

2005 Computing

Intermediate 2 – Old Arrangements

Finalised Marking Instructions

These Marking Instructions have been prepared by Examination Teams for use by SQA Appointed Markers when marking External Course Assessments.

**2005 Computing
Intermediate 2**

SECTION I		Marking guidelines
Attempt ALL questions in this section		
1.	A computer system can be represented by the diagram below.	
(a)	Name the parts A and B .	<ul style="list-style-type: none"> • A – Processor (or CPU) • B – Output <p>2 marks</p>
(b)	(i) There are two types of memory. What are they called?	<ul style="list-style-type: none"> • RAM • ROM <p>2 marks</p>
	(ii) How does a computer know where an item of data is stored in memory?	<ul style="list-style-type: none"> • Unique memory location (address) <p>1 mark</p>
(c)	Give an example of one magnetic and one non-magnetic storage device.	<ul style="list-style-type: none"> • Magnetic – Disk • Non-magnetic – CD <p>2 marks</p>
2.	Brendan is a salesman. He is considering buying either a laptop or palmtop computer system. He wants to use his system to show multimedia presentations containing video clips.	
(a)	Brendan decides to buy a laptop. Using the characteristics of memory and storage, justify Brendan’s choice of computer system.	<ul style="list-style-type: none"> • Memory – high memory required for multimedia • Storage – high storage for video clips <p>2 marks</p>
(b)	Both the laptop and palmtop systems come with an operating system. Describe the following functions of an operating system.	
	(i) Memory Management	<ul style="list-style-type: none"> • Memory Management – eg manages data or programs to be loaded into RAM or allocates memory for programs or data <p>1 mark</p>
	(ii) File Management	<ul style="list-style-type: none"> • File Management – eg manages files on backing storage: creates, edits, deletes files, allocates storage for files <p>1 mark</p>

3.	The music department of Polkirk High School want to produce a computerised presentation of the first year concert.	
	(a) What type of application would you recommend the music department to use to produce their presentation?	<ul style="list-style-type: none"> • Multimedia • Web Authoring 1 mark
	(b) The presentation must include sound. Suggest how the sound could be entered.	<ul style="list-style-type: none"> • Microphone/download from Internet/Sound Card • MIDI 1 mark
	(c) Photographs are input to the computer using a scanner or digital camera. Both devices require an interface.	
	(i) Give two reasons why an interface would be required.	<ul style="list-style-type: none"> • Communication/speed/different types of data 1 mark for 1 reason, max 2 marks
	(ii) The camera can take photographs at low resolution, give one advantage and one disadvantage of the photographs being taken at low resolution.	<ul style="list-style-type: none"> • Advantage – store more pictures on the disk/download fast • Disadvantage – quality of picture would be low 2 marks
	(iii) What type of application would be used to edit the digital photographs?	<ul style="list-style-type: none"> • Graphics/painting/photo editor 1 mark
	(d) A poster is being produced to advertise the concert. The department is considering using a laser or an ink jet printer. Give one reason for using an ink jet and one reason for using a laser printer.	<ul style="list-style-type: none"> • Inkjet – cheaper to buy/colour/high quality • Laser – faster output/high quality 2 marks

4.	A school library system can be accessed using the Internet. This allows pupils to access titles and reviews of books available, both at home and at school. Below is a diagram of the library system screen.	
(a)	What type of application software would you recommend for storing the library information?	<ul style="list-style-type: none"> • Database 1 mark
(b)	What type of application software will the pupils use to access the Internet?	<ul style="list-style-type: none"> • Communication/net browser 1 mark
(c)	Using the library system, what two methods could a pupil use to locate a book?	<ul style="list-style-type: none"> • Entering the search info • Selecting from a list 2 marks
(d)	Data types are used to store the library information. Suggest two data types that the librarian should use to store information on the books.	<ul style="list-style-type: none"> • Number • Text 2 marks
(e)	The recording of the borrowing of books is done by scanning a bar code. Explain why either MICR or OCR would be unsuitable for recording the borrowing of books.	<ul style="list-style-type: none"> • MICR – would need characters stored magnetically, could be long code • OCR – used for recognising whole characters or check boxes, complex code for all books 1 mark NOTE: either MICR or OCR for 1 mark
(f)	At the end of the day the librarian makes a backup copy of the library data. Explain the steps in making a backup.	<ul style="list-style-type: none"> • Make a second copy • On a second storage medium • Store different location 1 mark each, max 2 marks

5.	A computer program stores the playing card shown below.	
	(a) What two methods could be used to store the graphic in the computer's memory?	<ul style="list-style-type: none"> • Bit mapped (Paint) • Object/Vector (Drawing) 2 marks
	(b) The playing card could also be represented in text as 7S. How many bytes would be needed to store this text representation?	<ul style="list-style-type: none"> • 2 bytes 1 mark
6.	The software development process consists of 7 stages.	
	(a) Name the stages A and B .	<ul style="list-style-type: none"> • (A) Design • (B) Documentation Has to be the correct order 2 marks (1 for each)
	(b) Describe the purpose of:	
	(i) the analysis stage;	<ul style="list-style-type: none"> • Analysis – Statement of problem in own words 1 mark
	(ii) the evaluation stage.	<ul style="list-style-type: none"> • Evaluation – Check it does what it is supposed to Compare to analysis 1 mark
	(c) The implementation stage produces a structured listing. What is a structured listing?	<ul style="list-style-type: none"> • Hard copy showing indents of code, modularity, internal documentation 1 mark
	(d) The software development process is said to be iterative. What is meant by the term iterative?	<ul style="list-style-type: none"> • Process may have to occur more than once • repeating • Or candidate may give an example 1 mark
	(e) Solutions to problems can be implemented in procedural or declarative languages.	
	(i) Name one procedural language.	<ul style="list-style-type: none"> • Pascal, comal, true basic, visual basic, c++, javascript 1 mark
	(ii) Name one declarative language.	<ul style="list-style-type: none"> • Prolog, lisp 1 mark

[END OF SECTION I]

7.	A local garden centre has asked for software to be written to provide information on various plants they sell. Two types of Human Computer Interface are being considered.		
	(a)	Name one item of documentation that the garden centre should expect to come with the new software application.	<ul style="list-style-type: none"> User guide or technical guide/licence/installation guide/tutorial 1 mark
	(b)	(i) Explain what is meant by the term Human Computer Interface.	<ul style="list-style-type: none"> How the computer and the user communicate 1 mark
		(ii) What type of human computer interface is Interface A?	<ul style="list-style-type: none"> Command/text based 1 mark
		(iii) What type of human computer interface is Interface B?	<ul style="list-style-type: none"> WIMP, GUI 1 mark
		(iv) The garden centre decides to use interface B. Give two advantages of interface B over interface A.	<ul style="list-style-type: none"> Less chance of error See item by icon/graphic Not have to remember commands Easier for beginners User-friendly 1 mark each, max 2 marks
	(c)	(i) When the software is written, it has to meet the characteristics of “fitness for purpose”. What does this mean?	<ul style="list-style-type: none"> The solution does what it is meant to do 1 mark
		(ii) When the software is written, it has to be documented. Why does the software have to be documented?	<ul style="list-style-type: none"> Documentation for future development So user knows what to do 1 mark
	(d)	The garden centre will have networked information points around the store. What two advantages are there in using networked systems?	<ul style="list-style-type: none"> Sharing of data (not software) Share of hardware resources Faster communications 2 marks

8.	Zoe has used a High Level Language to write a program which uses modularity, control and loop statements.	
	(a) What is modularity and why would Zoe use it?	<ul style="list-style-type: none"> Used to make code more readable/library programs Breaking program into SB programs 2 marks
	(b) Using a software development environment with which you are familiar, give an example of a control statement.	<ul style="list-style-type: none"> IF statement, case 1 mark
	(c) Explain the difference between a conditional and an unconditional loop.	<ul style="list-style-type: none"> Conditional – repeats until an exit value occurs eg repeat...until, while...endwhile Unconditional – repeats a fixed number of times eg for...next (accept examples) 2 marks
	(d) The high level language can be translated using a compiler or an interpreter. Explain why Zoe would use:	
	(i) a compiler;	<ul style="list-style-type: none"> When code has been finished Production of full machine code 1 mark
	(ii) an interpreter.	<ul style="list-style-type: none"> During development of solution, each line interpreted at run time 1 mark
	(e) Zoe enters her code into an <i>editor</i> . What is the purpose of an “editor”?	<ul style="list-style-type: none"> Allows you to enter and edit code 1 mark
	(f) One of the programs Zoe is writing needs to ask the user for 2 numbers, add them together and display the result. Using a design methodology with which you are familiar, design a solution to this problem.	<ul style="list-style-type: none"> Use diagram, pseudocode, visual basic design screens showing i/p/o Input two numbers Add number Display numbers 2 marks for all 3 correct, -1 for each stage missing or incorrect order

[END OF SECTION II]

[END OF MARKING INSTRUCTIONS]