MODULE M PROGRAMMING · M24

Parameters and arguments

Original practice questions · 20 marks · ~25 minutes · Cambridge 0478 syllabus 8.1.6(a), 8.1.6(b)

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 **20 marks**. Write all code in pseudocode. All data on this sheet is made up.

1

Total: 1 mark

(a) Tick (✓) **one** box to show which statement describes a parameter. **[1]**

Statement	Tick (✓)
A value that is sent back by a function to the point where it was called.	
A variable named in the header of a procedure or function that receives a value when it is called.	
A variable declared in the main program that can be used anywhere in the program.	
A routine, such as ROUND, that is already provided by the programming language.	

2

Total: 4 marks

A guest house uses this pseudocode to work out the deposit for a booking.

```
01 FUNCTION Deposit(NightlyRate : REAL, Nights : INTEGER) RETURNS REAL
02     DECLARE Amount : REAL
03     Amount ← NightlyRate * Nights / 4
04     RETURN Amount
05 ENDFUNCTION
06
07 DECLARE ToPay : REAL
08 ToPay ← Deposit(80.0, 3)
09 OUTPUT "Deposit due: ", ToPay
```

(a) Identify the **two** parameters of the function `Deposit`. **[1]**

(b) State the value that is given to the parameter `Nights` when line 08 is executed. **[1]**

(c) State the data type of the value that must be passed to the parameter `NightlyRate`. **[1]**

(d) State the output from line 09. **[1]**

3 **Total: 5 marks**

A car park uses this procedure to output the charge for a stay.

```
01 PROCEDURE ParkingCharge(Hours : INTEGER, Rate : REAL, Member : BOOLEAN)
02     DECLARE Charge : REAL
03     Charge ← Hours * Rate
04     IF Member = TRUE
05       THEN
06         Charge ← Charge - 2.0
07     ENDIF
08     OUTPUT "Charge: ", Charge
09 ENDPROCEDURE
10
11 CALL ParkingCharge(3, 1.5, FALSE)
12 CALL ParkingCharge(5, 2.0, TRUE)
13 CALL ParkingCharge(2, 1.5, TRUE)
```

(a) Complete the table to show the output from each of the procedure calls on lines 11, 12 and 13. **[3]**

Call on line	Output
11	
12	
13	

(b) A programmer adds this statement:

```
14 CALL ParkingCharge(TRUE, 4, 2.5)
```

Explain why this statement is **not** a correct call of the procedure. **[2]**

4 **Total: 4 marks**

An office reception desk prints a badge for each visitor. The badge shows the visitor's name and the number of the desk they are visiting.

(a) Write the pseudocode for the **first line** (header) of a procedure called `ShowBadge` that has two parameters: the visitor's name and the desk number, which is a whole number. **[2]**

(b) Write a pseudocode statement that uses `ShowBadge` to print a badge for a visitor called `"Dana Reyes"` who is visiting desk `14`. **[2]**

5 **Total: 6 marks**

A building's heating system checks whether readings are within an acceptable range.

(a) Write pseudocode to define a function called `InRange` that: **[4]**

- has three parameters, all whole numbers: the reading, the lowest acceptable value and the highest acceptable value
- returns TRUE if the reading is from the lowest to the highest acceptable value inclusive
- returns FALSE otherwise.

(b) The variable `Temperature` stores a reading. Write a pseudocode statement that uses your function `InRange` to check whether `Temperature` is from 18 to 24 inclusive, and stores the result in the variable `Comfortable`. **[2]**

Total for this worksheet: 20 marks