MODULE M PROGRAMMING · M10

Count-controlled loops (FOR)

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. In a `for` loop, the loop variable takes every value from the start value to the end value **inclusive**.

1

Total: 3 marks

(a) State what is meant by a **count-controlled** loop. **[1]**

(b) A program for a dental surgery's reception desk needs two loops. Tick (✓) **one** box in each row to show the type of loop that is most suitable for each task. **[2]**

Task	Count-controlled	Condition-controlled
Print exactly 5 copies of the day's appointment list		
Keep asking for the receptionist's password until the correct password is entered		

2

Total: 3 marks

Each loop below contains one `print` statement inside it.

Complete the table to show how many times the statement inside each loop is run. **[3]**

First line of the loop	Number of times the loop body runs
`for k = 0 to 6`	
`for k = 5 to 20 step 5`	
`for k = 9 to 1 step -2`	

3 **Total: 4 marks**

A farm shop plans how many sacks of potatoes it will have left over four weeks. The algorithm below is used.

```
01 stock = 20
02 for week = 1 to 4
03     sold = week * 3
04     if sold < stock then
05         stock = stock - sold
06     endif
07 next week
08 print("Left: " + str(stock))
```

Complete the trace table for the algorithm. You may not need to use all the rows in the table. **[4]**

Line number	week	sold	stock	Output

4 **Total: 3 marks**

Before a sports hall's lights switch off at night, a display counts down.

Write an algorithm that uses a `for` loop to output the numbers 60, 50, 40, 30, 20, 10 and 0, in that order, and then outputs `Lights off` once. **[3]**

5

Total: 4 marks

A garden centre sells plant pots. This program should ask for the price of one pot, then output the cost of 1, 2, 3, 4, 5 and 6 pots, each on its own line. For example, if one pot costs 2.5, the third line output should be `3 pots cost 7.5`

```
01 price = float(input("Enter the price of one pot"))
02 for pots = 1 to 5
03     cost = price * 6
04     print(str(pots) + " pots cost " + str(cost))
05 next pots
```

The program contains two logic errors. **[4]**

Identify the line number of each logic error and write the corrected line of code.

Line number	Corrected line of code

6

Total: 5 marks

A company's post room weighs the parcels that arrive each morning.

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

- asks the user to enter how many parcels have arrived
- uses a `for` loop to ask the user to enter the weight of each parcel, in kilograms
- adds up the weights of all the parcels
- outputs the total weight once all the weights have been entered.

You must use either:

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

Total for this worksheet: 22 marks