



GCSE

Computer Science

8525/2

Report on the examination

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General

Some questions were well answered with some students able to demonstrate a good knowledge and understanding, recall definitions and use appropriate terminology. Where calculations were required, more students than in previous years included their working out and were able to gain working marks even if the final answer provided was incorrect.

Definition questions elicited a range of marks with some students demonstrating good recall of definitions, whereas others appeared not to have learned the definitions from the specification. Students need to be able to recall common definitions, parrot fashion. They are losing marks by not being able to do so. When a question uses the define command word, the student must give the actual definition not a vague or even good description of the required definition in question. It must be the actual definition.

The use of incorrect words continues to be a problem. For example, using 'amount' when they mean 'number' or 'information' when they mean 'data.' It is important that responses include the correct terminology.

Marks were also lost due to students not reading the question carefully or not understanding the command word in the question. The database section remained a difficult section for some students, with students not able to recall definitions or write SQL. Others had clearly learned definitions for terminology such as primary key and SQL and were able to produce high quality responses.

Question 1.1

This question was well answered with 90% of students achieving the mark.

Question 1.2

Over 50% of the students achieved the mark. This question required students to state the number of different values that can be represented by 3 bits. Common incorrect answers were 3 and 7.

Question 1.3

This was a multiple-choice question requiring students to understand that binary is base 2. It was well answered with over 70% of students achieving the mark.

Question 2.1

This question required students to convert a hexadecimal number to decimal. It was fairly well answered with around 60% of students gaining both marks and a further 25% of students able to gain a working mark. A common partially correct answer involved students converting the hexadecimal number to binary but not completing the second step of converting this binary to decimal. Another common misconception is that F = 16.

Question 2.2

This question was well answered with approximately 80% of students gaining both marks and approximately a further 7% gaining a working mark.

Question 3

This was a multiple-choice question and was fairly well answered with students being able to gain 1 or 2 marks. Some students shaded more than two answers, which triggered the reject point, or did not attempt the question at all.

Question 4

This question required students to recall the definitions of software and hardware. Less than half of the students were able to gain both marks. Common incorrect answers when defining software included either stating that was non-physical or referring to applications software and end-users. The definition of hardware was better answered with students being able to gain 1 mark for the question. However, some students provided examples of hardware rather than a definition.

Question 5

Approximately 60% of students were able to state one or two functions of the operating system.

Question 6.1

This question was generally well answered with students being able to gain one or both marks.

Question 6.2

This question required students to state the difference between assembly language and machine code. Just over 70% of students were able to gain one or two marks. A common error included students writing one difference and then the converse of that difference which could not be awarded the second mark.

Question 7.1

This was a multiple-choice question and generally well answered with approximately 80% of the students gaining the mark.

Question 7.2

This question required students to state the binary value of the ASCII character `b` which was provided in the question. Approximately 68% of students gained the mark. A common error answering this question was to write an 8-bit binary value adding a leading 0 when the question required them to state the value as presented in Figure 1, which was a 7-bit binary value.

Question 7.3

This question required students to state the binary value of the ASCII character `d`. It was generally well answered but two common errors prevented students from gaining the mark. Firstly, some students did not state a binary value but rather a decimal value and secondly some students did not appear to know that the binary values for the ASCII letters are sequential so that they could add 1 to the binary value of `c` given in question 7.2.

Question 7.4

This was a multiple-choice question and generally well answered with approximately 80% of students gaining one or both marks.

Question 8.1

This question required a definition of the term pixel. Over 50% of students gained this mark and had clearly learned the correct definition. Common errors that prevented students from gaining the mark included referring to squares / blocks of colour, which is not precise enough.

Question 8.2

This question was generally well answered with approximately 90% of students stating the correct number of pixels in the image.

Question 8.3

This question was fairly well answered with approximately 60% of students gaining the mark. A common misconception was that a 2-bit colour depth was required to store two colours.

Question 8.4

This was a multiple-choice question and generally well answered with approximately 90% of students gaining the mark.

Question 8.5

This question was fairly well answered. The majority of students showed their working and were able to gain one working mark where an incorrect answer was provided.

Question 9.1

This question required students to define the term sample rate. It was fairly well answered. However, too many students referred to 'amount of sound' or 'number of samples' but with no reference to a time period.

Question 9.2

This question was less successfully answered, with few students able to write the correct definition of sample resolution. Many students referred to the quality of sound, which it will affect, but is not the definition. Too many students referred to images in their answer.

Question 9.3

This question involved calculating the minimum file size of a sound file. Just under 50% of students were able to gain all three marks. Other student responses were able to gain one or two working marks.

Question 10.1

This question was well answered with just over 80% of students gaining the mark for naming the gate.

Question 10.2

This question was generally well answered again with nearly 80% of students able to identify the gate associated with the truth table.

Question 10.3

This question required students to complete a truth table for a given circuit. Again, this was generally well answered with nearly 70% of students being awarded full marks. Students were able to gain some marks for completing some columns correctly.

Question 10.4

This question required students to write a Boolean expression for a given circuit using the correct symbols. Over 50% of students gained both marks. Students were able to gain a mark if the correct symbols were used with a partially correct expression.

It is important to note that some students expressed the correct expression in words when the question asked for symbols and did not gain the marks. It is important that they read the question carefully. Where students used alternative correct notation for expressing Boolean expressions they were able to gain marks. However, we would encourage that they use the notation expressed in the specification.

Question 11.1

This question was about the use of main memory in the FDE cycle. A lot of students described the FDE cycle rather than explaining how the main memory is used. This prevented students from gaining the top marks on this question.

Two other common mistakes approaching this question were saying that ‘the memory is fetched’ and using ‘information’ in place of ‘data’. It is important that students read the question carefully and read their response to check that it is answering the question. Some student responses demonstrated a good understanding of the FDE cycle, but their responses did not answer the question.

Question 11.2

Just over 40% of students were able to gain both marks for this question with a good range of differences being stated between **RAM** and secondary storage covering the range of points from the mark scheme. However, student responses included several common misconceptions including students mixing up **RAM** as non-volatile and secondary storage as volatile, students stating that RAM is built into the computer and secondary storage is not and a significant number stating that RAM is used to store memory.

A few students confused **RAM** and **CACHE** memory. A final error when answering this question was to write a difference for example RAM is volatile, and for the second difference that secondary storage is non-volatile. Students need to give two differences not one difference with the inverse as the second one.

Question 11.3

This was a multiple-choice question and fairly well answered with approximately 90% of students able to achieve one or both marks.

Question 12

This question elicited mixed responses covering the full mark range. Some students were able to provide four clearly described advantages of cloud storage over local storage. Some misconceptions identified from responses included cloud storage being more secure or that secondary storage may not be required at all.

Question 13

This question was fairly well answered with around 60% of students gaining one or both marks.

Question 14

This was the level of response question. Some students were able to provide a structured detailed discussion of legal and/or ethical issues and cyber security measures. It was also good to see that there were fewer blank responses than in previous years.

There were a lot of responses limited to level 1 (1 to 3 marks) because students either wrote a list of statements or some brief descriptions. Other responses were limited to level 2 (4-6 marks) because they focused on either legal and/or ethical or cybersecurity.

The cybersecurity element of the question yielded better responses with students able to explain how a range of cyber security measures could be implemented by the company. Some students did not read the question carefully and attempted to explain how customers or hackers would be affected rather than the company which was not answering the question.

Question 15

This question was less successfully answered, with approximately 30% of students gaining both marks. Incorrect responses included a description of black box testing instead of penetration testing or describing an external hack without making any reference to it being a simulation.

Question 16.1

This question was less successfully answered, with approximately 25% of students gaining the mark. Too many students did not qualify 'over a network' or between 'server and client' they simply stated transferring files, which is given in the question: 'file transfer protocol'.

Question 16.2

This question less successfully answered. Either it was completely incorrect, or students referred to websites in place of web pages. A lot of students confused HTTP with HTTPS saying that it is more secure or keeps users safe online.

Question 17

This question was more successfully answered with approximately 80% of students gaining one or both marks.

Questions 18.1 and 18.2

The identification of a biometric measure in 18.1 was very well answered with over 80% of students achieving this mark. However, some students did write password as a biometric

measure. The second part of the question requiring students to identify a weakness of that measure was less well answered. A common misconception was that face ID can be fooled with a photograph. The mark scheme did allow for this only if the response referred to older devices.

Question 19.1

This question elicited a range of student responses with approximately 60% of students able to gain two or three marks. Again, students need to write a full response rather than single word answers. A mistake made when answering this question was to give advantages of wired networks rather than disadvantages of wireless networks, where the opposite is not always true. It is important to make sure that the response is answering the question.

Question 19.2

This question was less successfully answered with around 20% of students gaining both marks. Some students were able to gain one mark for identifying one advantage of a fibre optic cable. Student responses included vague one-word answers such as reliable, faster, or it is faster rather than referencing the data or transmission of data. The cable is not faster; it is the transmission of data that is faster. 'Reliable' should refer to the cable being reliable over a long distance or the cable being able to transmit data over longer distances.

Question 20.1

This question required students to define the term relational database. Approximately 50% of students were able to gain one or both marks. Too many students in this question referred to multiple databases instead of multiple tables in their response causing them to lose marks.

Question 20.2

This question focused on the definition of a foreign key. This was less successfully with less than 50% of students able to gain marks. Whilst some students demonstrated an understanding that a foreign key could be used to link tables in a database, they were unable to articulate a definition. They often did not use the correct terminology. Some students referred to a foreign key as a physical key and again used database in place of table. Approximately 15% of students were able to gain both marks with approximately a further 30% of students gaining a mark for a partial definition.

Question 20.3

This question was generally well answered with students being required to identify a primary key. A common error which prevented some students gaining this mark was selecting the `StudentID` as the primary key.

Question 20.4

This question generated a range of marks from the 0 to 6 available. However, approximately 25% of students gained 0 marks or did not attempt the question. Some student responses demonstrated a good understanding of SQL allowing them to gain 5 or 6 marks. Common mistakes in responses included the use of == instead of a single =, the misuse of brackets and problems in the `WHERE` clause. Most students were able to gain marks by identifying the correct fields in the `SELECT` clause and the correct tables in the `FROM` clause.

It was also still too common to see no SQL terminology being used in responses.

Question 20.5

Over 50% of the students were able to gain one or both marks on this question. Common mistakes included students using the incorrect keyword for part A, including `SELECT`, `GET` and `INSERT`.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.