



General Certificate of Education

Information and Communication Technology 2520

INFO1 Practical Problem Solving in the Digital World

Mark Scheme

2010 examination – January series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this Mark Scheme are available to download from the AQA Website: www.aqa.org.uk

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GENERAL GUIDANCE NOTES FOR EXAMINERS

Overall guidelines

1. All examples accepted should be clearly related to the subject area and should not be “generalised” examples.
2. Attention should be paid to ensure that marks are not awarded for simple restating of the question or the stem, often involving the exact same terms.
3. It should be remembered that scripts could be seen after they are marked and so consistency of approach and correct mechanics of marking are essential.
4. Rules on positioning of ticks and marks are to aid in checking and remarking of scripts.
5. Do not expect the candidate to use the exact wording given in the mark scheme. If you are in doubt as to the correctness of an answer given by the candidate, consult your Team Leader.
6. The answers given in the mark scheme are exemplars. Credit must be given for other correct answers not given in the mark scheme. Please refer to Team Leaders where there is any doubt.
7. One-word answers, where acceptable, will be indicated on the question paper.
8. The meaning of ICT-specific words and phrases are generally as defined by *BCS Glossary of Computing and ICT* (current edition).

Specific marking guidelines

9. The basic rule is one mark one tick. The tick to be positioned at the point where the mark is gained in the answer and definitely not in the margin.
10. The only figures in the margin should be sub-totals for parts of questions and a final total for the whole question in the box provided.
11. All writing must be marked as read, either by the presence of ticks or by striking through the script with a vertical line.
12. Where candidates have added extra to their answers on additional pages, the total mark should be indicated as ‘including x marks from supplementary page y’. The total mark should be written in the appropriate printed box on the question paper.

- 13.** The use of the following symbols/marks is acceptable:
- a. BOD – where the benefit of the doubt is given for the point the candidate is making. This is generally where poor writing or English is an issue. Its widespread use should be avoided.
 - b. An omission sign ^ should be used where the candidate has given insufficient information to gain a mark. This is particularly useful when a teacher or student looks at scripts against a mark scheme.
 - c. It may be appropriate to indicate where the same point has been covered more than once by an arrow or where a point has been covered in several lines of prose by the use of brackets.
 - d. For questions where candidates' answers are assessed for QWC, no individual ticks should be written on the script as it should be marked holistically.
- 14.** Markers are responsible for checking:
- a. The transposition of marks to the front cover
 - b. That all work has been marked on each script
 - c. That all marks for individual questions are totalled correctly
 - d. That the script total is transferred to the box at the top right of the script.
 - e. That they **clearly** initial the script, under the total at the top right, so it is possible for the Principal Examiner to identify each markers work.

SECTION A

1 *State, with a reason, what type of printer you would use for each of the following tasks.*

- | | | |
|-----|-------------------------------------|------------------|
| (a) | <i>Printing a letter</i> | <i>(2 marks)</i> |
| (b) | <i>Printing a colour photograph</i> | <i>(2 marks)</i> |

Guidance for examiners on how to mark this question

- a) Type of printer (1) + reason (1)
- b) Type of printer (1) + reason (1)

Laserjet is a trade name – no mark

Example answer

- a) A laser printer (1) because they are faster than most other types of printer (1)
- b) An inkjet printer (1) because they can be used with specialist photographic paper to produce high quality images (1)

2 (a) *Explain the role and functions of systems software.*

(4 marks)

Guidance for examiners on how to mark this question

What is the role of systems software (up to 2)

Example or expansion (Max 1)

Functions of systems software (up to 3)

Max 3 marks if role of system software not stated

Example answer

Systems software is software that is essential to the running of a computer (1) for example an operating system (1). Two functions of systems software are memory management (1) and to check for viruses (1)

Max 4

- 3** *Spreadsheet software can be used to perform many different tasks. Identify a task that you have completed using spreadsheet software and explain how the functionality of the software helped you to complete the task effectively.*

(6 marks)

Guidance for examiners on how to mark this question

Any reasonable task (1)

Up to 3 marks for functionality (3)

Up to 3 marks for explaining the effectiveness of the functionality (3)

Max 5 marks + task mark

Max 4 marks if no effectiveness mentioned

Example answer

The task was to produce an invoice for my client (1). I used a lookup using item code (1) for the product description to be input automatically (1). I used an IF statement (1) to check whether the client's customer was entitled to a discount (1). I used absolute referencing for the VAT percentage (1).

- 4** *A friend has Media Studies coursework that she needs to store electronically so that she can work on it at home on her laptop and in school on a networked PC. She asked you to advise her on which storage media she should use.*

Explain what you would need to ask her about before offering her advice. (6 marks)

Guidance for examiners on how to mark this question

Questions, reasons and examples
Storage capacity required
Connectivity of devices

Example answer

The size of the files (1) and the number of files to be stored (1) so I can advise on the capacity of the storage medium (1) and therefore identify an appropriate storage device. (1)
I would need to know that the suggested devices can be used on both of the computers (1) for example not all laptops have DVD drives. (1)

Max 6

SECTION B

5(a) Give **one** of your client's requirements from your Sample Work and explain how you would evaluate that the requirement had been met. (5 marks)

Guidance for examiners on how to mark this question

Check page reference first (no page reference or incorrect page reference no marks)

No requirement stated no marks

Requirement (1)

Requirement must have been stated in the Sample Work but the exact wording is not necessary.

Identification of the need to test the requirements (1 or more marks)

Results from testing that requirement (1 or more marks)

Explanation of how results prove that the requirement was met (1 or more marks)

Checking back with the client (1 or more marks)

Consideration of the effectiveness of the solution (1 or more marks)

Example answer

1 mark for stating a requirement

To produce an invoice (1) I printed the invoice (1) to check the presentation and accuracy were as expected (1) I showed the invoice to my client (1) it was exactly as the Client wanted so this requirement was met. (1)

5(b) Describe **one** of the processes required in your solution and explain the input(s) needed for the process and the output(s) required from that process.

(6 marks)

Guidance for examiners on how to mark this question

Check page reference first (no page reference or incorrect page reference no marks)

One process, at least one input (max 2) and at least one output (max 2).

Example answer

One process would be to produce an invoice (1) including the addition of all costs of goods (1)
Some of the inputs would be product price (1) and product quantity (1). The output would be the printed invoice (1), which will include the invoice total (1)

5(c) *Explain why you need a test plan and what you would include in it.*

(7 marks)

Guidance for examiners on how to mark this question

Marks to be awarded for:

To ensure validity of data input

accuracy of output

that the solution meets the requirement of the client

that the solution is usable by the end user

that the plan incorporates the test data and the expected results of each test

To ensure testing is followed in a systematic way

Max 5 if no explanation of why you need a test plan

Example answer

A test plan is needed to ensure the validity of data input (1), the accuracy of the output (1), that the solution meets the requirement of the client (1), that the solution is usable by the end user (1). The plan would include test data (1), the expected result of each test (1) and the actual result of each test. (1)

Max 7

5(d) *Explain what you should do if the actual result for a test was different from the expected result.*

(4 marks)

Guidance for examiners on how to mark this question

Check page references first (no page reference or incorrect page references no marks)

Example of expected and actual result not matching

Find the error

Perform a correction

Retest

Compare the new actual result with the expected result

Max 4

Example answer

I found the error in my web page (1) and corrected it (1) I then retested (1) I then compared the new actual result with the original expected result (1)

6(a) *Explain which fields an existing customer would need to enter data into and what validation checks could be made on these fields.* (10 marks)

Guidance for examiners on how to mark this question

How and expansion in any combination

Identification of fields which require data entry, e.g. customer number and item code (1 mark per field) up to 6

Validation checks on fields

A description of validation

Max 6 marks for just naming fields

Example answer

An existing customer number should be entered (1) and a presence check should be applied (1) to ensure the field is not left blank. (1) There could also be a range check on customer number. (1) The customer would have enter the item code of the products they wished to order (1), a format check (1) could be applied to ensure that it was three letters followed by three numbers. (1) The customer would need to enter the quantity of products required, (1) this may have a range check (1) to ensure customers did not order ridiculous amounts. (1)

6(b) *Explain which fields would be populated automatically by the system and describe the processes required to complete this form.*

(10 marks)

Guidance for examiners on how to mark this question

Identification of fields that would be populated automatically by the system

Identification of a process, e.g. calculating the total cost

Identification of the fields used in the process e.g. total

Mechanics of the process e.g. added to VAT

No processes max 6 marks

Example answer

The fields that would be populated automatically by the system are the date (1), the product description (1), the unit cost (1) and the total including VAT (1). One process would be calculating the total cost (1) the total (1) is added to VAT (1) Another process would be calculating the cost of items ordered (1) by multiplying the quantity (1) by the price (1).

- 7** *A company that uses ICT systems has particular responsibility for its employees' health and safety. Likewise, each employee has responsibility for their own health and safety when they are working with ICT systems.*

Discuss these responsibilities with reference to the use of ICT systems.

In this question you will be marked on your ability to use good English, to organise information clearly and to use specialist vocabulary where appropriate.

(18 marks)

Purpose of the Question

Application of knowledge and understanding of health and safety in relation to the use of ICT systems

Guidance for examiners on how to mark this question

Low mark range

Candidate has only mentioned either the employer's or employee's responsibilities. The candidate has used a form and style of writing that is barely appropriate to its purpose. The candidate has expressed simple ideas clearly, but may be imprecise and awkward in dealing with complex or subtle concepts. Information or arguments may be of doubtful relevance or be obscurely presented. Errors in spelling, punctuation and grammar may be noticeable and intrusive to understanding, suggesting weaknesses in these areas. Text is barely legible.

0 – 6 marks

Mid mark range

Candidate has identified the employer's and the employee's responsibilities. Meaning is clear. The candidate has, in the main, used a form and style of writing, which is appropriate for its purpose; with occasional lapses. The candidate has expressed moderately complex ideas clearly and reasonably fluently. Candidate has used well-linked sentences and paragraphs. Information or arguments are generally relevant and well structured. There may be occasional errors of spelling, punctuation and grammar. Text is legible.

7 – 12 marks

High mark range

Candidate has discussed the employer's and the employee's responsibilities. Meaning is clear. The candidate has selected and used a form and style of writing appropriate to purpose and has expressed complex ideas clearly and fluently. Sentences and paragraphs follow on from one another clearly and coherently. Specialist vocabulary has been used appropriately. There are few, if any, errors of spelling, punctuation and grammar. Text is legible.

13 – 18 marks