GCSE
COMPUTER SCIENCE

8520/2
Report on the Examination

8520
November 2020

Version: 1.0

Further copies of this Report are available from aqa.org.uk

General Introduction to the November Series

This has been an unusual exam series in many ways. Entry patterns have been very different from those normally seen in the summer, and students had a very different experience in preparation for these exams. It is therefore more difficult to make meaningful comparisons between the range of student responses seen in this series and those seen in a normal summer series. The smaller entry also means that there is less evidence available for examiners to comment on.

In this report, senior examiners will summarise the performance of students in this series in a way that is as helpful as possible to teachers preparing future cohorts while taking into account the unusual circumstances and limited evidence available.

Overview of Entry

Although the number of students taking this paper was quite small some specific comments could be drawn from the responses seen.

Comments on Individual Questions

Question 1
Number conversions were carried out quite accurately though some students appeared to confuse decimal and hexadecimal. When converting from hexadecimal to binary some students converted each character correctly but added leading zeroes to each conversion so that when combined the binary representation was incorrect. A common incorrect answer given for reasons why hexadecimal is used was that hexadecimal takes less space in memory or is easier to understand than binary.

Question 2
This question was generally well answered.

Question 3
A common incorrect answer was 64, or 26. Many students gave the response of 5000 as the number of bits, failing to convert from bytes to bits.

Question 4
Many students talked about the sampling rate or quality of recording rather than how the sound wave is actually converted and stored.

Question 5
There appeared to be much confusion of compression and encryption in responses to this question. A lot of students failed to convey that there need to be runs of repeated data to allow effective compression using RLE. Many students described aspects of RLE without being specific about how it works. For example, they wrote about runs of data but did not then describe how those runs are counted or are stored as count and data value pairs.

Question 6
This question was generally well answered.

Question 7
Students often described how the Fetch-Execute cycle uses memory rather than how main memory is used. There appeared to be confusion between main memory and secondary storage, particularly to do with memory volatility and speed of access.

Question 8
This question was generally well answered.

Question 9
The Huffman tree was well interpreted. Responses for the second part of the question often described the correct order of actions rather than answering the question about mistakes in the student response given. The third part of the question expected students to know that ASCII is a 7-bit representation of characters but many students calculated an answer using 8-bits per character.

Question 10
This question was generally well answered though a number of students confused network types with network topologies. Other students incorrectly stated that a wireless network required the Internet in order to operate.

Question 11
Some students gave examples of cyber security rather than a definition, or stated that it was ‘keeping a computer safe’ but not from what. A common incorrect answer was that malware is a virus. Responses to the fifth part of the question often contained the impractical method of ‘preventing staff and students from sending and receiving emails’.

Question 12
This particular topic of human microchip implants has not appeared before, but some strong responses were seen that focussed on patient consent to implant and removal as well as the ethical impacts of hacking and third parties accessing the stored data. Some students did not read the provided article well and assumed that the chips were constantly recording patient data or that the Verichip organisation actually stored patient details and medical records. Many students also talked about data protection to do with records stored by Verichip and hospitals, though these were not considerations for the use of implanted microchips.

Concluding Remarks

The level of demand within the paper was comparable with that of previous question papers. Because of the small size of the cohort it is difficult to make any other comparisons.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.