



**General Certificate of Secondary Education  
January 2012**

**ICT**

**45201**

**(Specification 4520)**

**Unit 1: Systems and Applications in ICT**

***Report on the Examination***

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## General comments

The question paper/answer books completed by students during the exam are marked on-line. This makes it is easy to collect a range of statistics on each part of each question as well as those relating to the whole paper. These statistics allow AQA and examiners to see which questions were answered well and which questions students found difficult. Some of the statistics from 2012 have been included in this report.

A small number of students sat this examination online, using an on screen version of the paper. It is thought that the number of students sitting the examination online will increase in June 2012.

Overall, the standard of performance of the students in the written paper was good; this is indicted by the mean of the paper being just over 65. It is, however, worth emphasising that, in this specification, there are elements of theory that are difficult to teach through practical lessons and controlled assessment tasks alone. Some consider that these are often best taught by separate theory lessons or as starters or plenaries in practical lessons.

Unlike previous AQA GCSE ICT specifications, this paper was untiered. The statistics indicate that most of the paper appeared accessible to the majority of students (this year, 95% of students scored 40 marks or more). In addition, it appeared that overall, fewer students left questions not attempted, which is pleasing at this stage of this new specification.

## Question 1

In question 1(a), students were asked to give two input devices that would be used with a general purpose home desktop computer. The question was answered correctly by most students, but some gave various backing storage devices as answers.

In question 1(b), 90% of students were able to give at least one output device that could be used with a home desktop computer.

In question 1(c), the idea of backing storage was less well known and surprisingly 6% of students made no attempt at this part of the question.

In question 1(d), 83.7% of students were able to identify the *Central Processing Unit* as the correct answer.

In question 1(e), it was pleasing to see almost sixty per cent of students could identify that, 'RAM is volatile, ROM is not volatile,' was the true statement from the choices given.

In question 1(f), less than half of the students (44.4%) could give a suitable device. The most common correct answers were sound cards and graphics cards.

In part 1(g), many students found it easier to say what was meant by the term software, rather than hardware. 75% of students were able to gain at least one mark for this part of the question but only a little over a third of students (37%) were able gain both marks.

## Question 2

In question 2a, students were asked to match words to descriptions of network devices. All parts of the question were quite well answered 2(a)(i) – 72% correct, 2(a)(ii) – 63% correct and 2(a)(iii) – 66% correct.

Part 2(b), was less well answered than expected, with only 56% of students able to state what the abbreviations *LAN* and *WAN* stood for. There were some quite inventive answers from students who did not know the answer but were keen to have a 'guess'.

Part 2 (c), only a little over a third of students (35.9%) were able to gain both marks for describing the difference between *LAN* and *WAN*. The most common answer to gain a mark was that, 'a *WAN* was a global network such as the Internet'.

It was quite pleasing to see that around half of the students could identify the best description of the role of an ISP.

### **Question 3**

Part 3(a), was well answered and 96% of students were able to gain at least one mark for giving reason(s) for the increasing popularity of USB memory sticks. The most commonly seen answer was the idea of 'portability'.

Part 3(b), it was pleasing to see the vast majority of students had some idea about the size of the units used for storage. 94% of students gained at least one mark and almost 40% were awarded full marks.

Part 3(c), half of the students were able to give a suitable reason why some files need to be compressed before transferring them.

### **Question 4**

In question 4 students were asked a range of questions about a spreadsheet used for a school Enterprise Day to model profit and loss.

In part 4(a), around 70% of students were awarded the mark for giving the correct answer as cell A14.

Part 4(b), a pleasing 95% of students identified the format of the data in cell A1.

Part 4(c), the vast majority were able to identify the formulas used in, the cell D5 (93%) and in the cell D22 (82%).

However, in 4(d), the functions available in spreadsheets were less well known and only 32% could identify *AVERAGEUP* as not a common function. Students may have been influenced by the use of *ROUNDUP* in part 4(e).

Most students struggled to explain the difference between *ROUND* and *ROUNDUP* in part 4(e) and only 31% of students gained any marks for this part of the question.

In part 4(f), just over half of the students gained one mark for explaining how the model could be used to investigate ways of increasing the profit. Most students gained a mark by explaining the need to reduce the cost of buying a T-shirt or increasing the price of selling a T-shirt.

### **Question 5**

There were many well explained answers in part 5(a) with 94% of students gaining at least one mark and almost 60% gaining both marks. The most common correct answers were, 'the creation of folders' and 'renaming the work with sensible file names'.

However, part 5(b) was less well answered and the features of a Graphical User Interface (GIU) were not well known by the students. Although 36% of students gained at least one mark, only 5.3% gained the full three marks.

### **Question 6**

This MCQ question gave a list of common features that will appear in most software packages.

In part 6(a), 74% of students recognised, from the list, this features as 'Orientation'.  
In part 6(b), 93% of students recognised, from the list, this features as 'Font style'.  
In part 6(c), 52% of students recognised, from the list, this features as a 'Wizard'.  
In part 6(d), 81% of students recognised, from the list, this features as 'Text wrap'.  
In part 6(e), 86% of students recognised, from the list, this features as 'Crop'.

### **Question 7**

Part 7(a), the idea of a document being fit for purpose was well understood by the vast majority of students. 97% of students gaining at least one mark and 42% gained all three marks.

Part 7(b), just over half of the students (50.7%) were able to identify 'Bar codes' as the most suitable way of collecting the information.

The most common answer to 7(c) was 'e-mail' and 93% of students gave a suitable correct answer.

Part 7(d), was also well answered and most students (69%) gained both marks.

### **Question 8**

Although most students will access websites on a daily basis, students found it difficult to explain the features given in this question.

Part 8(ai), most students described this as the Home page and few students (13%) gained any marks.

Part 8(aii), many students appeared to know what a navigation bar was but often their explanations were too brief. Although over half of the students (53%) gained at least one mark, very few (3.1%) gained both marks.

Part 8(aiii), counters were not well understood by most students and only a third of students gained any marks for this part of the question.

Part 8(b), only 31% of students could name one more feature specific to web design software. Many students just gave vague or generic DTP features.

### **Question 9**

The majority of students found most parts of question 9 difficult and the idea of an operating system did not seem to be well understood by many students.

Part 9(a), 70% of students were able to identify an operating system as software.

Part 9(b), only just under half of the students (48.2%) were able to identify that 'All of them' were file operations carried out under the control of the operating system.

Part 9(c), only just over a third of students were able to choose the best definition for a real time operating system.

Part 9(d), it was disappointing that only around a third of students (35%) could name another type of operating system.

### **Question 10**

Part 10(a) was a MCQ question which gave a list of stages of the system life cycle. As many of these stages are in Unit 2, the percentage of correct answers to some parts of this question were disappointing.

In part 10(a)(i), 36% of students recognised, from the list, that this stage was the 'Feasibility Study'.

In part 10(a)(ii), 55% of students recognised, from the list, that this stage was the 'Design'.  
In part 10(a)(iii), 57% of students recognised, from the list, that this stage was the 'Maintenance'.

In part 10(a)(iv), 43% of students recognised, from the list, that this stage was the 'Testing'.

In part 10(a)(v), 36% of students recognised, from the list, that this stage was the 'Evaluation'.

In part 10(a)(vi), 36% of students recognised, from the list, that this stage was the 'Analysis'.  
In part 10(b), 55% of students could give at least one way of collecting information about how the existing system works.

The 'iterative review process' in part 10(c) was not well understood by most students. Although 23% of students gained one mark, only 4.3% were able explain the process well enough to gain both marks.

## **Section B**

### **Question 11**

In parts 11(a) and 11(b), some advantages and disadvantages of working from home were well understood by the vast majority of students.

Part 11(c) was a MCQ question which gave students the list, Copyright law, Data Protection Act and Computer Misuse Act. From this list students were asked to say which would be broken in the circumstances given.

In part 11(c)(i), 47% of students recognised that 'Copyright law' would be broken.

In part 11(c)(ii), 53% of students recognised that 'Copyright law' would be broken.

In part 11(c)(iii), 31% of students recognised that the 'Computer Misuse Act' would be broken.

11(d) was the first of the extended answer questions which were all marked using a 'levels of response' rather than a 'points' mark scheme. The concept of online storage was at least familiar to most students and (87%) of the students gained at least one mark. Over a third of students (35.8%) were able to give suitable advantages and disadvantages of the process and gain marks in the higher mark ranges (4 or 5 marks).

## Question 12

In question 12 students were asked a range of questions about part of a health club's database.

In part 12(a), (84%) of students could give the correct number of records. The most common incorrect answer was 9 (the number of fields).

In parts 12(b), 79% of students could give a suitable reason why the surname would not be a suitable key field.

Part 12(c) was less well answered with only 39% of students gaining the mark available. The most common wrong answers given by students was the idea that 'it would be secret unless you knew the code' or 'it would stop hackers'.

In part 12(d), just over a third of students could explain why text was a suitable field format for the House Number field. Some good answers were seen that demonstrated a good understanding of the formatting of fields in a database.

Part 12(e), was a question which asked students to select the records which would be found using given search criteria.

In part 12(e)(i), 67% of students selected the correct two records where the 'Postcode equals LN3 1BL'.

In part 12(e)(ii) 39% of students selected the correct three records where the 'Date of Birth is greater than 01/01/1996'.

In part 12(e)(iii), 62% of students selected the correct three records where the 'Last Name equals D\*'

Overall question 12(f) was not well answered and the concept of data validation was not well understood by most students. In fact less than half of the students (46%) managed to score any marks for this part of question 12. Many answers were very often just a repeat of the question or a vague statement to 'check everything well'. However, there were some excellent answers (11% of students gained 4 or 5 marks) showing a clear understanding of how data validation could be used to improve the accuracy of information being input into the database.

## Question 13

In parts 13(a) and 13(b), some disadvantages of buying online and advantages of banking online were well understood by the vast majority of students.

In part 13(c), only a little over a third (34.5%) of students gained full marks. Many students simply gave a brief statement about a social network site rather than the required description. Most students found part 13(d) accessible, and around half (48%) of students scored two or three marks on this question and 78% scored at least one mark. Common answers included specialist keyboards e.g. Braille keyboards and voice recognition software.

## Section C

Both essay questions were tackled quite well by most of the students and around two-thirds (Qu14 – 65.2% and Qu15 – 69.5 %) of the students able to score half marks (6 marks) or more. All the students made an attempt to answer one of the essay questions.

Overall students appear to have performed a little better on question 15 than on question 14. As with all of the extended answer questions, the essays were marked using a 'levels of response' rather than a 'points' mark scheme.

### Question 14

Just over one quarter of students (26%) attempted this essay questions and as stated earlier, overall it was quite well answered. A wide range of sensible 'emerging technologies' were described and how they affect the way people and organisations operate and work together discussed. The most commonly seen answers revolved around the affect of:

- teleworking in various forms
- video conferencing
- buying/shopping online
- robotics
- telephone apps.

A level of response mark scheme was used to mark this question, see the published mark scheme for more detail.

### Question 15

This question was the more popular of the two essay questions and just less than three quarters of students (74%) attempted this question.

A wide range of appropriate hazards and ways of avoiding them were discussed by students. The most common were:

- phishing/scam e-mails
- mirror-image websites
- virus issues
- hacking issues
- 'stay safe' issues (especially grooming and cyber bullying).

Again, a level of response mark scheme was used to mark this question, see the published mark scheme for more detail.

## Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) section of AQA's website.

UMS conversion calculator [www.aqa.org.uk/umsconversion](http://www.aqa.org.uk/umsconversion)