MODULE M PROGRAMMING · M1

Variables, constants, input and output

Original practice questions · 22 marks · ~25 minutes · OCR J277 spec 2.2.1

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

1

Total: 3 marks

Tick (✓) **one** box in each row to show whether the statement describes a variable, a constant, or both. **[3]**

Statement	Variable	Constant	Both
Its value can be changed while the program is running.			
Its value stays the same while the program is running.			
It has an identifier (a name) that the program uses to refer to its value.			

2 **Total: 5 marks**

A bike hire kiosk uses this program to work out the cost of hiring a bike.

```
01 const RATE = 4
02 print("Bike hire: price per hour")
03 print(RATE)
04 name = input("Enter your name")
05 hours = int(input("Enter number of hours"))
06 cost = hours * RATE
07 print("Thank you " + name)
08 print(cost)
```

(a) Identify the constant used in the program. **[1]**

(b) Identify **one** variable used in the program. **[1]**

(c) A customer enters `3` when asked for the number of hours. State the value that line 08 outputs. **[1]**

(d) Give **two** reasons why the programmer used the constant `RATE` instead of writing the number 4 on lines 03 and 06. **[2]**

1

2

3 **Total: 5 marks**

Look at this program.

```
01 x = 6
02 y = 4
03 x = x + y
04 y = x * 2
05 x = 3
06 print(x)
07 print(y)
```

(a) Complete the trace table for the program. You may not need to use all the rows. **[3]**

Line	x	y	Output

(b) After line 03 runs, x holds the value 10. Explain why line 06 outputs 3 and not 10. **[2]**

4 **Total: 4 marks**

A campsite has 25 pitches. This program should:

- ask the manager to enter the number of pitches booked
- store the number of pitches still free in the variable `pitchesLeft`
- output the heading `Pitches left`, then the number of pitches still free.

```
01 const PITCHES = 25
02 booked = int(input("Enter number of pitches booked"))
03 PITCHES = PITCHES - booked
04 print(Pitches left)
05 print(pitchesLeft)
```

The program contains **two** errors. Identify the line number of each error and write the corrected line of code. **[4]**

Line number	Corrected line of code

5 **Total: 5 marks**

A print shop charges £0.15 for each page it prints.

Write a program that: **[5]**

- stores the price of one page, 0.15, as a constant
- asks the user to enter the number of pages and stores it in a variable
- calculates the total cost of printing the pages
- outputs the total 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: 22 marks