MODULE O ROBUST PROGRAMS · O8

Writing a test plan

Original practice questions · 21 marks · ~25 minutes · OCR J277 specification 2.3.2

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. All code is written in OCR Exam Reference Language. Use the OCR names for types of test data: **normal**, **boundary**, **invalid** and **erroneous**. Write actual values as test data, not descriptions. The marks for each part are shown in brackets [ ]. The total for this worksheet is **21 marks**.

1

Total: 3 marks

(a) A programmer writes a test plan before testing a program. **[2]**
Other than the test data, give **two** items of information that are recorded for each test in a test plan.

1

2

(b) State why each test in a test plan has an expected result. **[1]**

2

Total: 5 marks

A tool-hire shop uses a program to work out the cost of hiring a tool.

- The user enters the number of days, as a whole number.
- Only 1 to 14 days (inclusive) are allowed.
- If the number of days is allowed, the program outputs the cost, which is £12 per day.
- Otherwise, the program outputs `Enter 1 to 14 days` and asks again.

Complete the test plan for this program. **[5]**

Test	Test data (days)	Type of test	Expected result
1	6	Normal	Accepted, outputs cost £72
2	14		
3		Boundary	Accepted, outputs cost £12
4	0		Rejected, outputs `Enter 1 to 14 days`
5		Erroneous	Rejected, outputs `Enter 1 to 14 days`

3 **Total: 3 marks**

A parcel locker uses this function to decide which size of locker a parcel goes in. Weights, in kg, are checked before the function is called, so the function only receives weights above 0 and up to 30.

```
01 function lockerSize(weight)
02     if weight <= 2 then
03         size = "Small"
04     elseif weight <= 10 then
05         size = "Medium"
06     else
07         size = "Large"
08     endif
09     return size
10 endfunction
```

There are three routes through the `if` statement. **[3]**
Complete the test plan so that each route is tested once. Give a different weight for each test and the value the function should return.

Test	Test data (weight in kg)	Expected result (value returned)
1		
2		
3		

4 **Total: 6 marks**

A greenhouse controller reads the temperature in °C as a whole number.

- Readings from 0 to 50 (inclusive) are accepted. Any other reading outputs `Reading rejected`.
- For an accepted reading of 28 or more, the program outputs `Fan on`.
- For an accepted reading below 28, the program outputs `Fan off`.

```
01 temp = int(input("Enter temperature"))
02 if temp < 0 OR temp > 50 then
03     print("Reading rejected")
04 elseif temp > 28 then
05     print("Fan on")
06 else
07     print("Fan off")
08 endif
```

(a) The programmer runs the tests in this test plan on the code above. **[3]**
Complete the **Actual result** and **Pass/Fail** columns for tests 2, 3 and 4. Test 1 has been done for you.

Test	Test data	Type of test	Expected result	Actual result	Pass/Fail
1	35	Normal	Fan on	Fan on	Pass
2	28	Normal	Fan on		
3	51	Invalid	Reading rejected		
4	0	Boundary	Fan off		

(b) Identify the line number that contains the error. Refine the line so that the program meets all three bullet points above. **[2]**

Line number

Refined line

(c) State what the programmer should do with the test plan after refining the code. **[1]**

5 **Total: 4 marks**

A boat-tour company's booking program accepts group sizes from 2 to 10 people (inclusive), as a whole number. A new programmer wrote this test plan for the group size input.

Test	Test data	Type of test	Expected result
1	5	Normal	It works
2	7	Normal	Accepted
3	12	Invalid	Error

Identify **two** weaknesses in this test plan. For each weakness, describe how the test plan should be improved. **[4]**

Weakness 1

Improvement

Weakness 2

Improvement

Total for this worksheet: 21 marks