MODULE M PROGRAMMING · M9

Selection: switch/case statements

Original practice questions · 22 marks · ~25 minutes · OCR J277 spec 2.2.1 (with 2.1.2)

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 **22 marks**. Code is written in OCR Exam Reference Language. All data on this sheet is made up.

1

Total: 3 marks

In OCR Exam Reference Language, each `case` in a `switch` statement compares one variable with **one fixed value**.

(a) Tick (✓) **one** box in each row to show whether each task is better written with a `switch` statement or with an `if` statement. **[3]**

Task	switch	if
Choose a paper tray from a paper size code entered as `"A3"`, `"A4"` or `"A5"`.		
Decide whether a parcel with a weight such as 4.75 kg is over 20 kg.		
Choose a fan speed from a temperature such as 18.5: below 20.0 is low, 20.0 to 25.0 is medium, above 25.0 is high.		

2

Total: 5 marks

A recycling centre has a kiosk that tells visitors which bin to use.

```
01 material = input("Enter material code")
02 switch material:
03     case "G":
04         print("Green bin")
05     case "P":
06         print("Blue bin")
07     case "M":
08         print("Grey bin")
09     default:
10         print("Ask staff")
11 endswitch
```

(a) Complete the table to show the output for each input. **[3]**

Input	Output
P	
M	
g	

(b) Explain why the input g gives the output you wrote in part (a). **[2]**

3

Total: 4 marks

A museum audio guide uses this code. The variable `exhibit` holds a whole number.

```
if exhibit == 1 then
    print("Fossils")
elseif exhibit == 2 then
    print("Ancient coins")
elseif exhibit == 3 then
    print("Clocks")
else
    print("No guide for this number")
endif
```

(a) Rewrite this code using a `switch` statement. Your code must give the same output as the code above for every value of `exhibit`. **[4]**

4 **Total: 4 marks**

A tram ticket machine sets the fare for zones 1, 2 and 3. The program below has **one** logic error.

```
01 zone = int(input("Enter zone (1, 2 or 3)"))
02 switch zone:
03     case 1:
04         fare = 2.00
05     case 2:
06         fare = 3.50
07     case 2:
08         fare = 5.00
09     default:
10         fare = 0
11         print("Invalid zone")
12 endswitch
13 print("Fare: " + str(fare))
```

(a) Identify the line number of the logic error and write the corrected line of code. **[2]**

Line number ..... Corrected line

(b) The program is run **before** it is corrected. The user enters 3. **[2]**

State the output of the program.

5 **Total: 6 marks**

A smart thermostat has three heating modes, chosen by a single letter.

(a) Write a program that uses a `switch` statement to: **[6]**

- ask the user to enter a mode letter and store it
- output `Eco: 18 degrees` if the letter is `"E"`
- output `Comfort: 21 degrees` if the letter is `"C"`
- output `Boost: 24 degrees` if the letter is `"B"`
- output `Invalid mode` for any other input.

You must use either:

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

Total for this worksheet: 22 marks