



Pearson
Edexcel

Examiners' Report
Principal Examiner Feedback

Summer 2019

Pearson Edexcel International GCSE in
Computer Science (4CP0)
Paper 01: Principles of Computer Science

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This report is split into two sections: General Comments and Specific Comments. In the Specific Comments, there will be comments about the candidates' responses to the questions.

GENERAL COMMENTS

This was the first series of the Specification of Pearson's International GCSE Computer Science.

There were approximately 450 candidates for the specification in this series. The large majority of candidates attempted all questions and the two hours allowed for the examination did not seem to be an issue for most candidates.

The format of the question paper is a combination multiple choice, short open and extended open questions about the principles of computer science. It is intended that the structure of the paper is such that demand increases through each question and through the paper as a whole.

Early in the Autumn term, some further material will be available to provide exemplar materials with commentaries. This will be available on the Pearson website on the pages for International GCSE Computer Science.

SPECIFIC COMMENTS

Question 1

- Q01a This diagram was generally well completed. In most cases where candidates achieved 1 mark, they achieved all 3. Where candidates failed to achieve any marks, the answer tended to be a combination of fetch, decode and execute. The most common mark was 3.
- Q01b This multi-choice question was very well answered with many candidates correctly identifying 'central processing unit' as the name of the hardware component responsible for controlling the fetch-decode-execute cycle. The most common mark was 1.
- Q01c Whilst many candidates were able to achieve both marks for this question, many did not achieve any. For those who achieved 1 mark the most common mark achieved was the 'data' mark. The most common mark was 0.
- Q01d The most common mark for this question was 0 with many candidates failing to show any understanding of virtual memory. Where candidates achieved 1 mark, they generally achieved both marks with some very good linked explanations. Very few candidates achieved only 1 mark.

- Q01e This was a well answered question with many candidates achieved both marks. Many candidates include more than the two descriptive points required and would have achieved more marks if they had been available. It was clear to see the majority of candidates had a good understanding of how data is stored physically on optical media. The most common mark was 2.
- Q01f More candidates did not achieve a mark for this multiple choice question than those who did. It was clear to see that candidates lacked understanding of the different types of software.

Question 2

- Q02a The most common mark achieved was 1 with the mark achieved generally being for a responsibility of Zafer. Fewer candidates were able to identify a responsibility of the cloud storage provider. Some candidates mixed up the responsibilities giving a cloud storage provider responsibility for Zafer and vice versa.
- Q02b Candidates appeared to find this question difficult with the most common mark being 0. Few were able to identify that Robert, the robot programmer, would only need read access to the design drawings whilst Zafer would need to be able to read the design drawings and have read/write access to the folder.
- Q02c The most common mark achieved for this question was 1 and this mark was generally for the identification of the input. The most common answer was www.pearson.com for this mark. Not many candidates were able to identify the output. Those that did tended to give 2.20.38.113 as their answer. Some candidates gave IP(V4) address but did not go on to say for Pearson's machine so were unable to access the second mark.
- Q02d The diagram was generally well completed with the most common marks being 3 or 4. The most common combination of 3 marks were achieved for the connection of the tablet to the WAP, the switch to the router and the router to the WAP. It was nice to see how many candidates achieved the full 6 marks from this question.

Question 3

- Q03ai This question was very well answered with the majority of candidates being able to identify LAN, wireless LAN or PAN. The most common mark was 1.
- Q03aii This question was very well answered with the majority of candidates being able to identify WAN. The most common mark was 1.
- Q03b This multiple choice question was also very well answered with the majority of candidates identifying megabits per second. Very few candidates did not achieve this mark.

- Q03c This question was not well answered, with the most common mark being 0. There appeared to be a number of reasons for this. Many candidates did not recognise that IMAP was the protocol that Isra should use in the context of the question i.e. using her tablet computer and smartphone to access email and just appeared to give any protocol associated with email e.g. POP3 or SMTP. The candidates who did correctly identify IMAP tended to achieve 2 out of the 3 marks, losing the third because they failed to fully justify the reason, only giving a statement without the reason eg 'messages always reside on the email server' without the context of the question 'she has limited storage on her tablet and phone'. Those who gave POP3 as the protocol failed to achieve the first mark but could go on and achieve 2 marks for the justification. Few failed to do this. Those who identified SMTP failed to secure any marks.
- Q03d This was a very well answered question with the most common mark being 4. Candidates clearly recognised network topologies from the characteristics given.
- Q03ei Where candidates understood that sign and magnitude were being used and what this meant, they tended to achieve 2 marks though some only achieved 1 mark for the negative sign. Many did not appear to understand sign and magnitude or did not recognise the question stated this. The most common mark was 0.
- Q03eii This was a very well answered question with the majority of candidates achieving both marks. Some of the candidates did not achieve any marks as they transposed the nibbles giving 1011 0100 as the answer. The most common mark was 2.
- Q03eiii This was a very well answered question with many candidates showing a good understanding of overflow errors. The most common mark was 2 and the most common combination of marks was for recognising it was an overflow error and that the number was too large to fit in the number of bits/1 needed to be carried over.

Question 4

- Q04a This was not a well answered question with the most common mark being 0, followed by 1 mark. Few were able to achieve both marks. Common reasons why were candidates only giving one aspect e.g. kilobyte = 1000 and kibibyte = 1024 or candidates mixed up the units of measure saying Kilobyte = 1024 bytes and Kibibyte was 1000 bytes.
- Q04b The most common mark for this question was 1 followed very closely by 2. Few were able to achieve all 4 marks. The most common mark awarded was the mark for calculating the correct bits/bytes, followed by the calculation of the correct megabytes. Few were able to correctly add the metadata,

meaning the 4th mark was unachievable as that was for a completely correct response. It was very pleasing to see the number of different approaches to the question with many methods used to achieve the correct bits/bytes and megabytes.

- Q04ci This was quite well answered with very few candidates not achieving any marks. The most common mark was 1 and that tended to be the mark for saving storage space. The most common second mark was to reduce transmission time.
- Q04cii This was also quite well answered with only slightly more candidates achieving 0 marks. The most common answer was 1 though there was very little difference between achieving 1 or 2 marks. The most common marks were for the effect on quality and some of the data will be permanently removed/it won't be possible to reconstruct the original file.
- Q04d This question had a better response from candidates compared to Q04b. The most common was 3. Generally, if the fourth mark was not achieved it tended to be because the candidates had not recognised the number of blocks would need to be rounded up.

Question 5

- Q05ai This was a very well answered question with most candidates being able to secure the full 3 marks. The mark that proved the most troublesome for candidates appeared to be mark for recognising that a width, length and height of 2 meant the response was 'Too small for a cargo container'.
- Q05aii This was also very well answered with most candidates being able to recognise that the algorithm was being used to determine what size shipping container was needed.
- Q05b This was a well answered question with the most common mark being 4. Candidates got the 4 marks in many different ways. Some chose to use the pseudocode provided in order to construct their answers – these candidates tended to score highly. Some chose to write their own form of pseudocode – they did achieve the marks if their pseudocode did the equivalent. Some candidates chose to introduce a variable in order to concatenate the message with the number of states and then to display this message. All answers that were creditworthy attracted marks.
- Q05ci This question was not well answered with the most common mark being 0. There was only a very slight difference between those that scored 1 mark and those that scored 2. It was clear to see quite a number of candidates could not complete a trace table following an algorithm. Where 1 mark was achieved it tended to be for showing the index went up to 4 and not beyond.

Q05cii This was a very poorly answered question with very few candidates being able to recognise the error on line 9 of figure 4 in that they appeared to assume the error was in the pseudocode already present rather than something being missing or rather than studying the pseudocode logically in order to determine an infinite loop could occur. The most common mark was 0. When 1 mark was achieved it tended to be for the 'AND' operator in the middle of relevant test conditions, even though the conditions may not have been accurate.

Question 6

Q06ai This was a poorly answered question with the most common mark being 0. Many candidates focussed on the ticket vending machine rather than the benefits of an 'embedded' system. Inappropriate answers such as 'there will be no need for human intervention' were common. Very few candidates were able to achieve both marks. Those who achieved 1 mark tended to give the 'specific task' response.

Q06aii This was a very well answered question with the most common mark being 2. Of the candidates scoring 1 mark, printer was the most common response. Those scoring 2 marks tended to achieve the second mark from the bank card scanner response.

Q06aiii This was a poorly answered question with the most common mark being 0. Many candidates gave very general answers such as prevent hackers, stopping unauthorised access etc and failed to take into account the 'why data encryption is used in this case'. The candidates that did take that into account secured the mark. There was very little difference between the mark being awarded for 'reading' and the mark being for 'understanding'.

Q06b The most common mark for this question was 1. At times candidates appeared to be reciting features rather than showing any understanding of the 'why' e.g. 'high-level language is more readable, low level language is binary' without the understanding that high-level is more readable because it looks like English. Candidates also tended to give the same response multiple times but worded slightly differently.

Q06c This was a very well answered question with the most common mark being 4. It appeared that candidates enjoyed answering this question with many excellent responses seen. It was clear to see that candidates had a good working knowledge and understanding of artificial intelligence, its uses and the ethical issues surrounding it. Answers were well rounded nicely balancing the positive and negative impacts on the whole.

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