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COMPUTER SCIENCE

Paper 0478/12
Paper 1

Key messages

This standard of candidate's work continues to improve for this syllabus. There is a continued move to provide questions where candidates have to apply their knowledge, rather than just show their ability to simply remember facts. There is strong evidence that this is producing candidates who are now exhibiting an improved understanding of many of the topics.

General comments

Candidates and centres are reminded that written papers are now scanned in and marked on computer screens by examiners. Consequently, if a candidate writes the answer to a question on an additional page, they must indicate very clearly to the examiner where their revised answer is to be found. Also, if answers have been crossed out, the new answer must be written very clearly, so that examiners can easily read the text and award candidates the appropriate mark.

Comments on specific questions

Question 1

(a) Most candidates correctly identified the larger file size.

(b) Most candidates correctly identified the larger file size.

Question 2

(a) (i) Many candidates were able to describe the purpose of an input device. It would be beneficial for candidates to understand that an input device should not be described as an analogue to digital converter.

It would also be beneficial for candidates to be detailed in their response. Some candidates stated that an input device was used to input something. An increased level of detail is required.

(ii) Most candidates were able to correctly name an input device.

(b) (i) Many candidates were able to describe the purpose of an output device. It would be beneficial for candidates to understand that an output device should not be described as a digital to analogue converter.

It would also be beneficial for candidates to be detailed in their response. Some candidates stated that an output device was used to output something. An increased level of detail is required.

(ii) Most candidates were able to correctly name an output device.

It would be beneficial for candidates to be detailed in their response. Some candidates provided responses such as screen. An increased level of details is required.

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Question 3

(a) (i) Many candidates were able to provide the correct binary value. It would be beneficial if candidates noted the number of bits required for the binary value. Some candidates provided an 8-bit binary answer, rather than a 12-bit binary answer.

(ii) Many candidates were able to provide the correct binary value. It would be beneficial if candidates noted the number of bits required for the binary value. Some candidates did not provide the necessary leading zeros to make it a 12-bit binary answer.

(iii) Most candidates were able to provide the correct working and final value.

(b) (i) Many candidates were able to provide two suitable sensors. The most common incorrect answer was acoustic/sound sensor. This would not be a suitable sensor for the scenario.

(ii) Some candidates were able to fully describe the process of the system. It would be beneficial for candidates to increase the level of detail in their response. Some candidates provided vague responses such as 'value is compared'.

Question 4

(a) Many candidates were able to explain why a high-level language was chosen for the scenario. It would be beneficial if candidates understood that high-level language is converted to binary to be stored by the computer. Some candidates stated that high-level language takes up less storage space.

(b) Some candidates correctly identified which statements applied to each translator. It would be beneficial for candidates to understand that a program will still run, using an interpreter, until the error is encountered. It would also be beneficial for candidates to understand that an error report is produced at the end of translation with a compiler, but errors are reported, during runtime, as they are encountered with an interpreter.

(c) Many candidates were able to provide a correct explanation. It would be beneficial for candidates to provide an improved level of detail. Some candidates provided vague statements, such as lossy would be bad for code. A more detailed level of response is required.

(d) (i) Some candidates were able to describe the full process of checksum. It would be beneficial for candidates to make sure that they are providing a response for the question given. Some candidates spent time describing the disadvantages of the method, these were not required. It would also be beneficial for candidates to understand that the calculations are done by the computer and not the user. Some candidates described the user carrying out the calculations.

Some candidates also chose to only describe the process of calculating the first checksum. It would be beneficial for candidates to describe the whole process of checksum and not just a detailed explanation of how a checksum is calculated.

(ii) Most candidates were able to identify three other error checking methods.

Question 5

(a) Most candidates were able to provide a correct logic circuit.

(b) Most candidate were able to provide a correct truth table.

Question 6

(a) Many candidates were able to provide a detailed explanation. It would be beneficial for candidates to understand the difference between a USB connection and a USB storage device. Some candidates incorrectly described a USB storage device.

(b) (i) Most candidates correct identified a laser printer.

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(ii) Some candidates were able to provide suitable benefits. It would be beneficial for candidates to provide an increased level of detail in their responses. Some candidates provided vague statements, such as it is faster, and it is cheaper.

(iii) Some candidates were able to provide a suitable drawback. It would be beneficial for candidates to provide an increased level of detail in their responses. Some candidates provided vague statements, such as it is expensive.

(c) (i) Many candidates were able to provide the correct storage types for each device. The most common incorrect response was candidates categorising an Solid state drive (SSD) as primary storage.

(ii) Few candidates were able to provide a detailed description of the process of storing data on magnetic storage. It would be beneficial for candidates to understand the difference between storing data on magnetic storage and storing data on optical storage. Many candidates described the process of optical rather than magnetic.

(iii) Some candidates were able to provide suitable benefits of magnetic. It would be beneficial for candidates to provide an improved level of detail in their response. Some candidates provided vague statements such as it is cheaper.

Question 7

Some candidates were able to identify and describe three risks. It would be beneficial for candidates to read and consider the scenario given. In the case, it required risks that would affect and damage the data on the computer. Therefore, risks such as phishing, were not relevant to the given scenario.

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Paper 0478/22
Paper 2

Key messages

Candidates who had completed the tasks for the pre-release (pizza ordering service) were able to provide answers for ***Section A*** that showed good understanding of the tasks undertaken. Candidates, who read each question carefully and answered the question, as set on the paper, performed better than those who had memorised their solution and used all of that information without considering what information needed to be included in their answer.

Candidates should take care when declaring variables, constants and arrays to ensure that the identifier declared could be used in a program. Identifier names must not contain spaces. Once declared the same identifier name should be used throughout the answer.

Questions asking for an explanation about a section of a program, require the candidate to explain what this part of the program does as well as quoting any programming code used.

When candidates complete trace tables, values in the cells should be easily readable. Any incorrect values should be clearly crossed out.

General comments

Most candidates attempted all the question parts in ***Section A***. **Question 1** parts **(c)(ii)** and **(d)** were the ones most frequently omitted. Nearly all candidates attempted all the questions in ***Section B***.

Comments on specific questions

Section A

Question 1

(a) Most candidates correctly stated a suitable constant and variable to use for **Task 1**. A common error was to incorrectly state the name of an array rather than a variable.

(b) Some candidates correctly explained the changes that would be required to the **Task 1** program if there were three types of pizza base to choose from. Suitable changes included extra storage, displaying another base type and the changes required to the program code. A few candidates incorrectly provided program code rather than an explanation.

(c) (i) Algorithms were usually written in pseudocode or program code, a few flowcharts were seen. Most candidates correctly showed some the steps required for choosing the additional toppings in **Task 1**. Some candidates incorrectly included some of the steps required for other parts of **Task 1**, for example choosing the base or size, these steps could not be credited.

(ii) Most responses seen, explained how the candidate's algorithm only allowed valid additional pizza toppings. Some candidates incorrectly included validation for other data entry, this could not be credited.

(d) Many candidates gave very detailed answers that included explanation of how their program completed both **Task 2** and **Task 3**, only the explanation of how the steps for **Task 3** were programmed could be credited.

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Section B

Question 2

(a) The full range of marks were awarded, most candidates correctly identified two or three errors. A few candidates showed good understanding of the pseudocode by correctly identifying the problem with the `REPEAT … UNTIL` condition.

(b) Generally well answered.

Question 3

Most candidates showed the skill of using a trace table. Some candidates provided a 'rough answer' in pencil and a final answer in ink; this is not recommended as extra values can be seen in the trace table. Candidates found the output the most challenging column to complete correctly and common errors seen were to incorrectly include commas in the output or Child instead of Children. A few candidates incorrectly included all the input data from the examination paper, not recognising that Z ended the process.

Question 4

Generally well answered, most candidates correctly recognised three or four of the examples given. The most common error seen was not recognising the `WHILE` loop as repetition.

Question 5

(a) Most candidates gained full marks for this part of the question.

(b) Generally, well answered. Candidates needed to consider the range of data carefully when including examples of test data.

Question 6

All candidates attempted this question and most candidates identified the appropriate fields and could also provide suitable criteria. A few candidates' answers were lacking in accuracy; common errors included misspelt field names, missing table names, incorrect sort instructions and incorrectly including mm in the criteria for the Width field.

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