



General Certificate of Education

Information and Communication Technology 2520

INFO3 The Use of ICT 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.

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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.

1(a) *Pharwel has a large and unmanaged backlog of maintenance tasks.*

(a) Explain what is meant by:

(i) adaptive maintenance.

(2 marks)

(ii) corrective maintenance.

(2 marks)

(iii) perfective maintenance.

(2 marks)

Guidance for examiners on how to mark this question

We are looking for a short definition/explanation of each category of maintenance, plus an extension or example for each.

Example answers

(i) Adaptive maintenance. Minor amendments to operational systems that are needed for the business to continue (1). A change to the VAT rate is a relevant example (1).

(ii) Corrective maintenance. The correction of errors resulting from system functions not working according to an agreed specification (1). Any program coding errors would need to be corrected and the system retested (1).

(iii) Perfective maintenance. The end user may require additional functionality not identified in the original specification (1) or require “cosmetic” changes to improve the appearance/usability of the system (1).

1(b) *Briefly discuss the practical difficulties that Pharwel could experience in implementing maintenance changes to the PC based sales system. (5 marks)*

Guidance for examiners on how to mark this question

Answers should consider the practicalities for Pharwel.

We are looking for a brief discussion, so one mark for each point raised, plus a further mark for expanding the point.

Example answer

Ideally, the PC maintenance changes should be implemented on each laptop at the same time (1). This may be difficult given the number of laptops (1) and the wide geographical spread of the sales force (1). The PC maintenance change may also result in a change to the company-wide information system (1). This means that both systems may have to change at the same time, as otherwise one or other of the systems could fail (1).

2 *Compare the two redevelopment options suggested to Pharwel by the consultants. Recommend and justify one option.*

(7 marks)

Guidance for examiners on how to mark this question

Max 5 if no recommendation and justification given for Pharwel.

Either option can be recommended, provided a justification is given.

Example answer

The use of an external software supplier is recommended (1).

When comparing the two options, the business knowledge of the developers is an important factor (1). The in-house developers are likely to have greater knowledge of Pharwel (1). Although the in-house developers may be able to engage contractor staff to boost their resources (1), the external software supplier is likely to have far more permanent resources at its disposal (1). Future maintenance is another consideration (1). Assuming the in-house development team remain with Pharwel, staff with understanding of the application will be at hand, compared with the external software supplier where staff will be working on other projects (1).

3(a) *Using examples from the case study, discuss the factors that should be considered when devising a new backup strategy for Pharwel.* (8 marks)

Guidance for examiners on how to mark this question

Answers must be in the context of Pharwel.

A number of factors can be discussed briefly or fewer factors may be covered in greater depth.

Example answer

A major factor in any new backup strategy is determining when the backups should be taken (1). This should be at a time when system usage is low such as late Friday evening when workers will have gone home and sales reps will have sent their orders to head office (1).

Another factor is the storage medium to be used (1). Magnetic tapes would be suitable for Pharwel due to the large volume of data that needs to be backed up (1).

The frequency of taking backups is a consideration (1) for example an incremental backup could be taken at the end of each working day when new sales have been processed (1).

Who will be responsible for backup is a further factor (1). With a total staff of 1,200 it would be impractical to make every member of staff responsible for backing up their own data (1).

3(b) Compare the effectiveness of the “hot” and “cold” restart recovery options for Pharwel. (4 marks)

Guidance for examiners on how to mark this question

This is a comparison question, so a reasoned comparison between the two approaches is required.

NB Descriptions of “hot” and “cold” restart given in Case Study

Example answer

For the hot restart, the time to recover would typically be less than 24 hours (1) compared with the cold restart option which would take longer (1).

Because Pharwel’s business depends on the availability of computing facilities (1), the hot restart would be a better option (1).

4 Explain how each of the following procedures help Pharwel comply with current legislation.

(a) Staff must not use USB flash memory devices, or any similar device, to store copies of personal data used by Pharwel. (2 marks)

(b) Staff must not attempt to gain unauthorised access to company data. This will result in instant dismissal. (2 marks)

(c) All staff that are required to use display screen equipment must receive training during their induction course. (2 marks)

(d) Staff are not permitted to make copies of any software product used by Pharwel without company permission. (2 marks)

Guidance for examiners on how to mark this question

One mark for a brief answer, two marks for a detailed answer.

NB Marks should not be awarded for purely naming legislation

Example answers

(a) Current legislation requires that personal data is held securely (1), so allowing use of USB flash memory devices would mean that personal data is insecure as it could be copied and taken outside of the organisation (1).

(b) Under the Computer Misuse Act 1990 it is a criminal offence to gain unauthorised access to data (1). The company are discouraging attempts at unauthorised access by making it a dismissible offence (1).

(c) This complies with Health and Safety legislation as it ensures staff know how to use display screen equipment (1) and such training will prevent injury and stress (1).

(d) Under the Copyright, Designs and Patents Act, Pharwel could be fined if the number of software copies held exceeds its licensed maximum (1). The procedure discourages staff from making illegal copies (1).

- 5 The following slide is part of a presentation being given to trainee systems analysts.



Write notes to accompany each bullet point, explaining the technique and how and where it could be used appropriately. (15 marks)

Guidance for examiners on how to mark this question

A maximum of three marks for each technique.

Example answers for two techniques

Questionnaires would be used to get feedback from a wide range of users throughout the organisation (1). They would consist of various questions asking the user about both the current and new system and giving them the chance to provide any additional feedback (1). The questionnaires would be distributed through the organisation and filled in during working hours (1).

Research. Existing forms, reports, screen designs and records can be examined to determine the type and extent of information required within the system (1). This gives a good overview of what formats are used and the layout styles (1). Research is suitable where an existing process or system is being replaced but obviously would be unsuitable where systems are being developed for a new company (1).

6 “Computer Based Training (CBT) is one method of providing training but is not suitable in all situations.”

Discuss this statement.

(15 marks)

Guidance for examiners on how to mark this question

One mark for each relevant point made or expansion of that point.

Points must be related to CBT, other methods of training and their suitability or otherwise for different situations.

Example of expanded point answer

CBT is appealing because it can be used at any time of day (1) for example training can take place when employees are not busy (1).

Example of single point answer

Training can be carried out at the user’s own pace (1).

7 Explain, using examples, what the following types of systems can be used for:

- *Management Information Systems*
- *Transaction Processing Systems*
- *Customer Relationship Management Systems.*

(12 marks)

Guidance for examiners on how to mark this question

Up to 4 marks for each type of system; max 3 if no example given.

Example answer for one type of system

A Customer Relationship Management system stores and collates all data relating to current, past and prospective customers (1). Most CRM data is gathered from transaction processing systems and specialised data mining software is used to extract information (1). CRM systems are often used to identify “target” customers and for trend analysis/decision support (1). Examples include supermarket loyalty systems where customer buying habits are analysed (1).

8 *“Client and user involvement is essential for any ICT development.”*

Discuss this statement, making particular reference to the stages of development of a system and when and how clients and users need to be involved in the development.

The quality of written communication will be assessed in your answer. (20 marks)

Low mark range

Candidate uses relevant examples that correctly reference at least 1 stage. The candidate has used a form and style of writing which is barely appropriate for 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

Medium mark range

Candidate uses relevant examples that correctly reference at least 2 stages with some explanation of client and/or user involvement. The candidate has used a form and style of writing which is sometimes appropriate for its purpose but with many deficiencies. The candidate has expressed straightforward ideas clearly, if not always fluently. Sentences and paragraphs may not always be well-connected. Information or arguments may sometimes stray from the point of information or may be weakly presented. There may be some errors of spelling, punctuation and grammar but not such as to cause problems in the reader’s understanding and not such as to suggest a weakness in these areas. Text is legible.

6 – 10 marks

Good mark range

Candidate uses relevant examples that correctly reference and explains client and/or user involvement in at least 4 stages. Meaning is clear. The candidate has in the main used a form and style of writing appropriate for its purpose, with only 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 uses relevant examples that correctly reference and clearly explains client and/or user involvement in all 6 stages. 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