



## **General Certificate of Education**

# **Information and Communication Technology 2520**

## **INFO1      Practical Problem Solving in the Digital World**

## **Mark Scheme**

*2009 examination - June 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](http://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. The use of letters associated with ticks **may** be used to indicate different areas being marked in a question. **THIS WILL BE OUTLINED DURING THE STANDARDISATION PROCESS.**
- 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	For each of the following tasks explain what you would consider to be the most suitable application software to use.  (a) Creating an invoice. (b) Creating an ICT textbook. (c) Keeping in touch with friends and family.	2 marks 2 marks 2 marks
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**Guidance for examiners on how to mark this question**

For (a), (b) and (c):

- 1 mark for software application
- 1 mark for an explanation of why it is suitable

**Mark Scheme examples**

Spreadsheet software could be used for creating an invoice (1) because it can calculate totals with accuracy (1).

2	<p>Evaluation involves assessing the effectiveness of an ICT solution against a client's requirements.</p> <p>What questions would you need to ask yourself when evaluating an ICT solution?</p>	4 marks
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**Guidance for examiners on how to mark this question**

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

1 mark per question stated

**Mark Scheme examples**

Does the solution do what it is supposed to do? (1). Does the solution do it in the way it is supposed to do it? (1). Is the solution an effective one? (1). If not, what would make the solution effective (1).

Max 4

3	After studying Health and Safety legislation relating to the use of ICT systems, what measures should you take to protect your health when using a computer?	4 marks
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**Guidance for examiners on how to mark this question**

Measure (1) explanation (1)

- Four measures
- Three measures with one explanation
- Two measures with explanations

Cannot give full marks if candidate has only given 1 measure

Max 2 marks for health risks

No marks for lists of health risks

No marks for health risk related to a non-ICT measure

**Mark Scheme examples**

I would take regular breaks (1) to prevent eye strain (1).

I would adjust the height of the chair (1) to avoid backache (1).

Max 4

4	Explain, using examples, what is meant by validation and verification.	6 marks
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**Guidance for examiners on how to mark this question**

To gain full marks candidate must explain validation and verification and give examples

- Explanation of validation (1) example (1 or 2)
- Explanation of verification (1) example (1 or 2)

Candidates may gain two marks for two examples or a good explanation of 1 example

**Mark Scheme examples**

- Validation is a computer based check that the data is reasonable (1).  
For example: A range check of a date (1)  
which checks the date is within the stated range (1).
- Verification is checking to make sure data has not been changed as it has been entered from a source document (1).  
For example: A date of birth entered as 10/01/89 should have been entered as 01/10/89 (1). This error could be highlighted by two people entering the data, which is then checked (1).



**SECTION B**

5(a)	With reference to your Sample Work, explain what is meant by a client.	2 marks
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**Guidance for examiners on how to mark this question**

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

- Name of / job role candidate's client (1)
- Definition of client, i.e. the person who needs the solution to the problem (1)

Client must have been stated in the Sample Work

**Mark Scheme examples**

Name or job role of candidate's client (1).

Client – the person who needs the solution to a problem (1).

5(b)	Explain the differences between a <i>user</i> of a solution and an <i>audience</i> for a solution.	4 marks
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**Guidance for examiners on how to mark this question**

- Definition of user, i.e. the person who administers the system (1) expansion/example (1)
- Definition of audience i.e. the people who the final product is aimed at (1) expansion/example (1)

**Mark Scheme examples**

The user is the person who will administer (update/amend) the system (1). For example, the fixture secretary by updating the calendar of events on a sports club website (1).

The audience is the people who the final product could be aimed at (1). For example, the supporters checking the website to see when the date of the next home fixture is (1).

5(c)	What may happen if you fail to consider your user's skills when designing a solution?	2 marks
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**Guidance for examiners on how to mark this question**

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

Cannot design for user, cannot plan as do not know user skills.

How incorrect design may be created if consideration to user's skills not given.

**Mark Scheme examples**

If I fail to consider my user's skills and I do not know that they are a novice user (1) I may not include online help to provide efficient and effective use of the solution for them (1).

5(d)	Explain how you would take account of your user's skills if you were to design a solution for their problem.	6 marks
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**Guidance for examiners on how to mark this question**

- Consideration of user's skill level (1 or more)
- Function(s) used (1 or more)
- How they meet user skill (1 or more)

Max 3 if just functions given

Max 5 if no consideration of user's skill(s)

**Mark Scheme examples**

The user interface will incorporate different functions (1) depending on the user skill level (1). Short cut keys for an expert user (1) so that user can work in an efficient way without having to complete onerous steps (1). Novice users will require online help (1) if they are unsure of how to do something they can go to the step by step help (1).

5(e)	Describe the requirement that you have tested.	2 marks
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**Guidance for examiners on how to mark this question**

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

Description of clients requirement (2)

**Mark Scheme examples**

Any requirement the candidate has given in the testing section of their Sample Work

5(f)	Explain how your testing ensured that this requirement had been successfully implemented.	6 marks
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**Guidance for examiners on how to mark this question**

- Description of the expected result (1 or more)
- Description of the actual result (1 or more)
- Reporting on the result (1 or more)

Max 3 if test data, description and type of data referenced only

Specifying types of test data (1 or more)  
Description of the test data used (1 or more)

**Mark Scheme examples**

**Accurate calculation of a discount (given in part e)**

I tested using normal data (1) e.g. £1000 and 15% (1) the expected result is £150 (1) and the actual result was £150 (1) or using erroneous data (1) and the actual result was different from the expected result (1).

6(a)	Study the screenshot below of a school web page, which provides information on the courses it offers.  A data type (object) used on the web page was text. What other data types (objects) could have been used?	2 marks
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**Guidance for examiners on how to mark this question**

Data type (1 or 2)

**Mark Scheme examples**

Sound (1) Still image (1)

Max 2

6(b)	You have been asked to improve the web page.  Describe, using examples, the improvements that you could make and why you would make them.	14 marks
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**Guidance for examiners on how to mark this question**

Marks to be awarded for candidate stating what could be changed and how that would improve the web page, giving examples where appropriate.

Uniformity  
Guidance  
Navigational aids

Max 14

Max 10 if only improvements referenced

**Mark Scheme examples**

I would standardise the font type used (1). I would ensure that the headings were in a larger size font (1) so that they stand out (1). I would increase the size of the logo (1) to ensure visitors to the website can easily identify the college (1).

I would ensure the page fits the screen (1) both horizontally and vertically (1) so the visitor to the website does not have to scroll to find what they want (1).

I would ensure that the information on the web page is updated on a regular basis (1) so the website visitors are not misled (1). I would improve the navigation (1) by labelling navigation buttons (1). I would standardise the background colour (1) to improve the aesthetics of the web page (1).



6(c)	What can be included to ensure that the web page content is accessible to a varied audience with different particular needs, for example visually impaired users?	2 marks
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**Guidance for examiners on how to mark this question**

- What could be included (up to 2)
- What could be included plus explanation (1 + 1)

**Mark Scheme examples**

Larger text / zoom option available (1) so user can increase the size of the webpage/area of webpage (1).

7	<p>A retired teacher is intending to travel to different parts of the world and requires a computer system to organise his travel, to keep in contact with people while he is away and to make a record of his journeys. He is unsure of what he needs to buy and has asked you to advise him.</p> <p>Identify the items of hardware and software that he may need to buy, explaining how each would be of use to him.</p> <p><i>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.</i></p>	20 marks
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### Guidance for examiners on how to mark this question

#### Low mark range

Candidate has identified one hardware and software item. 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 discusses some hardware and software items. 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 discusses a range of hardware and software items. 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 discusses a wide range of hardware and software items. 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.

**16 - 20 marks**