**General Certificate of Education (A-level)
January 2013**

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 students' 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 students' 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 students' 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. 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

   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	**Figure 1** on the insert shows a typical user interface for a mobile phone. Explain, using an example, what is meant by applications software (apps) in mobile phone technology and why the availability of apps has led to the increased popularity of smart phones.	*(4 marks)*
	Purpose of the Question Application of knowledge and understanding of applications software used in mobile (smart) phones.	
	Guidance for examiners on how to mark this question One mark per valid point.	
	Example answer Application software allows users to process various items like text or sound (1) an example would be using text messaging software (1) which is very popular as it allows people to communicate instantly. (1) There are apps available for so many different uses, like scanning barcodes for your supermarket shopping. (1)	

2	Repetitive Strain Injury (RSI) and eye strain are health problems associated with the regular use of an ICT system. (a) Give another example of a health problem that can arise with the regular use of an ICT system. (b) Explain a measure that could be put in place to prevent your identified health problem.	*(1 mark)* *(2 marks)*
	Purpose of the Question Understanding and knowledge of health and safety regulations applied to a specific health problem.	
	Guidance for examiners on how to mark this question (a) One mark for identifying a health problem (b) One mark for each valid point.	
	Example answer (a) Stress (1) (b) Stress can be prevented by including a help option in software (1) which will provide the user with a solution preventing frustration which leads to stress. (1)	

3	**Figure 2** on the insert shows an online sign up form for AQA email.
	
	For each of the fields labelled A to E in **Figure 2** state the type of data input check that could be used and explain how it would ensure robust data entry.
	
	The data input checks must be different in each case.
	
	  A
	  B
	  C
	  D
	  E
		(2 marks)
		(2 marks)
		(2 marks)
		(2 marks)
		(2 marks)

	Purpose of the Question Application of knowledge and understanding of validation and verification required in a given scenario.	
	Guidance for examiners on how to mark this question For each of A – E One mark for the validation/verification required One mark for how that check ensures robust data entry.	
	Example answer **A** – A presence check is needed (1) as it ensures that data has been entered into the name field. (1) **B** – A lookup check (1) will ensure that the user name has not already been taken by someone else. (1) **C** – A length check is required (1) as the password must have a minimum of 6 characters. (1) **D** – A format check (1) would ensure that the DOB followed the correct pattern that is shown on the example dd/mm/yyyy. (1) **E** – Double entry of email address (1) and matching them to verify they are the same. (1)	

4	You have been asked to collect data for a survey to find out what facilities teenagers would like in their local area.	
	(a) Name a storage device that could be used to store the captured survey data and explain why it would be appropriate.	*(2 marks)*
	(b) (i) What type of software would be the most appropriate to analyse the survey data?	*(1 mark)*
	(ii) Explain how the functionality of that software would allow you to complete the task effectively.	*(4 marks)*

Purpose of the Question

Application of knowledge and understanding of storage devices. Applications software and how it can be used in a given scenario and the functionality of that software.

Guidance for examiners on how to mark this question

(a) One mark for storage device.
One mark for why.

(b) (i) One mark for appropriate software that could be used.

(b) (ii) Up to four marks for how the functionality would be appropriate.
Max 2 marks for naming of functions.

Example answer

(a) An external hard drive (1) as it is portable and can be attached and used on different computer systems. (1)

(b) (i) I would choose spreadsheet software. (1)

(b) (ii) One function of spreadsheet software is the formulae function (1) which can be used to automatically calculate any total figures for the survey rather than having to calculate by hand. (1) The graph function is useful (1) as it will show clearly in a visual manner the results once the data has been processed. (1)

5(a)	Give **one** of your Client' requirements from your Sample Work and explain how you would evaluate that the requirement had been met.	*(4 marks)*
	Purpose of the Question	
	Understanding that to be successful an ICT solution must meet the client's requirements and therefore be evaluated against them.	
	Guidance for examiners on how to mark this question	
	Requirement (1) 1 mark for each valid point to max 3 Requirement must have been stated in the Sample Work but the exact wording is not necessary.	
	Example answer	
	To produce a printed invoice to house style (1) I would need to print the invoice (1) to check the presentation was as expected (1) and then show the invoice to my client to check. (1)	

5(b)	Explain, using examples, what is meant by a *client* and an *audience* for an ICT solution.	*(4 marks)*
	Purpose of the Question Knowledge and understanding what is meant by a *client* and an *audience.*	
	Guidance for examiners on how to mark this question For full marks candidate must refer to a client and an audience. If no examples used max 2 marks.	
	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 be customers who visit the website (1) to buy products. (1)	

5(c)	Describe **one** of the outputs required from your solution and the input(s) and process(es) needed to create it.		*(6 marks)*
	Purpose of the Question		
	Skill – interpret requirement as input, process and output.		
	Guidance for examiners on how to mark this question		
	One mark for each valid point.		
	Example answer One of the outputs required from my solution were pictures of the football team (1) on the webpage. (1) The inputs were a picture of the team in their kit (1) and an action picture during a game (1). The processes required were that I had to crop (1) and resize (1) both pictures to make sure they were the right size for the webpage.		

5(d)	Explain your test plan.	(6 marks)
	Purpose of the Question Knowledge and understanding the purpose and nature of testing of ICT-related solutions.	
	Guidance for examiners on how to mark this question **Check page reference first (no page reference or incorrect page reference no marks)** 1 mark for each valid point. Max 3 marks if content simply listed (no explanation).	
	Example answer My test plan included test numbers (1) to ensure I carried out the testing methodically. (1) I tested the accuracy of output (1) of the webpage by showing it to my client for checking. (1) For most tests I included the expected result (1) which I checked the actual result against. (1)	

5(e)	Explain what you should do if the actual result for a test were different from the expected result.	*(4 marks)*	
	Purpose of the Question Application of knowledge and understanding of testing ICT-related.		
	Guidance for examiners on how to mark this question Up to four marks for an explanation.		
	Example answer If a testing result was not as I had expected I would go back to the solution, find the error (1) and correct the error (1) I would then complete the testing again (1) until the actual result was what I expected. (1)		

6	**Figures 3 and 4** on the insert show screenshots of 2 different webpages. Web sites are designed in different ways and for different purposes. Compare and contrast the design of the two web pages above.	*(12 marks)*
	Purpose of the Question Understanding and application of knowledge of the design of web pages.	
	Guidance for examiners on how to mark this question **Low mark range** Simple statements have been given. The candidate demonstrates little understanding of the principles of good design. **0 – 4 marks** **Mid mark range** Some comparative or contrasting statements have been given. The candidate demonstrates some understanding of the principles of good design. **5 – 8 marks** **Good mark range** Candidate has compared and contrasted the 2 web pages showing a thorough understanding of the principles of good design. **9 – 12 marks**	

7	A student is going to take a gap year to backpack around the world. Discuss the available mobile devices, equipment and application software that could be of use to the student on her travels and recommend what she should take with her.	*(20 marks)*
	Purpose of the Question Understanding and application of knowledge of input, output and storage devices and software to a given scenario.	
	Guidance for examiners on how to mark this question **Low mark range** Candidate shows little understanding and has only identified mobile device(s)/equipment/ software. 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 describes several mobile devices/equipment/software. 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** **High mark range** Candidate discusses a wide range of software, mobile devices and equipment and makes clear recommendations as to what would be suitable**.** Any specialist vocabulary used has been explained. 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**	