MODULE M PROGRAMMING · M3

Data types and casting

Original practice questions · 21 marks · ~25 minutes · OCR J277 spec 2.2.2

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 **21 marks**. Code on this sheet is written in OCR Exam Reference Language.

1

Total: 6 marks

A bicycle hire kiosk uses a program to record each hire.

(a) Complete the table by giving the most suitable data type for each item of data. Each data type should be different. **[4]**

Data	Example	Data type
The number of whole hours the bicycle is hired for	`3`	
The price per hour, in pounds	`4.50`	
Whether a helmet is included in the hire	`True`	
A one-letter code for the frame size (S, M or L)	`M`	

(b) The kiosk also stores the customer's phone number, for example `07700 900461`. Explain why the phone number should be stored as a string and not as an integer. **[2]**

2

Total: 4 marks

A self-service laundry's drying machine uses this program to work out the cost of a drying session. It costs 0.2 pounds per minute.

```
01 minutes = input("Enter drying time in minutes")
02 cost = minutes * 0.2
03 print("Cost in pounds: " + cost)
```

(a) State the data type of the value stored in `minutes` by line 01. **[1]**

(b) State what is meant by **casting**. **[1]**

(c) Line 02 causes an error. Rewrite line 02 using casting so that the calculation works. **[1]**

(d) Line 03 also causes an error. Rewrite line 03 using casting so that the message and the cost are output together. **[1]**

3

Total: 4 marks

Each statement in the table is run on its own. Give the value stored in `result` after each statement. Show a string by putting it in speech marks.

[4]

Statement	Value stored in `result`
`result = int("15") + 5`	
`result = "15" + "5"`	
`result = str(9) + "0"`	
`result = float("1.5") * 2`	

4

Total: 3 marks

A program for a car park contains the statement `total = 10`, so `total` stores an integer.

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

Expression	Data type
`total / 4`	
`total MOD 4`	
`total >= 10`	

5 **Total: 4 marks**

A post office counter uses a program to work out the cost of posting a parcel.

Write a program that: **[4]**

- asks the user to enter the weight of the parcel in kilograms, for example 3.5
- converts the weight that is entered into a real number
- calculates the cost by multiplying the weight by 2.40
- outputs the cost with a suitable message.

You must use either:

- OCR Exam Reference Language, or
- a high-level programming language that you have studied.

Total for this worksheet: 21 marks