



**General Certificate of Education (A-level)
January 2011**

ICT

INFO1

(Specification 2520)

**Unit 1: Practical Problem Solving in the Digital
World**

Final

Mark Scheme

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 events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process 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 standardisation each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised 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.

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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 There are health risks associated with using a workstation regularly.

For each of the following health risks, identify **one** piece of equipment that is part of a workstation and describe how a specialised feature of it could help to protect you from the given health risk.

The equipment given must be different in each case.

(a) Eye strain (3 marks)

(b) RSI (3 marks)

Guidance for examiners on how to mark this question

For (a) and (b):

- One piece of equipment (1)
- A specialised feature of that equipment (1)
- how that helps to protect against the health risk (1).

Example answers

(a) A monitor (1) which should be tiltable/adjustable (1) so that I can adjust it to the correct angle and I would not have to squint to see it. (1)

(b) A keyboard (1) which should be ergonomic. (1) This will enable me to keep my hands and wrists in a natural position. (1)

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- 2** Describe storage media currently available, giving examples of what they can be used for. *(5 marks)*

Guidance for examiners on how to mark this question

Up to 2 marks for storage media or types of storage media plus 1 mark for a description (a storage media type could be a description for storage media)

Up to 3 marks for examples of uses.

Example answers

Magnetic storage (1) for example hard disks, (1) that are used to store operating systems. (1)

Pen drives (1) that I could use to store my Sample Work. (1)

- 3** Evaluation of any ICT solution involves assessing its effectiveness against the client's requirements for that solution.

What questions would you need to ask yourself when evaluating an ICT solution, other than 'Is the solution an effective one?' *(4 marks)*

Guidance for examiners on how to mark this question

One mark for each relevant question.

Example answers

Does the solution do what it is supposed to do? (1) Does the solution do it in a way that it is supposed to do it? (1) If the solution is not effective then what is wrong with it? (1) and what would make it an effective solution? (1)

- 4** An operating system provides a number of functions. One function would be the allocation of processor time, which enables several programs to run at the same time.

Explain other functions of an operating system.

(6 marks)

Guidance for examiners on how to mark this question

Up to four marks for functions of an operating system.
Up to four marks for explaining what the function does.

More than one mark may be awarded for an extended explanation of what the function does.

Max 4 for functionality only.

Example answer

Another function of an OS is controlling where data is stored on disk (1) by finding space on a disk and keeping track of file addresses. (1) Communicating with input and output devices (1) for example managing the printer queue. (1) Systems security (1) by allowing the allocation of usernames and file permissions. (1)

SECTION B

5(a) With reference to your Sample Work, identify **one** of the people who will use your solution and describe what they will use it for. *(2 marks)*

Guidance for examiners on how to mark this question

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

Identification of a user (1)

Description of use (1)

Example answer

My user is Mrs Florentine, the Sales Order Clerk (1) who will use the solution to create an order. (1)

5(b) Explain, using examples, what is meant by a client and an audience for an ICT solution. (4 marks)

Guidance for examiners on how to mark this question

For full marks candidate must refer to a client and an audience.

Up to 2 marks can be gained for generic answer e.g. the client is the person who requires a solution to a problem (1) the audience are the people who the solution is aimed at. (1)

Example answer

In the case of a retail website the client will have asked for the website to be created (1) to enable them to sell their goods (1) the audience will visit the website (1) they will be the customers. (1)

5(c) Describe the outputs required from your solution and explain how and why the data identified was needed to create them. *(8 marks)*

Guidance for examiners on how to mark this question

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

Low mark range

Identification of outputs/inputs

0-2 marks

Mid mark range

Output descriptions with some input stated

3-5 marks

High mark range

Output descriptions with some input stated and explanation of how and why data identified is needed

6-8 marks

Example answer (full mark answer)

One output from my solution was an invoice some of the data needed were the item price and quantity bought these were required for the process of calculating an item total which was then used to calculate the final total. Another output from my solution was a list of weekly sales the data needed was the quantity of each item sold during that period this gave me a total this enabled my user to know what to order.

5(d) For each test result, describe the test used, the result obtained and explain what that result shows about the solution that you tested. *(10 marks)*

Guidance for examiners on how to mark this question

Check page reference first (no test results, no page reference(s) or incorrect page reference(s) no marks)

Up to 6 marks for description of tests.

Up to 2 marks for stating the result - one mark for each result.

Up to 6 marks for what the result showed about the solution.

Only full marks if reference is made to what **both** test results showed **about the solution**.

Example answer

Test result 1

I tested the total was correct (1) I did this by using test data of 10, 15 and 25 (1) the expected result was 50 (1) and the actual result was 50 (1) I checked this using a calculator (1) this showed the formula used was correct (1) and that the solution would produce accurate results. (1)

Test result 2

To test clarity of the presentation of the invoice (1) by asking the client to check the clarity of it (1) who said the text was hard to read against the coloured background. (1)

5(e) Explain what you would need to do if any of your testing results were not as you expected. *(3 marks)*

Guidance for examiners on how to mark this question

Up to three marks for an explanation.

Example answer

If a testing result was not as I had expected I would go back to the solution and correct the error (1) I would then complete the testing again (1) until the actual result was what I expected. (1)

- 6** A social networking site requires you to open a new account before you can use it. The following data is required: first name, last name, date of birth, email address and password.

Discuss the validation and verification techniques that the web designer should have put in place to ensure robust data entry when opening a new account on the social networking site. (12 marks)

Guidance for examiners on how to mark this question

Max 5 if answer not in context

Stating field name and appropriate data check (1) up to maximum of 5.

Up to 10 marks for a validation-only related answer.

Up to 10 marks for a verification-only related answer.

To gain 12 marks candidates must have referred to both validation and verification in context in their answer.

Example answer

My email address would be required probably for my username (1) the validation would check that it is in the format (1) i.e. name@ etc. (1), a message would be displayed if it was not in the correct format (1) I would be asked to input my password twice (1) verification would then be used to check one against the other (1) if they do not match I would be asked to re-enter them. (1) My date of birth might be checked that it was in a range (1) as I may have to be over a certain age to join. (1) My first name and last name would both have a presence check on them (1) this is because I have to enter them (1) if I do not the system would not let me go any further and would instruct that they had to be entered (1) fields that have to be entered often have a red asterisk next to them to show this. (1)

- 7 You have been asked to write a report on what you consider to have been the most useful items of hardware and software that you have used for your school work since you started school. The report will be placed with other items in a time capsule that will be buried under a new library building.

In your report you should explain what features/functions of the hardware and software made them most useful to you. (20 marks)

Guidance for examiners on how to mark this question

Low mark range

Candidate shows little understanding and has identified items of hardware or software. At least one relevant example has been used. 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 – 5 marks

Mid mark range

Candidate either writes about several items of hardware and software or may have described a few functions/features. Relevant examples have been used. Meaning is nearly always clear. The candidate has, in the main, used a form and style of writing, which is appropriate for its purpose; with some lapses. The candidate has expressed simple ideas clearly and reasonably fluently. Candidate has used sentences and paragraphs. Information or arguments are generally relevant. There may be some errors of spelling, punctuation and grammar. Text is legible.

6 – 10 marks

Good mark range

Candidate describes some hardware/features and a range of software/functions. Relevant examples have been used. Some specialist vocabulary has been used correctly. 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.

11 – 15 marks

High mark range

Candidate details a wide range of features/functions of hardware and software. Relevant examples have been used. Specialist vocabulary has been used correctly. 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. There are few, if any, errors of spelling, punctuation and grammar. Text is legible.

16 – 20 marks