

2005 Computing Studies

Standard Grade – General

Finalised Marking Instructions

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

KU	PS
1	0
1	0
	4
	3
	2
	1
	0
	1
	0
1	0

1. Pupils in 1st and 2nd year of a secondary school are going on a team building weekend. The details are stored in a *database*. Below is an example of a *record*.

Name:	Natalya Corrieri
Year:	2nd
House:	Bardowie
Emergency contact:	01334 82566
Medical condition:	Asthma

- (a) A parent wants to see the records of all pupils held on this database. Does he have the right to see **all** records?

No

Explain your answer.

Its private ✓ confidential The Data Protection Act prevents this from happening/this is not allowed/it is illegal

- (b) Describe how the guidance teacher would be able to get a *hardcopy* of only those 1st year pupils who are in Bardowie House.

Need to mention field name and condition

Complex search or implication of complex search (1), on fields

house equals Bardowie (1) and year equals 1st (1) Print out result

of search (1)

- (c) A new pupil has joined the school in 2nd year. What must be done to include his details in the file?

Don't accept "row"

Add/Create a new record for him

- (d) How can the school prevent unauthorised access to the computerised pupil files?

Password, physical security, encryption, firewall

KU	PS
1	0
2	1
1	0
2	1
1	0
1	0

1. (continued)

(e) The database is held on the school *LAN*.

What do the initials “LAN” stand for?

Local Area Network

(f) Some teachers at the school do not know very much about computers. Fortunately the database uses a *Graphical User Interface*. Give **two** reasons why this type of interface is useful for beginners.

1 **Ability to choose from menus. Have icons to choose from rather than typing in commands eg printing**

2 **Able to use the mouse for input rather than the keyboard, [user friendly – fine on own]**

(Any two good points acceptable)

(g) A lot of printing has been done and the Guidance department has been asked to pay towards *running costs*. Give **two** running costs of having the records printed out.

1 **Toner/ink, maintenance, paper, electricity**

2 **(Any 2 acceptable)**

(h) The guidance teacher makes a second copy which she stores on a floppy disk.

What is this second copy called?

Backup copy

On line
help – No!

3. A *spreadsheet* is kept of the money pupils have saved towards the weekend. From this money they have to pay for an extra trip. Below is part of the spreadsheet.

	A	B	C	D	E	F	G
1	Team Building Weekend						
2							
3	Name	Saved in August	Saved in September	Saved in October	Total Saved	Cost of extra trip	Balance of savings
4	Sally Jones	15	15	20	50	10	40
5	Hilary Smith	10	15	30	55	10	45
6	John Dale	5	10	10	25	10	15
7	Kate Reid	15	5	5	25	10	15
8	David Hill	20	5	10	35	10	25

DO NOT
WRITE IN
THIS MARGIN

- (a) What formula is used in cell E4?
= sign not necessary
B4+C4+D4 or SUM(B4:D4)
- (b) What formula is used in cell G4?
E4 – F4 = sum (E4–F4) (Do not accept)
- (c) What would have to be done to display all the appropriate figures as money?
Highlight all appropriate figures (1) and change to currency (1)
↑
notion of format to pounds
- (d) The year head wants to include the registration class of each pupil. What must be done to the above table to allow this to happen?
Add/Insert a column
- (e) The spreadsheet is part of an *integrated package*.
 What is an “integrated package”?
Software made up of separate parts with an indication of different applications
Software containing database, spreadsheet, word processing, graphics
Accept implication of more than one application eg naming only 2 applications

KU	PS
	1 0
	1 0
	2 1 0
	1 0
	1 0

KU	PS
1	0
2	1
0	0
1	0
2	1
0	0
1	0

3. (continued)

- (f) Give **one** advantage of the spreadsheet and the database having a similar *HCI*.

This makes it quicker/easier to learn

- (g) An operating system has several standard functions. Tick (✓) **two** functions which the operating system would carry out while the spreadsheet was in use.

Maximum of 1 mark if they tick 3 boxes – with 2 being correct

Loads the data file into the computer

Displays numbers as money

Supplies electricity to the computer

Checks to see which key has been pressed

0 if they tick 4 boxes or 3 boxes with 2 incorrect

- (h) Why might the year head, Mrs Smythe, want to create a chart from the spreadsheet figures?

(A chart is easier to read) than a set of figures, presented better

(Accept any implication that it is more visual) easier to compare ✓ and easier to understand ✓

- (i) The secretary has used both *online help* and an *online tutorial* for the spreadsheet.

Write whether you think online help or an online tutorial has been used for each of the following.

Introduction lesson

Online Tutorial

Making a column wider whilst using the program

Online Help

- (j) The spreadsheet is to be printed using a *laser* printer. Give **one** benefit of a laser printer.

Clear, good quality printout, quieter, faster printing ✓

(Any one suitable answer) plus more ppm

faster on its own (no marks)

4. (continued)

(e) Pupils are to take a computer with them on the team building weekend, to run the tuckshop program.

(i) Suggest a suitable type of computer for this purpose.

Laptop, palmtop, tablet (Any portable computer system)

(ii) Give a reason for your answer.

It is portable, don't need to plug it in (Any notion of portability)

Do not accept small, light

KU	PS
1 0	
	1 0

		KU	PS
5.	Pupils use canoes on the team building weekend which are made on an automated production line that uses <i>robots</i> .		
	(a) Give two reasons why you think the production process was automated.		
	robots are more accurate than humans		
Save money on wages	1 <u>To become more competitive, Fine tune production process and get rid of redundant actions, faster than humans, more efficient with reason</u>		
Not enough skilled humans	2 <u>Less reject components being made because of the constant standard</u>	2	
	<u>Safety—less danger to humans of such things as spray painting (Any 2)</u>	1	
		0	
	(b) The various parts of the canoe are brought to the production line by <i>mobile</i> robots. The floor gets very dirty.		
	How can the mobile robots be guided to the correct place?		
	(Grid of) magnet/magnetic wires (1) and a sensor (1) which follows these underground wires		
NOT Learning by example – guided by human first	Programmed map (1) and the route is entered remotely and followed by the robot (1)		2
	Do not accept white lines because of dirty floors.		1
			0
	(c) Suggest one safety precaution that should be taken around mobile robots.		
	Fencing off, flashing light, warning bleep, or posters, protective clothing		1
	Bumper sensor, proximity sensor (Any one acceptable answer)		0
	NOT keep robots and humans apart		
	NOT keep out of way of robot		
	(d) Parts of the production process involves mixing a fast acting glue from two ingredients. A sensor is used to ensure this happens at the correct temperature.		
	(i) What type of processing should be used for this? Tick (✓) one box.		
	Real time <input checked="" type="checkbox"/>		
	Batch <input type="checkbox"/>		
	Interactive <input type="checkbox"/>		1
			0
	(ii) Explain your answer.		
	Glue will be faulty if the temperature is too hot or too cold.		1
	(Accept answer which gives notion of immediacy)		0

5. (continued)

(e) The robot arms on the production line can sense if parts are in the correct position for joining together. If they are not, then the parts are repositioned.

(i) Is this an example of an *open* or *closed loop*?

Closed loop

(ii) Explain your answer.

(Sensors) provide feedback (1) which is then responded to by a

change of control signals if necessary (1)

(f) The sensor is used to measure the level of light.

Is light a *digital* or *analogue* quantity?

Analogue

(g) A large amount of data is constantly recorded during the production process and used frequently.

(i) What is the best form of *backing storage* medium for this? Choose from the list below.

CD ROM Hard Disk Floppy Disk Magnetic Tape

Hard Disk

(ii) Give a reason for your answer.

or direct access

Large storage capacity or random access

or fast access

or large amount of memory

KU	PS
	1 0
2 1 0	
1 0	
	1 0
	1 0

KU	PS
	1 0
	1 0
	2 0
	1 0

6. The organisation which provides the team building weekend buys their uniforms from a mail order company. Here is an example of an order form.

Order Form	
Customer Name:	Jessica Murray
Order Number:	3419
Date of Order:	130604
Product Code:	U789
Uniform Size:	32
Quantity:	4

Daily orders are gathered for processing overnight.

(a) (i) What type of processing is the company using?

Batch processing

(ii) Explain your answer.

Give a mark for notion of batching orders together or for the idea of automatic processing with no human intervention.

(b) Checks are carried out by the computer as data is entered from the order form.

Name a field and suggest a suitable check.

Note
2 or 0
marks

Field name **Uniform Size**

Check **Range check** **Don't accept validation check**

(Accept any field and suitable check eg length or range)

(c) What type of computer file will the order go into when first received? Tick (✓) **one** box.

Transaction

Master

Backup File

KU	PS
1	
0	
1	
0	
2	
1	
0	
1	
0	

6. (continued)

(d) The team building organisation pays the mail order company by cheque. The cheque has *MICR* characters on it.

(i) What do the initials MICR stand for?

Magnetic Ink Character Recognition

(ii) What is **one** advantage of MICR?

It is difficult to forge, faster processing, more accurate

processing. Do not accept "hard to copy"

It is human and machine readable. (Accept any one)

(e) One member of staff of the mail order company works from home.

More time to yourself ✓

Give **one** advantage and **one** disadvantage of working from home.

Free choice over number of hours worked ✓

Advantage No travelling expenses or more flexible working hours.

(Any one suitable answer)

Less sociable, will not be a success if you are not

Disadvantage disciplined

(Any one suitable answer) plus no direct help from workmates

(f) The mail order company sells mailing lists of its customers to other mail order companies. This causes junk mail.

Give **one** disadvantage of junk mail.

Bad for the environment, makes people angry with most of it

ending up in the bin, generates a lot of paper. (Any one suitable

answer)

accept idea of "spam" → take up memory;

introduce viruses;

clogs up in-box.

[END OF MARKING INSTRUCTIONS]