
GCSE COMPUTER SCIENCE

8525/2 Computing Concepts
Report on the Examination

8525/2
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GENERAL

It appeared that advice given in previous reports had been heeded. For example, most students showed their working for calculations which allowed them to gain marks for working even when the final response was not correct.

There was a noticeable increase in responses where students had given more than one answer as alternatives, for example to questions 13.5 and 14.3. Students should be advised to make it clear which is their final response if they have written down alternatives, and to avoid giving multiple responses to a question. Anything they do not wish to be marked should be crossed through.

Questions that ask for differences to be described, or require a similar comparison, should be answered with a response that gives both points. For example, in question 13.3, a response that says "A star network connects all devices to a hub, but a bus network does not" is not describing a difference. It is only stating what happens in a star network.

A high number of vague responses were seen to questions which required correct terminology to be used. For example, the words 'stuff' or 'things' were used in place of 'instructions', 'data' and so on. This means that the answers are imprecise and often makes them uncreditworthy.

Questions 1 to 5

A high proportion of responses to the first two multiple choice questions were correct.

A surprisingly large number of students showed in their responses to question 2.2 that they thought hexadecimal numbers go from 0 to 10, A to F. This meant that they incorrectly converted D to the binary equivalent of 14.

Question 6

Very few correct definitions of the term hertz were seen. Most responses gave definitions of the sampling rate.

Question 7

Rather than the smallest point, or smallest addressable element of an image, many students defined a pixel as a square in an image. This was too vague to be awarded a mark.

A large number of correct responses were seen for descriptions of bitmap representation, but a small proportion of students showed colour values using one bit, calculated the file size or described using run length encoding to represent the image.

The commonest mistake when calculating the file size of the 10 pixel x 10 pixel image was in calculating the colour depth (number of bits) required to allow the representation of 5 different colours. This was commonly given as 5 rather than 3 bits.

Question 8

A high proportion of responses gave good definitions of hardware, but describing the role of CPU components was not done well. Whilst some candidates could accurately describe the roles of the components, common incorrect answers for the Control Unit described it as controlling the CPU or

computer. Commonly the register was just described as fast memory without saying what it is used for.

Many students gave good answers to question 8.3, but a few talked about the “ability to do two things at once” or “many different things at once”. Imprecise language such as ‘things’ cannot be accepted as a replacement for correct terms such as ‘instruction’.

In responses to question 8.4 many students clearly had the idea that non-volatile memory was not affected by losing power but could not clearly express it. This often resulted in responses such as “the memory isn’t lost” or “the memory isn’t deleted”, rather than a response such as “the data in the memory is not lost when power is turned off”.

Question 9

Students had a fairly good understanding of what application software is but a high number struggled to articulate clearly the function of system software.

Question 10

Although some students displayed a very detailed knowledge of the Fetch-Execute cycle, many did not.

A common confusion in responses was between instructions and data. Often students talked about data being fetched in the context of instructions, or data being decoded rather than instructions.

Question 11

A high proportion of correct responses were given to the first two parts of this question.

The Boolean expression question part was well answered but many students did not use the correct symbols for Boolean operators. Only correct symbols were awarded marks.

Question 12

Unfortunately, many students appeared to mis-read the question and gave advantages of writing in a high-level language. The question asked for one advantage of writing in assembly language.

Of those who gave a reason as “it is more efficient” this was only accepted if it was correctly explained.

The multiple choice question on program translators was well answered, as was the question on programming languages.

Question 13

Question 13.2 was generally well answered, but questions 13.1 and 13.3 both asked for differences and were not. Often this was because students only presented one side of the difference. For example, a response such as “WANs cover a huge geographical area, PANs do not” does not describe the difference – it only states a fact about WANs without a corresponding one for PANs.

One common incorrect answer for question 13.3 was to say that if one computer in the bus network failed then the whole network would fail.

There were many good definitions of a network protocol, though some students gave descriptions of various network protocols rather than giving a definition.

A very common mistake in responding to question 13.5 was to name the Data Link and Network layers in the OSI model rather than the Link and Internet layers in the TCP/IP model.

Question 14

There was a noticeable improvement in the standard of answers to the SQL questions this year.

A high percentage of students were able to give correct answers to the first three questions.

Responses to the SQL query for question 14.4 were much improved, although the use of wrong keywords, such as SEARCH, GET or PRINT was quite common. Where students used table name and field name in clauses they often placed them in reverse order, for example writing StudentID.Student rather than Student.StudentID.

In question 14.5 very few students included both the conditions in the WHERE clause that were necessary to gain the mark. The majority completed the DELETE FROM clause correctly.

Question 15

Responses to this question were very varied. A notable feature was that most students were able to explain what the benefits to an individual were, in terms of tracking activities, calorie consumption, heart rate and so on. Better responses included reference to analysis of large datasets being used in research.

Data privacy and legal issues were often related to the storage of data or collection of data with assumed consent. Many included references to finding the location or routine of individuals through sharing this activity data on social media.

A good number also made reference to the recent Roe v Wade judgement in the United States of America and its impact on users of menstrual tracking apps where data is collected from wearable devices.

Quite a number of responses specifically referred to American data protection legislation which is not relevant in this country.

Question 16

The first two parts of this question were generally answered well though a significant number defined cybersecurity as keeping you safe online.

Responses to question 16.3 often focused on weak and default passwords, with many students explaining the problems and showing a good understanding of how to protect against the threat.

The threat resulting from outdated or unpatched software was also generally well understood, though often students talked about using penetration testing to resolve problems whilst missing straightforward solutions such as auto-updating software.

Misconfigured access rights were less well understood with many responses giving quite vague or incorrect descriptions of what the issue and resulting threat was. Again, many students suggested

that regular penetration testing would counter the threat. Other common incorrect responses were that MAC address filtering and two-factor authentication could be used to prevent unauthorised access.

Mark Ranges and Award of Grades

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