AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

General Certificate of Education

Information and Communication Technology 2520

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

Mark Scheme

2009 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.

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.
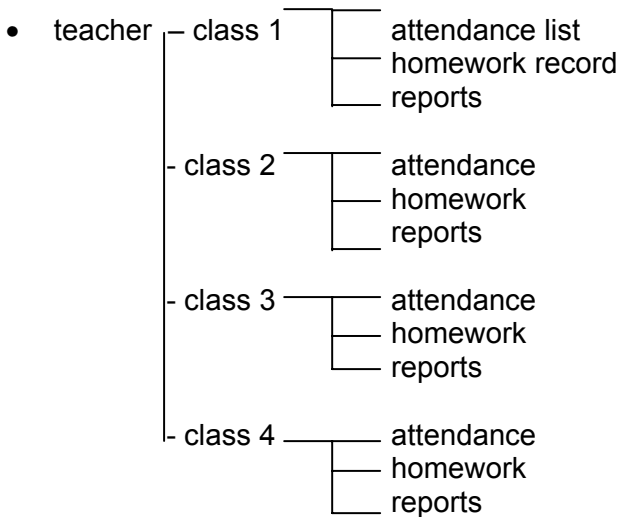
SECTION A

1	Folders are used to organise files on computers. Draw a suitable folder structure that a teacher, who teaches four classes, could use to organise class attendance lists, homework records and end of term reports.	3 marks

Guidance for examiners on how to mark this question

- Appropriate hierarchical structure diagram (1)
- Completeness of diagram (1)
- Meaningful names used for folders (1)

Mark Scheme examples

An example of a candidate's response is:

- teacher ⌐– class 1 ⌐ attendance list
  - homework record
  - reports

  - class 2 ⌐ attendance
    - homework
    - reports

  - class 3 ⌐ attendance
    - homework
    - reports

  - class 4 ⌐ attendance
    - homework
    - reports

Max 3

2	Explain, using an example, what is meant by a *client*, a *user* and an *audience*.	4 marks

Guidance for examiners on how to mark this question

- What is meant by a client i.e. who needs the solution to a problem (1)
- What is meant by a user i.e. who will use the system (1)
- What is meant by an audience i.e. who will view the system (1)

Applied to at least one example (1)

Mark Scheme examples

Website for advertising products (1) client is the commissioner of the software (the person who needs the solution to a problem) (1), user is the member of staff who will update the website (1) and the audience will be anyone who accesses the website (1)

Max 4

3 (a)	Describe some possible uses for this type of device.	4 marks

Guidance for examiners on how to mark this question

- 1 mark per use to max 3
- Identification that it is storage media / naming the type of device (1)
- 1 or 2 characteristics of this type of device (1 or 2)

Max 2 marks if no use given
Max 3 marks if one use given

Mark Scheme examples

The device is a memory stick (1) it can be used for storing files (1) to backup
project work (1) and for transferring files from one computer to another (1)

Max 4

3(b)	Explain why someone would choose to use this type of device.	2 marks

Guidance for examiners on how to mark this question

- Portability
- Robustness
- Compatibility
- Transferability

An explanation of one of the above

Mark Scheme examples

Most computers have a USB port for this device (1) and it is easy to carry this device around (1)

Max 2

3(c)	Explain possible **disadvantages** of using this type of device.	3 marks

Guidance for examiners on how to mark this question

Candidates can give 3 disadvantages (3x1)
        2 disadvantages with one explanation/expansion (3)
        1 disadvantage with explanation/expansion (2)

Mark Scheme examples

Memory sticks are easily lost (1) not very robust (1) not easy to label (1)
Memory sticks are easily lost because they are small (1) which may cause data security issues (1)

Max 3

4	Word processing software can be used to perform many different tasks. Describe a task that you have completed using word processing 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

Max 5 marks + task mark

- Any reasonable task (1)
- Up to 3 marks for functionality (3)
- Up to 3 marks for explaining the effectiveness of the functionality (3)

Mark Scheme examples

The task is producing my ICT sample work (1). I emboldened (1) the headings for each section to make them stand out (1). I also used times new roman font (1), size 12 point (1) to make my text easily readable (1)

SECTION B

5(a)	Give **one** requirement from your Sample Work for what the solution is to produce. Give **one** requirement from your Sample Work for how the solution is to work.	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)

- Requirement for what the solution is to produce (1)
- Requirement for how the solution is to work (1)
- Requirement must have been stated in the Sample Work but the exact wording is not necessary.

Mark Scheme examples
1 mark for what and 1 mark for how

What
To produce an invoice (1)
To produce a website (1)

How
by automatically calculating the total for the invoice including VAT (1)
by providing the ability to display correctly on different screen resolutions (1)

5(b)	With reference to your Sample Work, interpret **one** of the requirements you have identified in part 5(a) as input(s), process(es) and output(s).	6 marks

Guidance for examiners on how to mark this question

- At least one input, one process and one output (3) + a good explanation of each for a further 3 marks.
- Or two inputs, two processes and two outputs (6)
- Or any combination of the above

Mark Scheme examples

Requirement – to produce an invoice

Some of the inputs would be customer number (1), product number (1). One process would be to calculate the invoice total (1). Another would be to calculate VAT (1). The outputs would be the printed invoice (1), which will include information such as the invoice total (1)

5(c)	How did you find out about the user's skills?	2 marks

Guidance for examiners on how to mark this question

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

- Method of investigation (1) expansion in context (1)
- Or two methods of investigation

Mark Scheme examples

Interview (1) face to face (1)

| 5(d) | With reference to your test plan, test data and testing evidence, describe **one** test you have completed to ensure the validity of data input. | 4 marks |

Guidance for examiners on how to mark this question

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

Marks to be awarded for:
- Description of purpose of test
- Description of test data
- Description of expected result
- Description of actual result
- Reference to data being accepted or rejected as applied to that test
- Specifying types of test data e.g. erroneous

Mark Scheme examples

The number of items ordered is a whole number within the range 0 - 9 (1)
The test data used was 5 (1). This is normal test data (1) which was accepted (1)

Max 4

5(e)	With reference to your test plan, test data and testing evidence, explain how the accuracy and presentation of the output have been tested.	8 marks

Guidance for examiners on how to mark this question

For accuracy and presentation award marks for the following:
- Description of the tests performed
- Justification of why test was performed
- Identification of the test data used
- Justification for test data used
- How the test is to be performed
- Who carried out the testing e.g. user / client /audience
- Reporting on the result

Max 6 if answer only includes reference to accuracy or presentation

Mark Scheme examples

To test the accuracy of invoice totals (1) the test data used was for the number of products bought and the price per product (1). The accuracy of a calculated field has been tested by doing the same calculation on a calculator (1) and comparing the results (1).

To test the presentation of a webpage give selected members of the audience a questionnaire (1) to test what has been uploaded to the page (1) to check whether the content is legible (1) report back any problems found (1)

6(a)(i)	Draw a design of an input screen for entering the order details.	6 marks

Guidance for examiners on how to mark this question

What does the screen look like?

Marks can be awarded for features of design
- completeness
- navigation
- submission
- help for the user (instructions)
- title of the form
- date
- customer details
- product details

Mark Scheme examples

Exit button (1)
Submit button (1)
Complete design (1)
Logical design / follows the layout of the paper order form (1)
Customer name and address (1)
Product code and description (1)
etc

Max 6

6(a)(ii)	Explain how your design supports robust data entry, minimises errors and ensures accurate and valid data entry.	8 marks

Guidance for examiners on how to mark this question

How and expansion in any combination

- Identification of field and the validation check
- How that validation check minimises errors

Mark Scheme examples

Existence check on customer number (1) ensures customers personal data can be taken from the system and therefore is valid (1)

Existence check on product number (1) ensures product data can be taken from the system and therefore is valid (1)

User selects title from list (1) finite choice given which prevents user typographical errors (1)
Today's date taken from the system (1) ensure correct date entered (1)

6(b)	Select and justify alternative input methods, media and devices that could be used for entering the data from the order forms	8 marks

Guidance for examiners on how to mark this question

- Candidates should include at least one method, one medium and one device to gain full marks
- Another input method (1) media used (1) device (1) justification (1)

Mark Scheme examples

Optical character recognition (1) manually completed paper form (1)
scanner (1) saves staff time for data input (1)

Direct data entry by customer (1) no media required (1) touch screen (1) customer can see it and check that their data has been entered correctly (1)

7	You have been asked to give a presentation to a group of students. Discuss the possible output methods, media and devices that you could use. 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.	14 marks

Guidance for examiners on how to mark this question

Low mark range

Candidate has only identified one output method, medium or device. 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 – 4 marks

Mid mark range

Candidate discusses at least one output method, one medium and one device. 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.

5 - 9 marks

High mark range

Candidate discusses more than one output method, medium and device. 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.

10 - 14 marks