MODULE M PROGRAMMING · M27

Records: mark scheme

20 marks · OCR J277 spec 2.2.3 (the use of records to store data; arrays as fixed length or static structures; use of 2D arrays to emulate database tables of a collection of fields, and records), 2.2.2 (choosing suitable data types for data in a given scenario), with 2.2.1 and 2.1.2 for Q3 and Q4(d)

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: mark the logic, not the language. Allow OCR Exam Reference Language or any high-level language (for example a Python class, dictionary or list, or a record/structure type in another language), and allow any logically valid method. Do not penalise minor syntax slips (missing casting, capitals, a missing colon, and for AND). A recurring slip: penalise once, then follow through. Do not accept maths symbols such as ≥ or ≤ in code. Outputs: ignore quotation marks round output text.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) J277 2.2.3	1 mark each to max 2: A data structure / a way of storing data (under one identifier) ... that groups together (a collection of) related fields / data items / values about one item / thing / entity (e.g. one tool) The fields can be of different data types Each field has its own (field) name / is accessed by its name	**2**	Allow "a row in a table" / "one row of data about one item" for 1 mark. An example alone (e.g. "TH204, Pressure washer") max 1. Do not accept a definition of a field. Credit any other valid point.
1(b) J277 2.2.3	One item of data / one piece of information / one attribute within a record (e.g. `dailyRate`)	**1**	Allow "a column in a table / of a 2D array" / "one category of data stored for every record". Do not accept an example on its own. Do not accept "a row".
1(c) J277 2.2.3	1 mark each to max 2: A record's fields can be different data types // an array stores only one data type A field is accessed by its (field) name // an array element is accessed by its index / position (number) A record holds related data about one item // a 1D array holds a list of values of the same kind (e.g. many descriptions)	**2**	Each difference must be clear for one of the two; the other side may be implied (e.g. "an array can only hold one data type" = 1 mark). Do not accept "an array is fixed length" alone (a record's fields are also fixed). Do not accept "a record is bigger" or "an array is faster". Credit any other valid difference.

QUESTION	ANSWER	MARKS	GUIDANCE
2 J277 2.2.2, 2.2.3	1 mark per correct row: `description`: string `dailyRate`: real / float `minDays`: integer `available`: Boolean	**4**	Accept: str; float / decimal / single / double for real; int; bool. Accept text / varchar for string. Do not accept: number / numeric on their own; currency; character / char for `description`; yes-no / true-false for Boolean; string for `dailyRate` or `minDays`.

3(a)
J277 2.2.3, 2.2.1
	1 mark per line:
	`Pressure washer`
	`Cost: 72.0`
		2	Accept `72` or `72.00` in place of `72.0`. Allow the second line with or without "Cost: ". Ignore the order only if both lines are clearly given as separate outputs. Do not accept `Cannot hire` as well. Do not accept `hireTool.description` or `print(...)` as an output.

3(b) J277 2.2.3, 2.2.1	`Cannot hire`	**1**	Do not accept any other output with it.
3(c) J277 2.2.3	Assigns to the `dailyRate` field of `hireTool` its current value plus 1.50 `hireTool.dailyRate = hireTool.dailyRate + 1.50`	**1**	Allow `hireTool.dailyRate += 1.5`. Allow `hireTool.dailyRate = 25.50`. Allow the field accessed in another language's style, e.g. `hireTool["dailyRate"]`. Do not accept `dailyRate = dailyRate + 1.50` (record not named), `hireTool = hireTool + 1.50`, or `=+`.
4(a) J277 2.2.3	`Tile cutter`	**1**	Ignore quotation marks.
4(b) J277 2.2.3	All five values of row 3: `TH427`, `Leaf blower`, `9.75`, `1`, `True`	**1**	All five values needed (a whole row). Ignore order, quotation marks and separators. Allow field names with the data. Do not accept a single value or the column of IDs.

QUESTION	ANSWER	MARKS	GUIDANCE
4(c) J277 2.2.3	Assigns "True" to row 0, column 4 `tools[0, 4] = "True"`	**1**	Allow `True` without quotation marks. Allow `tools[0][4]`. Do not accept `tools[4, 0]`, `tools[1, 5]` or `==`.

4(d)
J277 2.2.3, 2.1.2
	1 mark each to max 4:
	Iterates through all five records / rows (0 to 4)
	Checks the `available` field / column 4 is "True"
	Checks the `dailyRate` field / column 2 is less than 20 (`< 20`) ...
	... and outputs the description / column 1 only when **both** conditions are true
	`for row = 0 to 4`
	`    if tools[row, 4] == "True" AND float(tools[row, 2]) < 20.00 then`
	`        print(tools[row, 1])`
	`    endif`
	`next row`
	This outputs `Tile cutter` and `Leaf blower`.
		4	Allow nested `if` statements instead of AND. Allow `True` without quotation marks and missing casting. Do not accept `<= 20` for mark point 3. Using OR instead of AND: do not award mark point 4. Allow `for row in range(5)` or a `while` loop that ends after row 4; a loop of 1 to 5 does not get mark point 1. Allow `tools[row][1]` style. Five separate `if` statements with fixed rows instead of a loop: do not award mark point 1 (other mark points may be awarded). Outputting the whole record instead of the description: do not award mark point 4.

Total: 20 marks