Specimen

This document has **12** pages. Blank pages are indicated.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1: Marks must be awarded in line with: • the specific content of the mark scheme or the generic level descriptors for the question • the specific skills defined in the mark scheme or in the generic level descriptors for the question • the standard of response required by a candidate as exemplified by the standardisation scripts.
GENERIC MARKING PRINCIPLE 2: Marks awarded are always **whole marks** (not half marks, or other fractions).
GENERIC MARKING PRINCIPLE 3: Marks must be awarded **positively**: • marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate • marks are awarded when candidates clearly demonstrate what they know and can do • marks are not deducted for errors • marks are not deducted for omissions • answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.
GENERIC MARKING PRINCIPLE 4: Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.
GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks
1(a)	Award 1 mark for correct statement ticked. | A disadvantage of coding data is that it makes the data very difficult to read and understand	
An advantage of coding data is that it saves storage space	✓
A disadvantage of coding data is that it becomes much slower to type in the data	
An advantage of coding data is that codes are never complicated			**1**
1(b)	Award 1 mark for correct statement ticked. | Encoding data is a form of validation	
Text and numbers are the only data types that can be encoded	
Converting digital data to analogue data is a form of encoding data	✓
Encoding is done to deliberately conceal the content of the data			**1**
1(c)	Award 1 mark for correct statement ticked. | Encrypting data prevents hackers from intercepting it	
Encryption is the conversion of data into a form that cannot be easily understood by unauthorised users	✓
The two main types of encryption are known as public key encryption and open encryption	
Decryption is the process of further converting encrypted data into another more complicated encrypted form			**1**

Question	Answer	Marks
2(a)	Award 1 mark for each correct answer up to a maximum of 2. **Two** from: Data usually refers to raw data/unprocessed data Information is data that has been processed in such a way as to be meaningful … … to the person who receives it Information is data that has structure and context	**2**

Question	Answer	Marks
2(b)	Award 1 mark for each correct answer, up to a maximum of 3. Award 1 mark for one appropriate example, such as a CD-ROM contains static data. **Three** correct answers from: Data that do not change It can be read without being written back to a file/not changed when written back Limited amount of information in a static information source ... ... because as soon as it is created it is difficult to have information added to it Static data tends to go out of date quickly	**4**

Question	Answer	Marks
3(a)	Award 1 mark for each correct answer up to a maximum of 3. **Three** from: Application software is a set of one or more programs designed to carry out operations for a specific application … … other than system maintenance functions Types of application software include spreadsheet, database, DTP, word processing software (must have at least two)	**3**
3(b)	Award 1 mark for each correct answer up to a maximum of 3. **Three** from: System software refers to the operating system and all utility programs that manage computer resources System software includes BIOS, compilers, interpreters, system utilities (must have two) System software is a type of computer program that is designed to run a computer's hardware and application programs System software is the interface between the hardware and user applications	**3**

Question	Answer	Marks
4	Award 1 mark for each correct answer up to a maximum of 3. **Three** from: Provides an interface that does not need the support of a device Gesture interfaces accept input in a form of hand gestures It is a virtual world to which the user is connected digitally Can point a finger at the computer screen so that the cursor will move accordingly	**3**

Question	Answer		Marks
5(a)	Award 1 mark for one correct explanation. Award 1 mark for one correct example. **One** explanation from: A cell reference identifies the cell that is being referred to A cell reference consists of the column letter and row number that intersect at the cell's location For example cell C1 is in column C and in row 1		**2**
5(b)	Award 1 mark for each correct answer up to a maximum of 4. **Four** from: A formula is a statement written by the user to perform a calculation Formulae can be as simple or as complex as the user wants A function is also a formula but it is predefined/comes with the spreadsheet software Instead of having to accurately type out the details of the formula, the function acts as a shortcut to carry it out Allow up to 1 mark for an example from the spreadsheet. For example =SUM is a function whereas =C2*D2 is a formula		**4**
5(c)	**=CONCATENATE**(A2," ",B2)		**4**
	CONCATENATE()	1	
	(A2,	1	
	" "	1	
	,B2)	1	
5(d)	Award 1 mark for each correct answer up to a maximum of 4. **Four** from: Use conditional formatting Highlight E2 to E5 Select conditional formatting Select 'greater than' Type in 500 Select colour of font/background		**4**
5(e)	Award 1 mark for each correct answer up to a maximum of 3. **Three** from: Absolute cell referencing is used when formulae are replicated It is used to keep cell references constant as they are replicated If it was used in column E the weekly wage for every worker would remain the same Here the wage needs to be calculated separately for each worker and the values do need to change		**3**

Question	Answer	Marks
5(f)	Award 1 mark for each correct answer up to a maximum of 3. **Three** from: If the plane crashed in real life the pilot might die whereas nothing would happen to him/her in a simulator If the plane crashed in real life the plane would cost a lot to replace whereas nothing would happen to the simulator Extreme weather conditions can be made to order in a simulator but you might have to wait a long time for them to happen in real life The cost of running a simulator is cheaper than the cost of fuel in a real plane	**3**

Question	Answer	Marks
6(a)	Award 1 mark for naming the validation check. Lookup check Award 1 mark for each correct answer up to a maximum of 3. **Three** from: A table of the models would be stored Data are entered into a cell with the rule Data are compared to entries in the table If data match an entry the data are allowed/If data entered do not match any of the entries in the table the data are rejected	**4**
6(b)	Award 1 mark for each correct answer up to a maximum of 4. **Four** from: Rule could be that price must match model number If the model number is 1273C3 price must be $300 If the model number is 1273C6 price must be $400 If the model number is 1275C3 price must be $350 If the model number is 1275C6 price must be $450 If the model number is 1278C3 price must be $500 If the model number is 1278C6 price must be $600 Rule could be that memory must match model number If model number ends in 3 memory must be 32 If model number ends in 6 memory must be 64	**4**

Question	Answer	Marks
6(c)	<table><tr><td>Model</td><td>Price ($)</td><td>Memory (GB)</td><td>1 mark for 3 fully correct headings</td></tr><tr><td>1273C3</td><td>300</td><td>32</td><td rowspan="6">3 marks for 6 fully correct records 2 marks for 4 or 5 fully correct records 1 mark for 2 or 3 fully correct records Only consider a record to be fully correct if it is not duplicated.</td></tr><tr><td>1273C6</td><td>400</td><td>64</td></tr><tr><td>1275C3</td><td>350</td><td>32</td></tr><tr><td>1275C6</td><td>450</td><td>64</td></tr><tr><td>1278C3</td><td>500</td><td>32</td></tr><tr><td>1278C6</td><td>600</td><td>64</td></tr></table>	4
6(d)	Award 1 mark for each correct answer up to a maximum of 2. **Two** from: Data are not repeated/no redundant data improving data integrity and reducing errors Data are not repeated/no redundant data saving storage space Reinforces referential integrity	2
6(e)	A pie chart shows percentage values of the whole as slices of a pie called sectors – 1 mark A line chart is a two-dimensional scatter diagram of values where the values are connected in an order, usually over time – 1 mark **Four** from: A line chart could be effective as it could show the trends of sales over the year With a line chart, you would be able to plot the sales of all the models in one graph making it easier to compare the sales trends for each model With a line chart, you could extend the same chart to show the sales for a number of years A pie chart would only show the total sales for the whole year so could not be used to show trends of sales during the year A pie chart would make it easier to compare the total sales of each model for a given year based on the relative size of each sector	6

Question	Answer	Marks
7(a)	Award 1 mark for each correct answer up to a maximum of 2. **Two** from: Use a word processor (to produce a newsletter) Use a desktop publishing package (to produce a newsletter) Use a web authoring package (to produce web pages to show the events) Use presentation software (to produce a slide show to show the events)	2

Question	Answer	Marks
7(b)	Award 1 mark for each correct answer up to a maximum of 6. To gain full marks answers must contain at least two similarities and two differences. Only the **two** software types named in **7(a)** can be compared. **Six** from: ***Word processor (WP) versus desktop publishing package (DTP)*** *Similarities* DTP software and WP software can both be used to manipulate text and graphics DTP software and WP software can both be used to create and format tables Both often provide spelling and grammar checkers and a thesaurus *Differences* DTP software includes the key elements involved in producing these products ... ... such as typesetting, page layout and graphic design DTP software is a little more difficult to use than regular word processing software because there are so many different options to consider DTP is used by graphic designers Arrangement of the text on the word processing page is largely linear Word processing has few options to set text precisely where the user wants DTP packages have a wider selection of import and output options for various forms of content DTP packages are better able to combine text and graphics in a single document ***Presentation versus DTP/WP*** *Similarities* Presentation software and DTP/WP software can both be used to manipulate text and graphics Presentation software and DTP/WP software can both be used to create and format tables Presentation software and DTP/WP software often provide spelling and grammar checkers and a thesaurus *Differences* You can use video/animations in presentations You can have sound in presentations Ink/paper is more expensive than slideshow presentation (if the slides are not printed) Presentation easier/less costly to update (if the slides are not printed) Cannot be sure everybody would see presentation/can deliver newsletter to every home/might have presentation at an inconvenient time for some parents Producing presentation would take longer than producing a DTP/WP document	6

Question	Answer	Marks
7(b)	***Web pages versus DTP/WP*** *Similarities* Web authoring software and DTP/WP software can be used to manipulate text and graphics Web authoring and DTP/WP software can be used to create and format tables Web authoring and DTP/WP software often provide spelling and grammar checkers and a thesaurus *Differences* You can use video/animations in web pages You can have sound on web pages Ink/paper is more expensive than web pages Web pages easier/less costly to update Cannot be sure everybody would see website/can deliver newsletter to every home Producing web pages would take longer than producing a DTP/WP document You have to pay for an ISP You may have to pay extra to host a website ***Web pages versus presentation*** *Similarities* Web authoring software and presentation software can both be used to manipulate text and graphics Web authoring software and presentation software can both be used to create and format tables Web authoring software and presentation software can both be used to include video/animations Web authoring software and presentation software can both be used to include sound Both often provide spelling and grammar checkers and a thesaurus *Differences* With presentation can know exactly which parents have been informed With web pages have to pay for an ISP You may have to pay extra to host a website Less information on a slide than a web page With web pages parents can respond interactively Fewer skills needed to produce a presentation	

Question	Answer	Marks
8(a)	Award a maximum of 2 marks per answer up to a maximum of three types of malware. A **Trojan Horse** is generally a non-self-replicating program containing malicious code that, when executed, carries out actions, typically causing loss of data Malicious programs are classified as Trojans if they do not attempt to inject themselves into other files ... ... or otherwise propagate themselves A **worm** is a computer program that replicates itself in order to spread to other computers It uses a computer network to spread itself Unlike a computer virus, it does not need to attach itself to an existing program **Spyware** is software that aids in gathering information about a person or organisation without their knowledge It may send such information to another entity without the consumer's consent, asserts control over a computer without the consumer's knowledge It detects key presses of the computer user **Adware** is a form of spyware that collects information about the user in order to display advertisements in the web browser Some applications that contain adware track the user's internet surfing habits in order to serve ads related to them A **rootkit** is a type of software designed to hide the fact that an operating system has been compromised ... … sometimes by replacing vital executables Rootkits allow viruses and malware to 'hide in plain sight' by disguising as necessary files that anti-virus software will overlook Rootkits themselves are not harmful – they are simply used to hide malware, bots and worms **Malicious bots** are self-propagating malware designed to infect a host and connect back to a central server or servers The servers act as a command and control (C&C) centre for an entire network of compromised devices Hackers can launch flood-type attacks against their target(s) In addition to the worm-like ability to self-propagate, bots can act as spyware **Ransomware** is a type of malware which restricts access to the computer system that it infects It demands a ransom paid to the creator(s) of the malware in order for the restriction to be removed Some forms of ransomware encrypt files on the system's hard drive	6

Question	Answer	Marks
8(b)	Award 1 mark for each correct answer up to a maximum of 8. 1 mark can be awarded for a reasoned conclusion. *Reasons why people use the internet, e.g.:* Individuals send emails to communicate with others to gain a reply speedily Social networking to share news with several friends and family members simultaneously Communication between companies using IM, VOIP and web/audio/video-conferencing because it may be cheaper than organising face-to-face meetings News services – to find the latest news or sports scores immediately *Reasons why people do not use the internet, e.g.:* Some may be reluctant to send emails because of malware, speed of reply, impersonal nature People may not want their children to use the internet ... ... because of eSafety ... ... because children could become addicted and not do their school work Those that do not use the internet may be people and regions that do not have access to aspects of modern technology or those that have restricted access such as ... ... people who live in rural areas/people who are uneducated/people who are poor/people who are older who do not wish to learn how to use it Some people might prefer face-to-face contact rather than impersonal communication methods Some people may be unable to use the internet because they have lower-performance computers … … lower-speed wireless connections … … lower-priced connections such as dial-up … … limited access to subscription-based content Smaller, traditional companies may be reluctant because of cost/security issues Many people prefer to read hard copies of newspapers as they can take a newspaper with them and read it anywhere	8
8(c)	Award 1 mark for each correct answer up to a maximum of 6. **Six** from: The internet is an international network of networks of computers The internet consists of hardware The World Wide Web makes use of hypertext to access the various forms of information available on the internet The World Wide Web is the system used to access the internet The World Wide Web is accessed through browsers The World Wide Web is not the only service provided on the internet Other services provided by the internet include email, video-conferencing services and instant messaging Other services provided by the internet include VOIP, video streaming and file transfer	6

Question	Answer	Marks
9	Award 1 mark for each correct answer up to a maximum of 4. **Four** from: The compiler's conversion is made just once and after that the same binary code can be distributed to the user's machines where it can be executed without further translation thereby saving time compared to an interpreted program Whereas an interpreted program is distributed as source code so it needs to be translated in each final machine, which takes more time than using compiled code … … however this does make the program distribution independent of the machine's architecture whereas the compiled version will only run on machines with a specific processor's architecture, thus making it less portable than interpreted code Compiled object code makes it easier to protect intellectual property as the machine code is difficult to understand whereas interpreted code can easily be read and copied by humans It generally takes longer to run a program under an interpreter than to run the compiled code because the interpreter must analyse each statement in the program each time it is executed … … but it can take less time to interpret it than the total time required to compile and run it Compiler generates the error report after the translation of the entire page while an interpreter will stop the translation after it gets the first error making it easier to debug An interpreter uses less memory as source code only has to be present one line at a time in memory whereas with a compiler all the execution code needs to be loaded into memory	4