MODULE M PROGRAMMING · M3

Data types

Original practice questions · 20 marks · ~25 minutes · Cambridge 0478 syllabus 8.1.2 (with 8.1.1)

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**. Pseudocode on this sheet follows the Cambridge 0478 pseudocode rules. Write any pseudocode answers in the same style.

1 **Total: 5 marks**

Tick (✓) **one** box in each row to show the data type of each literal value, written as it would appear in pseudocode. **[5]**

Literal value	INTEGER	REAL	CHAR	STRING	BOOLEAN
`'Q'`					
`"Q12"`					
`-12`					
`12.0`					
`FALSE`					

2 **Total: 5 marks**

A museum's ticket machine uses a program. The table shows five of the variables it uses.

Identifier	What it stores
`AdultTickets`	the number of adult tickets bought, for example 3
`TotalPrice`	the total price to pay, for example 37.50
`IsMember`	whether the buyer is a museum member or not
`PriceBand`	a single letter for the price band: A, B or C
`VisitorName`	the name to print on the ticket

Write pseudocode statements to declare each of these variables with a suitable data type. **[5]**

3 **Total: 3 marks**

Another part of the museum program declares five variables and then gives each one a value.

```
01 DECLARE Visitors : INTEGER
02 DECLARE Fee : REAL
03 DECLARE Band : CHAR
04 DECLARE IsOpen : BOOLEAN
05 DECLARE Venue : STRING
06 Visitors ← 0
07 IsOpen ← "TRUE"
08 Venue ← "East Hall"
09 Fee ← 12
10 Band ← "C"
11 OUTPUT Venue, " entry fee: ", Fee
```

Three of the lines from 06 to 10 do not write the literal value in the way the pseudocode rules require for the data type of the variable. **[3]**
Identify the line number of each of these three lines and write the corrected line.

Line number ..... Correction

Line number ..... Correction

Line number ..... Correction

4

Total: 4 marks

A delivery robot's program stores data about each delivery.

(a) The robot's battery charge is stored as a percentage, for example 87.5 **[2]**
State the most suitable data type for the battery charge and give a reason for your choice.

Data type

Reason

(b) Each delivery has a door entry code made of four digits, for example 0472 **[2]**
State the most suitable data type for the door entry code and give a reason for your choice.

Data type

Reason

5

Total: 3 marks

The robot's program contains these declarations:

```
DECLARE Parcels : INTEGER
DECLARE Street : STRING
```

State the data type of the value produced by each expression. **[3]**

Expression	Data type
`Parcels > 20`	
`LENGTH(Street)`	
`SUBSTRING(Street, 1, 4)`	

Total for this worksheet: 20 marks