MODULE M PROGRAMMING · M22

Procedures

Original practice questions · 22 marks · ~25 minutes · Cambridge 0478 syllabus 8.1.6(a), 8.1.6(b), 8.1.8, 7.7, 7.8, 7.9

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. The marks for each part are shown in brackets [ ]. The total for this worksheet is **22 marks**. Write all algorithms and statements in pseudocode. All data on this sheet is made up.

1

Total: 3 marks

(a) Tick (✓) **one** box in each row to show whether each statement about procedures is TRUE or FALSE. **[3]**

Statement	TRUE	FALSE
A procedure returns a single value to the point where it was called.		
The same procedure can be called many times in one program.		
A procedure with no parameters is run using `CALL` followed by its identifier.		

2 **Total: 6 marks**

A label printer in a warehouse uses this algorithm.

```
01 PROCEDURE DrawLine
02     OUTPUT "----------"
03 ENDPROCEDURE
04 PROCEDURE ShowTitle
05     OUTPUT "Parcel labels"
06     CALL DrawLine
07 ENDPROCEDURE
08 DECLARE Parcel : INTEGER
09 CALL ShowTitle
10 FOR Parcel ← 1 TO 3
11     OUTPUT "Parcel ", Parcel
12     IF Parcel = 2
13       THEN
14         CALL DrawLine
15     ENDIF
16 NEXT Parcel
17 CALL DrawLine
```

(a) Write the output from the algorithm. Write one line of output on each answer line. You may not need to use all the lines. **[4]**

(b) Describe what happens when line 09 is executed. **[2]**

3 **Total: 4 marks**

A ticket machine at a ferry terminal shows the same safety notice several times. The notice is these two lines:

```
Keep hold of your ticket
Stand behind the yellow line
```

(a) Write pseudocode to define a procedure called `SafetyNotice`, with no parameters, that outputs the two lines of the notice in order. **[3]**

(b) Write the pseudocode statement that runs the procedure `SafetyNotice`. **[1]**

4 **Total: 3 marks**

This part of an algorithm for a drinks vending machine should keep asking for a choice. When `Q` is entered, it should run the procedure `Goodbye` once and then stop asking.

The algorithm contains **three** errors.

```
01 PROCEDURE Goodbye RETURNS STRING
02     OUTPUT "Thank you for visiting"
03     OUTPUT "Please take your receipt"
04 ENDFUNCTION
05 DECLARE Choice : CHAR
06 REPEAT
07     OUTPUT "Enter B to buy or Q to quit"
08     INPUT Choice
09     IF Choice = 'Q'
10       THEN
11         Goodbye
12     ENDIF
13 UNTIL Choice = 'Q'
```

(a) Identify the line number of each error and suggest a correction. **[3]**

Error 1 Line number ..... Correction

Error 2 Line number ..... Correction

Error 3 Line number ..... Correction

5 **Total: 6 marks**

A tool hire shop checks each tool when it is returned. A member of staff enters a condition code: `'G'` for good or `'D'` for damaged. Two statements in the algorithm are repeated.

```
01 DECLARE Condition : CHAR
02 INPUT Condition
03 IF Condition = 'G'
04   THEN
05     OUTPUT "Good condition"
06     OUTPUT "Clean the tool"
07     OUTPUT "Charge the battery"
08   ELSE
09     IF Condition = 'D'
10       THEN
11         OUTPUT "Damage recorded"
12         OUTPUT "Clean the tool"
13         OUTPUT "Charge the battery"
14       ELSE
15         OUTPUT "Code not recognised"
16     ENDIF
17 ENDIF
```

(a) Rewrite the algorithm, using pseudocode, so that the two repeated statements are in a procedure called `FinishReturn`. The procedure must be defined at the start of the algorithm and called wherever the two statements are needed. The algorithm must still give the same output for every input. **[4]**

(b) Explain **one** benefit of using the procedure `FinishReturn` in this algorithm. **[2]**

Total for this worksheet: 22 marks