AS-Level

Computer Science

Paper 2
Report on the Examination

7516/2
June 2016

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Question 1

Question 1 was about number systems and was generally well-answered. More candidates were able to identify an irrational number than a natural number.

Question 2

Question 2 was about data representation.

Most candidates were able to demonstrate a good understanding of number bases in this question. Some candidates obtained the correct answer for 2.1 (39) but then added the digits 3 and 9 together (to get 12) and then gave C as their final answer.

A wide variety of correct answers were seen for 2.2, but there were a significant number of responses that contained the misconception that hexadecimal numbers will use less memory/storage than binary numbers. Another common misconception, that was seen in many of the answers to 2.4, was that two's complement means negative. -199, -198 and -57 were the most frequently seen incorrect answers.

Answers to 2.6 and 2.7 often showed some understanding of the topics being assessed but were not always expressed clearly enough and often lacked the detail needed to obtain full marks.

Question 3

Question 3 was about Boolean algebra.

While a number of very good answers to this question were seen, candidates often struggled to apply de Morgan's law correctly within an expression.

Question 4

Question 4 was about computer organisation and architecture.

Assembly language is a topic which was on the old A-Level Computing specification but has a more prominent place on the new A-Level Computer Science specification. A significant number of candidates did not appear to have had much experience of writing assembly language programs and struggled to get any marks. Many candidates did not read the question carefully and did not use the instruction set provided in Table 2. Some answers were written in high-level language or pseudo-code. The instruction set that will be used in question papers is available on the AQA website.

A number of good answers were seen to question 4.3, and a variety of different approaches were seen that resulted in full marks. Some of the more common mistakes in reasonable answers that meant full marks were not obtained were: the use of STR or LDR instructions instead of MOV, not

having a branch that "jumped over" the else part if the then part had been executed and using the incorrect syntax for labels.

For 4.5, most candidates were aware that a register was used to store data but answers frequently did not differentiate between a register and main memory.

Question 5

Question 5 was about computer systems, computer organisation and architecture.

Parts 5.1 and 5.4 were generally well-answered. Candidates often were not able to simplify the Boolean expressions in parts 5.2 and 5.3, with a wide variety of incorrect answers seen. A good range of correct factors were seen in the answers to 5.6, a common response that obtained no marks, as it had already been given in the question, was to increase the number of cores.

Question 6

Question 6 was about data representation.

Generally, candidates did well on this question. It was pleasing to see that most candidates did show their working out for 6.1 which meant they were often able to get some marks even if there final answer was incorrect. Answers for 6.4 were not always expressed clearly and often lacked the detail needed to get both marks.

Question 7

Question 7 was about communication and networking.

For 7.1, most candidates were able to identify that a (wireless) NIC would be needed. A common incorrect answer was router; a router would be needed but not for each device. Some candidates gave answers related to Ethernet rather than wireless networks.

Most candidates were able to obtain some marks for 7.2 but often did not write in sufficient detail to obtain 3 marks. Again, a common error came from not reading the question carefully with a number of answers talking about the student not having the correct SSID.

Answers for 7.4 often suggested that students had some knowledge of SSID broadcasting but did not know what an SSID is (a name that identifies a wireless LAN). Most candidates were able to provide at least partially correct answers for 7.3 and 7.5.

Question 8

Question 8 was about external hardware devices.

While most candidates had a reasonable understanding of the three input devices asked about in 8.1 a number of students only wrote about two of the three devices or did not provide any advantages of RFID which limited the marks that they were able to obtain. Answers to 8.2 often stated that the magnetic hard disk could be used as a back-up but this did not answer the question as to why both magnetic and solid-state storage were being used. Only a few candidates were able to identify two components of a solid-state drive.

Question 9

Question 9 was about programming languages and program translators.

9.1 was the question that candidates found the most challenging on this exam paper, with very few providing any creditworthy explanation of what an imperative language is.

9.2 and 9.3 were better answered, though a number of candidates got confused between high and low-level languages and gave the reverse of the correct answers.

Mark Ranges and Award of Grades

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