance,ballet)</p>	<ul style="list-style-type: none"> • 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 predicates.  <p>3 marks</p>
	(ii) Name the stage of the software development process at which a semantic net will be drawn.	Design 1 mark
	<p>(d) The following search tree illustrates a search through a knowledge base.</p> 	
	<p>The solution to the problem is pear. The nodes are visited in the following order:</p> <p>strawberry/apple/mango/kiwi/orange/plum/pear</p> <p>State the type of search that has been used here.</p>	Breadth-first search 1 mark
		(11)

SECTION III		Marking guidelines
Part B – Computer Networking		
Attempt ALL questions in this section.		
21.	The BST bank uses the Internet to advertise, sell financial services and communicate with customers. By using the Internet the bank has saved money on staffing and other costs.	
(a)	Apart from costs, state two other advantages to the bank of using the Internet for these purposes.	<ul style="list-style-type: none"> • Services can be available 24/7 • Has a worldwide customer base so potential for new customers • Faster communication with customers • Information can be updated quickly <p>2 marks (any two, not “customer benefits”)</p>
(b)	Bank customers can download an application program from the bank’s website to view balances on their mobile phone. State the Internet service that is used to download the application program.	File Transfer Protocol (ftp) 1 mark
(c)	Mobile phones use <i>WAP</i> technology and <i>microbrowsers</i> .	
(i)	What is a microbrowser?	A browser that is used on small screens of mobile devices. 1 mark
(ii)	State one reason why mobile phones use microbrowsers.	<ul style="list-style-type: none"> • They have small file sizes which match the small memory sizes of mobile phones. • Web-pages can be displayed on smaller screens. <p>1 mark</p>
(d)	The bank upgrades the website to allow customers to transfer money between accounts. Name the stage of the software development process being carried out.	Maintenance 1 mark
(e)	The bank’s website has a help page. Customers use the following URL to access this help page: <u>http://www.bstbank.co.uk/help</u>	
(i)	Name the <i>protocol</i> used by this URL.	<ul style="list-style-type: none"> • Hypertext Transfer Protocol (HTTP) <p>1 mark</p>

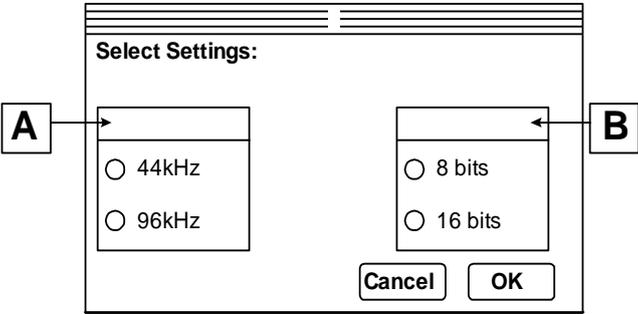
		(ii)	Describe how the <i>Domain Name Service (DNS)</i> would find this URL on the Internet.	The appropriate server is found (1 mark) and translates the domain name into an IP address (1 mark) 2 marks
		(iii)	State one limitation of using <i>domain names</i> across the Internet.	Running out of domain names. 1 mark
				(10)

22.	The McTavish family connects their three computer systems and a printer wirelessly within their home.	
	(a) Name this type of network.	Wireless LAN 1 mark
	(b) State one additional hardware requirement for setting up this network.	<ul style="list-style-type: none"> • Wireless Network Interface Card (WNIC) • Receiver • Transmitter • Wireless router 1 mark (any one)
	(c) State one advantage of using a wireless connection compared to a cabled connection.	<ul style="list-style-type: none"> • allows portable devices to be used and hence connection can be accessed around the family home • less cabling is required therefore less likely to trip over cables 1 mark (any one)
	(d) They now decide to connect their three computers to the Internet. State one reason why they need an ISP.	<ul style="list-style-type: none"> • allows connection to the Internet • provides e-mail addresses for the family • provides appropriate hardware and software 1 mark (any one)
	(e) The family access the Internet to stream video. State the type of Internet connection required for this task.	Broadband 1 mark
	(f) Describe one software security feature the parents could use to prevent the children accessing inappropriate content on the Internet.	Set up a firewall (filtering software) to filter inappropriate websites and/or keywords. 1 mark (must be description not responses like “use parental controls”)
	(g) Explain what the parents should do to avoid accidentally downloading computer <i>viruses</i> from the Internet.	<ul style="list-style-type: none"> • Use anti-virus software • Don't open unknown e-mails or attachments • Don't respond to unknown pop-ups 1 mark (any one)
		(7)

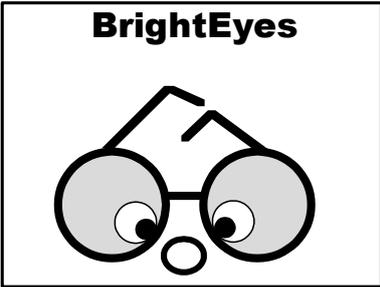
23.	A data transmission company installs and sells Internet connections.		
	(a)	State two reasons why there is no longer a demand for the company to supply and install <i>dial up modems</i> .	<ul style="list-style-type: none"> • Download and upload speeds are too slow • One phone line cannot be used for both Internet and phone use • Low Bandwidth <p>1 mark each (any two)</p>
	(b)	The police are interested in purchasing a fast, secure and dedicated connection to the Internet.	
		(i) State the type of connection the company should recommend to the police.	Leased line 1 mark
		(ii) State two types of network threats that could lead to failure of the police computer network.	<ul style="list-style-type: none"> • Threats to hardware – (routers, hubs, switches, cables fail etc) • Threats to software – (firewalls fail, communication software crashes, network management tools unavailable etc) • Denial of service attacks • Physical disasters (fire, flood etc) • Viruses • Hackers <p>1 mark each (any two)</p>
	(c)	The company also sells <i>encryption</i> software. Explain what happens when data is encrypted.	Data is changed into a code 1 mark
	(d)	The company is investing in televisions that allow multi-user gaming across the Internet.	
		(i) State one other task this type of television could perform to suggest it is an appliance that uses <i>converging technologies</i> .	<ul style="list-style-type: none"> • Rent on-line movies or sporting events'channels • Buy goods • Surf the Internet <p>1 mark (any one)</p>
		(ii) State one other example of an appliance that uses converging technologies in the home.	<ul style="list-style-type: none"> • Smart fridges • CCTV or alarm systems • Remote heating • Remote water sprinklers for the garden • Internet access on TV <p>1 mark (any one)</p>
			(8)

SECTION III Part C – Multimedia Technology Attempt ALL questions in this section.		Marking guidelines
24.	Nihal is creating a website for a local cycling shop to advertise mountain bikes for sale and cycling skills courses.	
(a)	Nihal discusses the requirements of the website with the manager of the cycling shop. Name the stage of the software development process that Nihal is carrying out.	Analysis 1 mark
(b)	Nihal takes photographs for the website using his digital camera.	
(i)	The digital camera makes use of a CCD. Describe the function of a CCD in a digital camera.	The CCD (charged coupled device) uses sensors to capture light coming in through a lens and then converts it. 1 mark
(ii)	Each photograph has a file size of 2.4 Mb. The digital camera memory card has a capacity of 2 Gb. Calculate how many images can be stored on the memory card. Show all working.	<ul style="list-style-type: none"> • 2 gigabytes = 2048 megabytes (1 mark) • $2048/2.4 = 853$ photographs (1 mark) 2 marks
(iii)	Nihal edits Photograph A to produce Photograph B as shown below. State which feature of the image editing software Nihal has used.	
	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>Photograph A</p>  </div> <div style="text-align: center;"> <p>Photograph B</p>  </div> </div>	<ul style="list-style-type: none"> • Alter brightness • Alter contrast 1 mark (any one)
(iv)	Nihal's photographs are saved as JPEG files. JPEG files use <i>lossy compression</i> . Explain what is meant by lossy compression.	<ul style="list-style-type: none"> • Pixels are removed from the picture • Cuts out parts of the graphic that won't be noticed by the human eye. 1 mark (any one)

	(c)	Nihal is advised to use a <i>WYSIWYG editor</i> to create the website.	
	(i)	Describe how a WYSIWYG editor would be used to create his website.	Description of using a toolbar or dragging and dropping pictures and text frames to create webpages. 1 mark
	(ii)	Name one other method that could be used to create the website.	<ul style="list-style-type: none"> • HTML code • Text editor 1 mark (any one)
	(d)	Nihal records a video on bike maintenance for the website. He saves the video file and then uploads it to the website for viewing.	
	(i)	State the most appropriate item of hardware that is used to capture video.	<ul style="list-style-type: none"> • Digital video camera • Digital Camera 1 mark
	(ii)	State one file type that could be used to store the video.	<ul style="list-style-type: none"> • AVI • MPEG • WMV 1 mark (any one)
	(iii)	The video is very jerky when it is played. Explain how Nihal could alter the settings in the video recording software to ensure that the video is not jerky.	<ul style="list-style-type: none"> • Increase the frame rate 1 mark
			(11)

25.	Homes4U has a multimedia DVD to advertise its luxurious flats.		
	(a)	The background music for the DVD was recorded using a microphone. The recording software allows the settings to be altered.	
			
	(i)	State the name of the setting for A.	Sampling frequency/rate 1 mark
	(ii)	State the name of the setting for B.	Sampling resolution/depth 1 mark
	(iii)	State which <i>standard file format</i> for digitised sound would give the best quality sound with the smallest file size.	<ul style="list-style-type: none"> • MP3 • MP4 1 mark (any one)
	(iv)	Instead of recording sound with a microphone, the sound could have been synthesised.	
		(A) Describe one way of creating sound in this way.	<ul style="list-style-type: none"> • Playing music on a MIDI keyboard • Using a MIDI software program to create the music 1 mark (any one)
		(B) State the file format that would be used to store the information from the synthesised music.	MIDI 1 mark

	(b)	The DVD includes a virtual reality guide to the luxurious flats.	
	(i)	Explain the benefit of using virtual reality rather than a slideshow of images to advertise the flats.	User can journey through the flat and interact with a computer generated three-dimensional multimedia world. (1 mark)
	(ii)	State one specialised input device that could be used with this virtual reality application.	<ul style="list-style-type: none"> • Data gloves • Data suits • Virtual reality headset 1 mark (any one)
	(c)	Multimedia files can be run as executable files. State one other way that you can run multimedia files on a computer system.	<ul style="list-style-type: none"> • Browser • File player • Viewer 1 mark (any one)
			(8)

26.	<p>A <i>vector graphics package</i> was used to create a company logo for a local optician.</p> <div style="text-align: center;">  </div>	
(a)	<p>Name two attributes of the circle objects used in the logo.</p>	<ul style="list-style-type: none"> • Centre • Radius • Line colour • Line thickness • Fill colour • Layer <p>2 marks (any two)</p>
(b)	<p>Name one file type used to store graphics in vector format.</p>	<ul style="list-style-type: none"> • SVG • VRML/WRL <p>1 mark (any one)</p>
(c)	<p>Describe two advantages of a vector graphic over a bit mapped graphic.</p>	<ul style="list-style-type: none"> • Redrawn to any scale without loss of quality – resolution independence • Each object is editable • Objects can be grouped • Objects can be overlapped without destroying the object underneath • Smaller file size than bitmapped graphics which store every pixel <p>2 marks (any two)</p>
(d)	<p>The logo is displayed on a large monitor in the optician's window. State the item of hardware that is required to display graphics on the monitor.</p>	<ul style="list-style-type: none"> • Graphics Card • Graphics Adaptor Card • Video Card <p>1 mark (any one)</p>
		(6)

[END OF SECTION III]

[END OF MARKING INSTRUCTIONS]