MODULE M PROGRAMMING · M9

Selection: switch/case statements: mark scheme

22 marks · OCR J277 spec 2.2.1 (the three basic programming constructs: selection; ERL CASE SELECT or SWITCH), with 2.1.2 (interpret, correct, complete and refine algorithms; identify errors)

How to use. 1 mark per bullet up to the Max shown. **/** separates alternative answers. Words in (brackets) are not needed for the mark. Code answers are marked for logic, not exact syntax: accept OCR Exam Reference Language or any high-level language (e.g. Python `match/case` with `case _:` as the default, Visual Basic `Select Case` … `Case Else` … `End Select`, C#/Java `switch` with `break`). Minor syntax slips (a missing colon, `break` present or absent) are not penalised; a repeated slip is penalised once then follow through. Capitals in keywords are ignored. Credit any other valid answer that shows the same understanding.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) J277 2.2.1	Paper tray from a size code: switch Parcel over 20 kg: if Fan speed from a temperature range: if	**3**	1 mark per correct row. More than one tick in a row: 0 for that row. Row 1 compares one variable with a few fixed values. Rows 2 and 3 need a comparison (>, <) or a range of real values, which a case with one fixed value cannot test.
2(a) J277 2.2.1, 2.1.2	`P`: Blue bin `M`: Grey bin `g`: Ask staff	**3**	1 mark per correct row. Ignore quotation marks round the output. Do not accept `print("Blue bin")` written as the output. Do not accept "Green bin" for `g`.
2(b) J277 2.2.1	Max 2: `"g"` does not match `"G"` / the comparison is case sensitive / lower case and upper case letters are different values no case matches (none of `"G"`, `"P"`, `"M"`) … … so the `default` branch (line 09/10) runs	**2**	"It is not one of the options" with "so default runs" = 2. "It is lower case" alone = 1. "The program has an error" = 0 (the program works as written).

QUESTION	ANSWER	MARKS	GUIDANCE

3(a)
J277 2.2.1, 2.1.2
	1 mark each to max 4:
	`switch exhibit:` … `endswitch` (switch on the variable `exhibit`, with a matching end)
	`case 1:` followed by `print("Fossils")`
	`case 2:` with `print("Ancient coins")` **and** `case 3:` with `print("Clocks")`
	`default:` with `print("No guide for this number")`, as the last option
	Example:
	`switch exhibit:`
	`  case 1:`
	`  print("Fossils")`
	`  case 2:`
	`  print("Ancient coins")`
	`  case 3:`
	`  print("Clocks")`
	`  default:`
	`  print("No guide for this number")`
	`endswitch`
		4	Case values in quotes (`"1"`) would not match a whole number: penalise once then FT. Do not accept the answer written again as `if/elseif`: 0. Do not accept `case exhibit == 1:` for the case marks (penalise once then FT). A `default` that is not the last option loses the last mark. Python: `match exhibit:` … `case _:` is fine.

4(a) J277 2.1.2, 2.2.1	Line 07 (identified) … … `case 3:`	**2**	The correction mark needs line 07. Line 07 has a second `case 2:`, so the zone 3 fare (5.00) can never be set. Do not accept changes to line 08 (5.00 is the correct zone 3 fare) or line 05.
4(b) J277 2.1.2, 2.2.1	`Invalid zone` `Fare: 0`	**2**	1 mark per output line. Ignore quotation marks. Allow `Fare: 0.0` / `Fare: 0.00`. Allow both outputs on one line. Do not accept `Fare: 5.0` (that is the output after the fix).

QUESTION	ANSWER	MARKS	GUIDANCE

5(a)
J277 2.2.1
	1 mark each to max 6:
	Inputs the mode letter and stores it in a variable
	`switch` on that variable with a matching `endswitch` (or equivalent: `match`, `Select Case`)
	`case "E":` outputs `Eco: 18 degrees`
	`case "C":` outputs `Comfort: 21 degrees`
	`case "B":` outputs `Boost: 24 degrees`
	`default:` outputs `Invalid mode`
	Example:
	`mode = input("Enter mode letter")`
	`switch mode:`
	`  case "E":`
	`  print("Eco: 18 degrees")`
	`  case "C":`
	`  print("Comfort: 21 degrees")`
	`  case "B":`
	`  print("Boost: 24 degrees")`
	`  default:`
	`  print("Invalid mode")`
	`endswitch`
		6	Case values must be in quotes (text); missing quotes: penalise once then FT. Ignore small differences in the output text (e.g. a missing colon). Allow extra cases for lower-case letters, or converting the input to upper case first. A correct program written with `if/elseif/else` and no switch: max 4 (input mark and the three letter outputs). Do not accept `input` as a variable name. Do not accept flowcharts, structured English or bullet points.

Total: 22 marks