Name: Class: Mark:

1. The following pseudocode tests how quickly a user can type a given sentence without making any mistakes.

The statement **time.clockTick()** returns the number of seconds elapsed since the program started followed by the number of characters in the sentence typed.

1. Sentence ← "The quick brown fox jumped over the lazy dog"
2. n ← LENGTH(sentence)
3. OUTPUT "Sentence to type: " + sentence
4. MistakeMade ← False
5. OUTPUT "Press Enter when you're ready to start typing! Press Enter when   
    finished"
6. USERINPUT ready
7. OUTPUT "Go!"
8. StartTime ← time.clockTick()
9. USERINPUT MySentence
10. FinishTime ← time.clockTick()
11. TotalTime ← FinishTime - StartTime
12. IF MySentence <> Sentence
13. THEN
14. MistakeMade ← True
15. ENDIF
16. IF MistakeMade
17. THEN
18. OUTPUT "You made one or more errors"
19. ELSE
20. OUTPUT TotalTime
21. OUTPUT n
22. ENDIF

(a) What type of variable is each of the following? [4]

(i) MistakeMade

(ii) n

(iii) TotalTime

(iv) Sentence

(b) What does line 16 do? [2]

(c) Alter the program so that instead of storing the sentence “The quick brown fox jumped over the lazy dog”, the user can enter the sentence on which they will be timed. [3]

2. A program has been made for young children to learn Maths. They first enter two numbers, then they select an option for which mathematical operator should be applied to the two numbers as follows:

|  |  |
| --- | --- |
| **Operator option** | **Function** |
| A | Addition |
| S | Subtraction |
| M | Multiplication |
| D | Division |
| Any other character entered | Display “I don’t understand” |

1. DECLARE FirstNumber : REAL
2. DECLARE SecondNumber : REAL
3. DECLARE Operator : CHAR
4. DECLARE Answer : REAL
5. INPUT FirstNumber
6. INPUT SecondNumber
7. INPUT Operator
8. Answer 🡨 0
9. CASE OF Operator
10. 'A' : Answer 🡨 FirstNumber + SecondNumber
11. 'S' : Answer 🡨 FirstNumber – SecondNumber
12. 'M' : Answer 🡨 FirstNumber \* SecondNumber
14. OTHERWISE OUTPUT "I don’t understand"
15. ENDCASE
16. OUTPUT Answer

(a) Complete line 14 which determines what happens for division. [1]

(b) State the output if the user enters: [1]

5  
3  
M

3. Write pseudocode for one or more selection statements to decide whether a year is a Leap year. The rules are:

A year is generally a Leap Year if it is divisible by 4, except that if the year is divisible   
by 100, it is not a Leap year, unless it is also divisible by 400. Thus 1900 was not a   
Leap Year, but 2000 was a Leap year. [4]

|  |
| --- |
|  |

[Total 15 marks]