Revision Sheet

IGCSE Computer Science · Unit 8 Programming

12 vocabulary items · 40 marks of exam questions (6 questions)

Part 1 · Vocabulary review (12 items). The terms this unit is examined on most. Mark it yourself from the answer key.

Section A · Chinese to English

Write the English word.

1. _____ [1]
2. _____ [1]
3. _____ [1]
4. _____ [1]
5. _____ [1]
6. _____ [1]
7. _____ [1]
8. _____ [1]
9. _____ [1]
10. _____ [1]
11. _____ [1]
12. _____ [1]

Part 2 · Exam questions (40 marks, 6 questions) begins on the next page. They are ordered easy to difficult and none of them has been set before.

13 The function `LENGTH(Phrase)` calculates the length of a string `Phrase`

(a) Write the pseudocode statements to:

- store the string "`The beginning is the most important part`" in `Phrase`
- calculate and output the length of the string
- output the string in upper case.

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..... [3]

(b) Write the output your pseudocode should produce.

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..... [2]

14 The string operation `SUBSTRING(Quote, Start, Number)` returns a string from `Quote` beginning at position `Start` that is `Number` characters long. The first character in `Quote` is in position 1.

Write pseudocode statements to:

- store the string "`Learning Never Exhausts The Mind`" in `Quote`
- extract and display the words "`The Mind`" from the string
- output the original string in lower case.

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..... [5]

15 An algorithm has been written in pseudocode to find and display the maximum and minimum values in an array of 1000 positive numbers. The array `List[]` starts at index `1`

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01 Max ← List[1]
02 Min ← List[1]
03 FOR Counter ← 2 TO 1000
04     IF List[Counter] < Max
05       THEN
06         Max ← List[Counter]
07     ENDIF
08     IF List[Count] < Min
09       THEN
10         Min ← List[Counter]
11     ENDWHILE
12 NEXT Counter
13 OUTPUT "Maximum value is ", Max
14 OUTPUT "Minimum value is ", Min
```

(a) Give a line number for each of these types of statement:

Assignment statement .....

Selection statement .....

Iteration statement .....

[3]

(b) Identify the line numbers of the **three** errors in the pseudocode and suggest a correction for each error.

Error 1 line number .....

Correction .....

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Error 2 line number .....

Correction .....

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Error 3 line number .....

Correction .....

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[3]

16 The variables `P` and `Q` are used to store data in a program. `P` stores a string. `Q` stores a character.

(a) Write pseudocode statements to declare the variables `P` and `Q`, store `"The world"` in `P` and store `'W'` in `Q`

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..... [2]

(b) Write a pseudocode algorithm to:

- convert `P` to upper case
- find the position of `Q` in the string `P` (the first character in this string is in position 1)
- store the position of `Q` in the variable `Position`

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(c) Give the value of `Position` after the algorithm has been executed with the data in **question 11(a)**.

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..... [1]

17 The function `LENGTH(X)` calculates the length of a string `X`

Write the pseudocode statements to:

- allow a line of text to be input to an appropriate variable
- store this line of text in a text file called `Main.txt`
- calculate the length of the line of text and output the text in lower case along with its length
- store the lower-case line of text in a text file called `Lowercase.txt`

Make sure that any variables used are declared and that both text files are closed after they have been used.

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18 This pseudocode algorithm is intended to allow data for up to 50 people to be entered and stored in a two-dimensional (2D) array. The data is their last name, first name and the city in which they live.

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01 DECLARE People : ARRAY[1:50, 1:3] OF REAL
02 DECLARE Count : INTEGER
03 DECLARE Response : CHAR
04 DECLARE Continue : BOOLEAN
05 FOR I ← 1 TO 50
06     FOR J ← 1 TO 3
07         People[I, J] ← ""
08     NEXT J
09 NEXT I
10 Count ← 100
11 Continue ← TRUE
12 CASE OF
13     OUTPUT "Enter the last name"
14     INPUT People[Count, 1]
15     OUTPUT "Enter the first name"
16     INPUT People[Count, 2]
17     OUTPUT "Enter the city"
18     INPUT People[Count, 3]
19     OUTPUT "Do you want to enter another name (Y or N)?"
20     INPUT Response
21     IF Response = 'N'
22       THEN
23         Continue ← FALSE
24       ELSE
25         Count ← Count + 1
26     ENDIF
27 UNTIL NOT Count
```

(a) Identify the line numbers of the **four** errors in the pseudocode and suggest corrections.

Error 1 line number .....

Correction .....

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Error 2 line number .....

Correction .....

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Error 3 line number .....

Correction .....

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Error 4 line number .....

Correction .....

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[4]

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(b) Write the pseudocode that you could add to the end of this algorithm to output the contents of the array. Make sure that the output ends when the data in the array ends.

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(c) Explain how you could alter the original corrected algorithm to make sure that the number of elements being added to the array does not exceed the maximum size of the array (50 elements).

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