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COMPUTER SCIENCE

Paper 0478/11
Paper 1

Key messages

Candidates continue to demonstrate a good level of knowledge about the fundamental aspects of computer science. It would be beneficial for candidates to consider the context that is given in some questions. Candidates should look to reflect the application of this context in the knowledge and understanding they are required to demonstrate. This would allow candidates to demonstrate a greater level of understanding, beyond a general response, about the topic in question.

General comments

Candidates are reminded to make sure that they do not write outside the given writing space in a question. If additional writing space is required, candidates should use the additional pages available. They should make sure they clearly indicate the question for which they are providing a further response.

Comments on specific questions

Question 1

(a) Many candidates were able to correctly convert the given values. It would be helpful to some candidates if they noted the number system of the values given in the question. This would allow them to recognise that the values given were hexadecimal. Some candidates converted the value 97 as though it was a denary value, rather than a hexadecimal value.

(b) Many candidates were able to provide a full description of a MAC address. It was pleasing to see the level of understanding demonstrated by candidates regarding this topic. It would be beneficial if candidates understood that a MAC address is used to identify a device on a network and not the location of the device.

(c) Most candidates were able to identify at least one other application of hexadecimal in computer science. It would be beneficial if candidates were specific in the application given. Some candidate provided responses such as ‘HTML’ or ‘for colour’. Both these responses require more specific detail about the application, for example, HTML colour codes.

Question 2

(a) Most candidates were able to provide the correct name and symbol for the given logic.

(b) Many candidates were able to provide the correct name and symbol for the given logic. Some candidates confused the logic with that of NAND.

(c) Many candidates were able to provide the correct name and symbol for the given logic. Some candidates confused the logic with that of NOR and XOR.

Question 3

Many candidates were able to identify the correct name for each device. Some candidates gave brand names for a device; it would be beneficial for candidates to understand that brand names should not be provided as a response for devices or software.

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Question 4

(a) (i) Most candidates identified a suitable security method and description of its operation.

(ii) Most candidates identified a suitable security method and description of its operation. It would be beneficial for candidates to note instructions in a question, such as all three security methods must be different. Some candidates gave a response that included a repeated method.

(iii) Most candidates identified a suitable security method and description of its operation. It would be beneficial for candidates to note instructions in a question, such as all three security methods must be different. Some candidates gave a response that included a repeated method.

(b) (i) Some candidates were able to provide at least two issues that could cause accidental loss of data. It would be beneficial for candidates to understand the difference between issues that could cause accidental loss of data, and those that cause loss of data through malicious actions. Some candidates provided issues that would cause loss of data using malicious actions.

(ii) Many candidates were able to provide at least one preventative method. It would be beneficial for candidates to understand methods that would involve the same process and would therefore be a repetition. For example, some candidates gave 'create a backup' as their first method. As their second method they gave 'store the data on a USB flash memory device'. Candidates should understand the latter is also creating a backup of the data.

Question 5

Some candidates were able to describe how the data would be compressed using lossless compression. It would be beneficial for candidates to use the context they are provided in the question when providing their response. This would help them to provide a full description of the process. Candidates are reminded to make sure they read and answer the question given. Some candidates provided the benefits and drawbacks of lossless compression; the question did not require this.

Question 6

(a) Most candidates were able to provide at least one suitable improvement to the log-in method. It was pleasing to see that a wide range of methods to improve the log-in system were given by candidates.

(b) Candidates provided a limited understanding of the benefits of magnetic storage. The most common benefit provided was greater longevity. It would be beneficial for candidates to have a greater understanding of the benefits of magnetic storage in different applications. It is advisable that candidates understand how to be specific in their responses. Some candidates responded that magnetic storage is cheaper. It would be beneficial for candidates to understand that this response is too vague as it does not clarify in what way it is cheaper, for example, it is cheaper per unit of data stored.

In this question, candidates were required to explain the benefits they identified. Most candidates missed this opportunity and only identified the benefits. It would be beneficial for candidates to understand that when they are required to provide an explanation, this often means they need to relate the point that they have identified back to how it is beneficial, or a drawback, to the context given.

(c) Most candidates were able to provide three correct examples.

Question 7

Some candidates were able to fill in the correct missing terms. The most common incorrect response provided by candidates was the use of source code in place of syntax.

Due to an issue with this question, careful consideration was given to its treatment in marking in order to ensure that no candidates were disadvantaged.

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Question 8

(a) Candidates provided limited understanding of the operation of the SSL protocol. Many candidates were able to identify that it encrypts data. It would be beneficial for candidates to have a greater understanding of requesting and exchanging a digital certificate.

(b) Many candidates were able to correctly identify if the statements given were true or false. The most common incorrect response was that candidates identified that firewalls will automatically stop all malicious traffic, as true. It would be beneficial for candidates to understand that a firewall will only stop traffic that it has been set to identify as malicious.

(c) Candidates provided a good understanding of ethics and some candidates applied this to the given context. It would be beneficial for candidates to use the context given in the question, when providing their response.

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COMPUTER SCIENCE

Paper 0478/12
Paper 1

Key messages

Candidates continue to demonstrate a good level of knowledge about the fundamental aspects of computer science. It would be beneficial for candidates to consider the context that is given in some questions. Candidates should look to reflect the application of this context in the knowledge and understanding they are required to demonstrate. This would allow candidates to demonstrate a greater level of understanding, beyond a general response, about the topic in question.

General comments

Candidates are reminded to make sure that they do not write outside the given writing space in a question. If additional writing space is required, candidates should use the additional pages available. They should make sure they clearly indicate the question for which they are providing a further response.

Comments on specific questions

Question 1

(a) Most candidates were able to identify three suitable input devices.

(b) Most candidates were able to identify three suitable output devices

Question 2

(a) Most candidates were able to provide a suitable explanation of off-line storage. It would be beneficial for candidates to understand that off-line storage will still need to be connected to the computer in some way, for data to be written to and read from it. Some candidates provided a response that off-line storage is storage that is not connected to the computer. There seemed to be a misconception amongst some candidates that off-line storage is storage that does not require an Internet connection to store data. It would be beneficial for candidates to understand that 'off-line' does not refer to a lack of Internet in this case.

(b) (i) Most candidates were able to identify a suitable primary storage example.

(ii) Most candidates were able to identify two suitable secondary storage examples.

Question 3

Many candidates were able to fill the gaps with the correct terms. The most common incorrect response was the use of ROM or secondary storage in place of RAM.

Question 4

(a) Many candidates were able to provide at least one difference between the two storage media. It would be beneficial for candidates to understand that if they are required to provide a difference between two different items, that they state what is different about each, regarding the same aspect. For example, DVD uses a red laser whereas Blu-ray uses a blue laser. Some candidates only provided one side, for example, DVD uses a red laser. This did not allow them to demonstrate that they understood how this differed to the other media.

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(b) (i) Some candidates were able to gain marks for showing all their working and gaining a correct answer. Some candidates only showed partial workings, it would be beneficial for candidates to show all their working, when requested, in a calculation.

(ii) Candidates provided limited understanding of how an inkjet printer creates an image. It would be beneficial for candidates to gain a greater understanding of this process. Many candidates provided vague statements, such as ink is sprayed onto the paper, but with little mention of the technologies involved. Some candidates provided an explanation of how the computer sent the data to the printer. The question did not require this aspect. It would be beneficial for candidates to read the question carefully and identify the process that they are asked to describe.

Question 5

It was pleasing to see candidates use their problem-solving skills and provide two suitable ways that the radio stations could be prevented from opening the file. Many candidates were able to identify two suitable methods that could be used.

Question 6

(a) Most candidates were able to provide a suitable example of both structure and presentation, but demonstrated limited understanding of the purpose of each.

(b) Many candidates were able to identify if the statements were true or false. The most common incorrect answer was from candidates who identified cookies will corrupt data on a customer's computer, as true.

(c) Many candidates were able to provide a detailed description of both parallel data transmission and duplex data transmission. It would be beneficial for candidates to demonstrate that when multiple bits are sent in parallel transmission, this is done at the same time. Some candidates described that multiple bits are sent, but did not state that this happened at the same time. More detail is required, as multiple bits are also sent in serial transmission; they are just sent one at a time.

(d) Most candidates were able to correctly identify the meaning of URL.

(e) (i) It was pleasing to see the level of understanding provided by many candidates about the process involved in a DoS attack. It would be beneficial for candidates to highlight that it is caused by a large number of requests. Some candidates referred to several requests, but this did not allow a large enough number of requests to be implied.

(ii) Most candidates were able to identify a security device that could be used to stop a DoS attack.

Question 7

(a) Some candidates were able to provide a detailed description about how the sensors and the microprocessors are used in the given context. It would be beneficial for candidates to refer to the given context in their response. Some candidates provided a generic description of how a sensor and a microprocessor are used in a system. This showed limited understanding of how they could be used in the given context.

It would also be beneficial for candidates to understand that the sensor constantly samples data from its surroundings. There seem to be a misconception from some candidates that the sensor only takes a sample when it notices something has changed or moved. This shows limited understand of the operation of a sensor.

(b) Many candidates were able to provide a detailed understanding of what is meant by ROM.

Question 8

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

(b) Many candidates were able to provide a correct truth table.

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Question 9

Many candidates were able to complete the correct parity bit for each register. The most common incorrect response was a zero given for register B.

Question 10

Candidates demonstrated limited understanding of the operation of a capacitive touch screen. Many candidates provided a mixed description that included points about both capacitive and resistive touch screens, blurring their understanding. It would be beneficial for candidates to have a clear understanding of how each touch screen technology operates. There was a common misconception from candidates that the user transfers an electrical current to the screen. It would be beneficial for candidates to understand that electrical charge from the screen is transferred to the user.

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COMPUTER SCIENCE

Paper 0478/13
Paper 1

Key messages

Candidates continue to demonstrate a good level of knowledge about the fundamental aspects of computer science. It would be beneficial for candidates to consider the context that is given in some questions. Candidates should look to reflect the application of this context in the knowledge and understanding they are required to demonstrate. This would allow candidates to demonstrate a greater level of understanding, beyond a general response, about the topic in question.

General comments

Candidates are reminded to make sure that they do not write outside the given writing space in a question. If additional writing space is required, candidates should use the additional pages available. They should make sure they clearly indicate the question for which they are providing a further response.

Comments on specific questions

Question 1

(a) Most candidates were able to provide the correct conversions for the number values. Some candidates were able to provide the correct conversions for the letter values also.

(b) Most students were able to provide an understanding of the term HTML. It would be beneficial for candidates to understand that if they are going to provide the full worded version of the term, this needs to be done with accuracy. Some candidates provided inaccurate responses, such as Hyper Markup Language

(c) Many candidates were able to correctly identify if the given statements were about structure or presentation. Candidates seemed to be more confident about what was presentation.

(d) It was pleasing to see that many candidates were able to correctly fill in the missing gaps and demonstrate a good understanding of how a web page is displayed. Many candidates were able to correctly identify at least four correct missing terms. A common incorrect answer given was the use of HTML in place of HTTPS. Another common incorrect answer was the use of hexadecimal in place of HTML.

(e) (i) Some candidates were able to demonstrate understanding of what is meant by a cookie. Many students gave benefits, drawbacks or uses of cookies. It would be beneficial for candidates to understand that when they are given a question that asks what it meant by a given term, they should look to provide a definition.

(ii) Many candidates were able to provide suitable uses for a cookie.

Question 2

(a) Many candidates were able to correctly identify if a statement was true or false. The most common incorrect answer was candidates identifying the statement ‘Once an IP address has been set it cannot be changed’ as true.

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(b) (i) Few candidates were able to demonstrate an understanding of what is meant by the stored program concept. It would be beneficial for candidates to understand how memory is used to store programs, instructions and data in this concept.

(ii) Some candidates were able to demonstrate a detailed understanding of the role of the ALU, but many demonstrated a limited understanding. It would be beneficial for candidates to develop an improved level of detail in their knowledge about the role of the ALU, beyond its ability to carry out calculations.

(c) (i) Many candidates were able to correctly identify the name of the signal.

(ii) Many candidates were able to identify at least one function of an operating system. It would be beneficial for candidates to be more specific when providing a function. Many candidates gave a vague response, such as input/output. This needs further clarification, such as manages inputs and outputs devices.

Question 3

(a) Many candidates were able to identify that the firewall could be used to block access to the websites, but it would beneficial for candidates to understand how this can be done.

(b) Many candidates were able to provide a good level of understanding of how data is encrypted. Some candidates provided the benefits of encryption, which was not required by the question.

(c) Few candidates were able to describe how the spyware would collect the data. Most candidates were able to demonstrate understanding that a keylogger could be used. It would be beneficial for candidates to understand that the data collected by a keylogger is sent to a third party. Candidates have a common misconception that the password would be readily available and identifiable from the data. It would beneficial for candidates to understand that that a lot of analysis would need to be carried out on the data to identify possible patterns that could be a password.

Question 4

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

(b) Many candidates were able to correctly complete the truth table.

(c) Many candidates were able to provide understanding of the role of a logic gate. It would be beneficial for candidates to have more understanding that a logic gate is used to control the flow of electricity.

Question 5

Many candidates were able to identify the correct register and provide a description of how they did this.

Question 6

(a) Many candidates were able to provide an understanding of the operation of a resistive touch screen.

(b) Most candidates were able to identify two correct output devices.

(c) Many candidates were able to correctly describe each type of storage.

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COMPUTER SCIENCE

Paper 0478/21
Paper 2

Key messages

Candidates who had previously completed the tasks and produced their own programming code for the pre-release (Bus Route Punctuality) were able to demonstrate appropriate techniques for solving this problem using a number of valid interpretations of the tasks. These candidates were able to provide answers for ***Section A*** that demonstrated the programs they had written, descriptions of how they had solved tasks and why they had used their chosen methods.

Candidates who took care to answer the question that was asked rather than providing generic responses generally scored higher marks. Examples included candidates who described how their program achieved certain tasks, rather than simply writing the code, candidates whose answers matched the task from the pre-release materials that was the subject of the question and candidates who took care to name or describe variables, constants and arrays appropriately to match their purpose.

Candidates should take care to read questions thoroughly before answering them and make sure they respond in the manner required, so that if an answer is expected to be written in pseudocode, the response provided is in pseudocode, or if the response is required as program code, the response is written as program code. Candidates should also take care to limit the length of any programs they write in the examination to match the question that is asked rather than writing out excessive code covering the whole pre-release material.

Candidates are advised to ensure that any flowcharts they construct make use of standard programming flowchart symbols and conventions and that they are fully connected.

General comments

Very few questions were left unanswered and the overall performance on this paper was of a very good standard.

Comments on specific questions

Section A

Question 1

(a) (i) Many candidates scored highly on this question. They were able to identify a relevant array from task 1 of the pre-release materials, name its data type and its purpose.

(ii) Candidates scored highly on this question. They were able to name a variable that could be used in Task 2 and another one from Task 3 of the pre-release materials, along with their appropriate data types and purposes.

(b) This question permitted a degree of flexibility in candidates' responses and most candidates made a good attempt at a response, with a very high proportion of candidates achieving high marks.

Responses were seen in a variety of programming languages, pseudocode and flowcharts. Many creative responses were seen in which candidates made good use of the built-in functions of their chosen programming language, as well as above level responses in which candidates demonstrated good use of programming techniques. All correct responses received credit.

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Responses written in program code or pseudocode were generally more successful than responses written as flowcharts; however, a significant number of high scoring flowcharts were also seen in this session.

(c) This question required candidates to explain how their program achieved a part of Task 3 and a good range of answers scoring the full range of marks was seen. Candidates who described what the program did or simply wrote code were unlikely to score many marks, because the question required an answer to say how the program achieved the task. For example, the start of the process in the question is for the user to input the day that is the subject of the search. An appropriate answer for one of the marks, to cover this part of the task, is therefore, 'the user inputs their chosen day and it is stored as a variable'.

(d) This question required candidates to explain how they could alter their program so that they could input the number of weeks to enter data on bus arrival times. The pre-release task worked on the basis of four weeks and covered twenty days of data input. Candidates who only wrote code or didn't describe how their program would achieve the new requirement were unlikely to score many marks. An example of a suitable answer that describes how the program could be changed is:

A user input and prompt could be added to enter the number of weeks required to record data on arrival times. This input would be stored as a variable and then multiplied by 5 to change the number of weeks into the number of days.

Section B

Question 2

This question generated a wide range of responses, with many candidates scoring highly. Most candidates were able to provide examples of data for each of the three specified data types. Some candidates gave incorrect responses, but generally, marks were not achieved if responses were vague.

Question 3

(a) Candidates generally scored well on this question with correct answers based on either `IF` or `CASE` statements. Incorrect responses included candidates who mistook loops for conditional statements.

(b) Most candidates scored at least one mark here, with the second mark often being not being achieved due to lack of detail in the answer. An example of a correct answer for two marks is:

A conditional statement allows different routes through a program depending on meeting certain criteria.

Question 4

(a) The vast majority of candidates recognised the code represented a range check.

(b) Candidates were required to describe what the given algorithm was doing and many were able to do this. However, marks were generally not achieved due to candidates not being specific enough and therefore not being able to demonstrate that they could interpret the different lines of pseudocode with sufficient clarity. Candidates were expected to do more than re-write the lines of code, or give a description that was too general. An example of a correct answer is:

The entered number is checked to see that it is not less than 0 or not greater than 100. If it is, it is rejected and the user has to enter another number. Otherwise the number is accepted, the word 'Accepted' is output along with the value of the number input.

(c) Most candidates achieved at least one mark here. However, marks that were not achieved were generally because the initial output that went with the prompt was missing from the trace table, or quotes were incorrectly included with the output.

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(d) Many good responses were seen for this question. Common errors that were seen included the use of incorrect boxes, such as an output box being used for a decision, incorrect use of 'Yes' and 'No' for the decision, where the number was accepted if it was outside the range, when it should be rejected, and lack of care where the line for the re-input joined the flowchart, so the initial prompt statement was output again, which isn't the case on the given algorithm.

Question 5

(a) Most candidates were able to state that the data in the `BevNo` column is unique.

(b) A very high proportion of candidates recognised that the database table has 10 records. However, some candidates mixed up the number of records with the number of fields, while others counted the total number of elements in the given table.

(c) A wide range of responses were seen for this question with the most common errors seen being candidates who listed the data items in the wrong order, or candidates who added extra incorrect pieces of data, such as commas.

(d) This question was answered very well with generally few errors. However, there were some errors, which included not using 'Ascending' for the sort or using <45 for the search criteria.

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COMPUTER SCIENCE

Paper 0478/22
Paper 2

Key messages

Candidates must take care when declaring and using variables, constants and arrays as part of a response to ensure that the identifier declared could be used in a program. Identifiers must not contain spaces or other punctuation. Once declared or used the same identifier should be used throughout the answer. Candidates are advised to read through each answer to ensure that no errors have been made.

Questions requiring an algorithm only for the answer will instruct candidates to write an algorithm. Candidates must include explanations or descriptions as part of an answer, when instructed to do so in the question. When a question asks for an explanation of how your program performs a task, it is necessary to explain which programming statements were used to perform each part of that task.

General comments

Successful candidates showed evidence of practical experience in designing, programming and testing solutions to the three tasks from the pre-release (interactive auction board) providing answers for ***Section A*** that demonstrated problem-solving and programming skills. Candidates need to read each question carefully and answer the question as set on the paper, as a question may only require a response that is a partial solution or an extension to a task set out in the pre-release material.

Comments on specific questions

Section A

Question 1

(a) Many candidates correctly identified some data structures used for **Task 1** and provided good descriptions that included identifier names and data types. Common errors included incorrectly identifying programming constructs or not including the sample data asked for in the question.

(b) Some candidates explained how their program for **Task 1** ensured that the item number was unique by referring to the programming statements that they had used to perform that task. For example, 'An integer variable named ItemCode was set to zero at the start of the program, every time a new item code was required ItemCode was incremented by one, this ensured that it was never duplicated' would be an appropriate response.

(c) Candidates that provided pseudocode or code for the part of **Task 2** that allowed the buyer to add a new bid usually scored high marks. Those candidates drawing flowcharts often scored lower marks, as the flowcharts lacked the detail required. Many responses were far longer than required as some candidates incorrectly provided code for the whole of **Task 2**.

(d) Those candidates that provided an explanation of the programming statements used to check that a new bid was higher than the previous bid usually scored high marks. Unlike **part (c)**, this answer requires an explanation of how the candidates programming code works. All programming statements must be explained in order to be creditworthy. A common error was to repeat the question, as it stated what happened, rather than explain how the programming statements performed this part of the task. For example, 'A REPEAT UNTIL loop was used to check that the new bid input was greater than the existing bid that was already stored. If the new bid was less than or equal to the previously stored bid, then an error message was output, and input statement was used to request the new bid was re-entered.' would be an appropriate response.

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(e) Those candidates that provided an explanation of the programming statements for the part of **Task 3** used to check that the reserve price was reached and the calculation and display of the total auction company fee usually scored high marks. Many responses were far longer than required as some candidates incorrectly provided an explanation for the whole of **Task 3**. Unlike **part (c)**, this answer requires an explanation of how the candidates programming code works.

Section B

Question 2

(a) Most candidates found at least two errors.

Due to an issue with this question, careful consideration was given to its treatment in marking in order to ensure that no candidates were disadvantaged.

(b) Many candidates correctly showed the changes required. A common error was to write a new algorithm that just totalled the numbers.

Question 3

Most candidates correctly completed the columns for the variables in the trace table. Better candidates correctly showed the **OUTPUT**.

Question 4

Most candidates scored full marks for this question.

Question 5

Many candidates correctly explained validation and provided a suitable example. Fewer candidates explained verification satisfactorily, not realising that verification checks if any changes have been made to the data during input or transmission.

Question 6

(a) Nearly all candidates stated the correct field.

(b) Many candidates identified at least two errors in the query-by-example grid on the examination paper. Writing a fully correct query-by-example grid proved a challenge to many candidates. Common errors seen were not including the notes field, not realising that if ‘or’ was used the flight departed >10:00 criteria would also need to be added to this row.

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COMPUTER SCIENCE

Paper 0478/23
Paper 2

Key messages

Candidates who had previously completed the tasks and produced their own programming code for the pre-release (Discount Stationery Store) were able to demonstrate appropriate techniques for solving this problem using a number of valid interpretations of the tasks. These candidates were able to provide answers for ***Section A*** that demonstrated the programs they had written, descriptions of how they had solved tasks and why they had used their chosen methods.

Candidates who took care to answer the question that was asked rather than providing generic responses generally scored higher marks. Examples included candidates who described how their program achieved certain tasks, rather than simply writing the code, candidates whose answers matched the task from the pre-release materials that was the subject of the question and candidates who took care to name or describe variables, constants and arrays appropriately to match their purpose.

Candidates should take care to read questions thoroughly before answering them and make sure they respond in the manner required, using pseudocode, program code, or a flowchart, as necessary. Candidates should also take care to limit the length of any programs they write in the examination to match the question that is asked rather than writing out excessive code covering the whole pre-release material.

Candidates are advised to ensure that any flowcharts they construct make use of fully connected standard programming flowchart symbols and conventions.

General comments

Very few questions were left unanswered and the overall performance on this paper was of a good standard.

Comments on specific questions

Section A

Question 1

(a) Many candidates scored highly on this question, with the majority achieving three marks or above. The main reasons for not achieving marks were: not naming data structures; not including sample data; or not including all four of the required arrays, and a sample of their data, from Task 1 of the pre-release material.

(b) Most candidates scored at least one mark here with examples of answers seen covering both expected methods; namely, using a counter and incrementing the counter by one for each new item, or, keeping a list of assigned numbers in an array, then checking to see if new numbers are already in the array.

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(c) This question required candidates to explain how their program achieved a part of Task 2; how their program highlighted an item that was low in stock. Candidates who simply wrote code or described what their program did were unlikely to gain many marks, as they were expected to explain how it was done. Most candidates scored some marks here. Candidates first had to explain how the low stock items were identified, by checking for the items in stock that had ten or fewer items. Some candidates did not achieve a mark here if they forgot to check for ten items inclusive and just looked for fewer than ten. A further mark was available for explaining how the highlighting was achieved, which could be by adding some text, changing the text colour, adding extra symbols, or some other means. Candidates who just said they would highlight the items had not said enough.

(d) This question was answered quite well with many candidates achieving high marks. It permitted a degree of flexibility in responses, with candidates generally writing successful code: to allow the input of an item code; to validate this input; to input the number of items to purchase and check if sufficient are in stock; and display an error message if not. In addition to this, a range of other valid marking points were seen.

Candidates who provided answers using pseudocode or program code were generally more successful than those whose answers made use of flowcharts.

(e) This question required candidates to explain how their program completed Task 3 from the pre-release material, which therefore means that candidates had to give details of how their program achieved the task. Candidates who simply wrote code or described what was required in the task were unlikely to achieve many marks.

Many candidates were able to explain how their programs compared the stock levels at the beginning of the day against stock levels at the end of the day, which was further expanded to show how they were able to find items that were sold out or did not sell any at all. Some candidates also explained how they found the item that sold the most, but it was a much smaller number who provided sufficient detail for this aspect of the answer.

Section B

Question 2

(a) This question generated a wide range of responses, with the full range of possible marks seen. In many cases, the candidates had correctly identified where the errors were, but did not give a clear correction or complete correction. If it was not clear how the error should be corrected, candidates did not achieve the mark. Candidates are therefore advised to always make sure they provide a fully corrected version of the lines of code they have identified as incorrect.

(b) Candidates answered this question either by describing the changes they would make to the original algorithm, or by showing it. This question did not require an explanation, so either approach was acceptable, with a number of viable solutions noted. Candidates generally scored quite highly on this question.

Question 3

Candidates were required to complete both trace tables correctly in this question and generally achieved good marks. If marks were not achieved, it was most likely due to errors in the OUTPUT column; usually by adding extra characters to the text such as quotation marks, but it could also be due to candidates making errors writing the text.

Question 4

Generally, well answered, with candidates often achieving full or nearly full marks.

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Question 5

Most candidates were able to identify the three loop structures available in pseudocode, and in that case, they achieved three of the six available marks. Some candidates also went on to explain that a `FOR` loop ran for a fixed number of iterations, but only a small number of candidates were able to also give distinct descriptions for the `WHILE` and `REPEAT` loops. The main problem with some of the descriptions was that they could have applied to any of the three named loops. Candidates are advised, therefore, to learn distinctive features of the loop structures, such as the fact that the `REPEAT` loop is always executed at least once, and the `WHILE` loop condition is tested at the start, so may not run at all.

A number of candidates incorrectly stated `IF` statement as an answer.

Question 6

(a) Most candidates were able to state that the `Train Number` column is not unique, although a number of candidates believed that it could not be a primary key because it contained text and numbers, which is incorrect. Other candidates did not read the question carefully and explained why it could be the primary key.

(b) This question was answered well by candidates who understood what was required, where they would achieve six or seven marks. Other candidates either did not attempt the question or scored very low marks.

Candidates were required to explain the errors in the given query-by-example grid and then provide a corrected version. Candidates who correctly identified all or some of the errors in the first part, then went on to give a correct or partially correct query-by-example grid.

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