General Certificate of Education
June 2010

Information and Communication Technology INFO2

Living in the Digital World

Unit 2

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 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.

Set and published by the Assessment and Qualifications Alliance.

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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. This applies equally to paper based or electronically marked scripts.
4. Rules on positioning of ticks and marks are to aid in checking (paper) and remarking of scripts.
5. Do not expect the candidate to use the exact wording of example answers given in the mark scheme. These are precisely what they say examples of answers to aid a teacher. If you are in doubt as to the correctness of an answer given by the candidate, consult your Team Leader.
6. The meaning of ICT-specific words and phrases are generally as defined by *BCS Glossary of Computing and ICT* (current edition).
7. 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 using banded marking no individual ticks should be written on the script as it should be marked holistically.
8. Under no circumstances should comments ever be inserted on to candidate scripts.

1 Describe, using an example for each, what is meant by an internal threat and an external threat to an ICT system. *(4 marks)*

Guidance for examiners on how to mark this question

Description of internal threat (1)
Example of internal threat (1)
Description of external threat (1)
Example of external threat (1)

Example answer

An external threat comes from outside the system (1) for example a virus which is downloaded from the Internet (1)
An internal threat to an ICT system could be from an employee who has authorisation to use the system (1) who reveals his password to a colleague (1)

2 Complete the following list of the components of an ICT system. *(4 marks)*

Guidance for examiners on how to mark this question

1 mark for each component
Max 4

Example answer

Data
Hardware
People
Procedures
Software
Information

3(a) Explain why the following types of processing are suitable.

Transaction processing for recording withdrawals from ATMs. *(2 marks)*

Guidance for examiners on how to mark this question

Feature of processing (1) and reason in context (1)
Max 2

Example answer

Each withdrawal is processed as it is received (1) meaning that the account balance would always be up to date (1)

3(b) Batch processing for producing the staff monthly payroll in a large company. *(2 marks)*

Guidance for examiners on how to mark this question

Feature of processing (1) and reason in context (1)
Max 2

Example answer

Many similar wage slips would be processed together at regular intervals (1) because the output is not required immediately (1)

3(c) Interactive processing to allow the use of wizards in software packages. *(2 marks)*

Guidance for examiners on how to mark this question

Feature of processing (1) and reason in context (1)
Max 2

Example answer

When using a wizard, the user provides answers to prompts supplied by the software and the software provides suitable responses to solve the problem (1) allowing the user to be taken through a complex procedure step-by-step (1)

4 How is the use of ICT affected by concern for the environment? *(6 marks)*

Guidance for examiners on how to mark this question

1 mark for each relevant point/expansion/example
Max 4 if only effects on the environment have been considered

Example answer

The need to dispose of used equipment safely (1) because they contain toxic chemicals (1) has meant that there is a greater need to recycle waste ICT equipment (1)

Use of energy efficient computer equipment (1) in order to reduce the carbon footprint (1)

Do not print out e-mails (1)

5 Discuss the reasons why people away from the home and their workplace make use of wireless networking and any problems they might experience when using it. *(8 marks)*

Guidance for examiners on how to mark this question

Reason/problem (1) and 1 mark per expansion.
Must have at least 1 reason and 1 problem to achieve maximum marks

Example answer

On the plus side, it is possible to connect to wireless networks in many public places (1) because of global standards (1). You can work anywhere there is a signal (1)

On the minus side wireless networks may be sensitive to interference (1), and this may limit the range of accessibility (1). There may be problems with security (1) because data can be more easily intercepted when it is being transferred wirelessly. (1) A weak signal may cause the laptop battery to run down faster because of high power consumption (1).

6 A national supermarket chain surveyed their customers and found that 10% of shoppers who left a store without making a purchase said that excessive waiting time at the checkout was the reason for their decision. The chain has decided to introduce self-service checkouts.

6(a) The self service checkout would be used by a variety of customers.
Discuss what should have been considered when designing the **interaction** for users of the self-service checkout shown above. *(8 marks)*

Guidance for examiners on how to mark this question

Characteristic of user (1)
Interaction (1) and expansion related to user and/or checkout (1 or more)

Max 4 if **only** characteristics of users
Max 4 if **only** design features of checkout interaction

Example answer

The physical characteristics of users should be considered (1) in order that the checkout can be accessed easily (1). For example, the input of PINs needs to allow for users with limited dexterity (1). Therefore the keypad has been designed with large buttons (1). They should consider what method(s) of help (1) should be provided if an inexperienced user is having difficulties using the self-service checkout (1). For example, a flashing light could alert a member of staff (1) or messages could be flashed up on screen (1).

6(b) The self-service checkout makes use of a Graphical User Interface (GUI). Explain why a GUI enables effective communication between users and the self-service checkout shown. *(6 marks)*

Guidance for examiners on how to mark this question

Description of a GUI (1)
Explanation of what a feature of a GUI does (1) and why effective in this situation (1)

Example answer

GUIs contain windows, icons, menus and pointers (1)
Menus show the selections available (1) for example, selecting a method of payment (1)
Icons pictorially represent their action (1) for example, a big red cross for cancel (1)
Pointers allow the on-screen selection of options (1)

6(c) How else could ICT be used to improve customer satisfaction when shopping? *(6 marks)*

Guidance for examiners on how to mark this question

1 mark for each relevant point/expansion/example

Example answer

Presentation software (1) could be used to provide details of in-store offers (1)

The use of text messaging (1) sometimes with the use of wireless technology (1) to alert customers to savings and special offers (1)

Electronic loyalty cards (1)

7 The Head of the English department at a school needs some advice in order to modernise the way her department organises, stores and makes use of its teaching resources. The department uses a wide range of resources including books, printed and electronic worksheets, presentations and films.

Using your knowledge of what ICT can provide explain, with examples, what advice you would give her. *(12 marks)*

Guidance for examiners on how to mark this question

What ICT can provide (1)
Example in context of what ICT can provide (1)
Expansion/explanation of example (1)

Max 9 if no examples in context given

Example answer

ICT can provide vast amounts of storage space (1) so that the paper worksheets could be scanned and stored in a much smaller space (1). Details of all the resources could be stored using database management software (1) which would provide better accessibility (1) because it could be searched very quickly (1) for a particular resource. Improved methods of presentation (1) could allow the presentations and films to be shown at the same time on many student workstations (1). The electronic resources could be made secure (1) by using passwords to restrict access to them (1). Different resources could be combined in different ways (1). New worksheets can easily be prepared (1) because ICT provides improved accessibility to information via the Internet. (1)

8 A student is planning to take a gap year before going to university in order to travel round the world. The local newspaper has promised to pay for an up-to-date multi-media account of her experiences, and her parents have agreed to the plan as long as she keeps in regular contact with the family. Discuss how the student could communicate with friends, family and the newspaper whilst ensuring the safety and security of the data she is using. *(20 marks)*

Guidance for examiners on how to mark this question

Low mark range
Candidate briefly discusses communication and/or data safety/security. Errors in spelling, punctuation and grammar, may be noticeable and intrusive to understanding, suggesting weaknesses in these areas. 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. Text is barely legible.

0- 5 marks

Medium mark range
Candidate refers to both communication and data safety/security and shows that they have reasonable understanding of them. 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. The candidate has used a form and style of writing which is sometimes appropriate for its purpose 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 or information may be weakly presented. Text is legible.

6-10 marks

Good mark range
Candidate discusses appropriate methods of communication and of ensuring data safety and security showing that they have good understanding of them. There may be occasional errors of spelling, punctuation and grammar. Meaning is clear. The candidate has in the main used a form and style of writing 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. Text is legible.

11-15 marks

High mark range
Candidate provides a detailed discussion of appropriate methods of communication and data safety and security and shows that they fully understand these. There are few if any errors of spelling, punctuation and grammar. 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. Text is legible.

16-20 marks