MODULE O ROBUST PROGRAMS · O7

Choosing test data: mark scheme

21 marks · OCR J277 specification 2.3.2 (selecting and using suitable test data: normal, boundary, invalid/erroneous; identify suitable test data for a given scenario)

How to use. 1 mark per bullet up to the maximum shown. **/** separates alternative words or answers. Words in (brackets) are not needed for the mark. **...** means the mark depends on the point before it. Test data must be an actual value; a description such as "a number between 1 and 50" does not score. Credit any other valid answer that shows the same understanding.

QUESTION	ANSWER	MARKS	GUIDANCE
1(a) J277 2.3.2	Data that should be accepted by the program (without causing errors) / typical valid data	**1**	Allow "data the program is expected to work with / that should pass the validation". Do not allow an example on its own.
1(b) J277 2.3.2	Invalid: data of the correct data type (that should be rejected) Erroneous: data of the incorrect / wrong data type (that should be rejected)	**2**	The data type idea is needed for each mark. "Both should be rejected" on its own scores 0. Allow a correct example used to support the point, e.g. invalid: 101 for a range 1 to 100 (right type, out of range); erroneous: "ten" for a number.
2(a) J277 2.3.2	1 mark per correct row (type **and** accept/reject both correct): 8: Normal ... Accept 2: Boundary ... Accept 12: Boundary ... Accept 20: Invalid ... Reject "ten": Erroneous ... Reject	**5**	Rows 2 and 3: allow "Boundary and normal" (the values are also valid). Row 4: allow "Invalid/erroneous" written as one category. Do not allow "Erroneous" alone: 20 is the correct data type. Row 5: allow "Invalid/erroneous" written as one category. Do not allow "Invalid" alone: "ten" is the wrong data type. Allow "allowed / valid / yes" for Accept and "not allowed / error message / no" for Reject.

QUESTION	ANSWER	MARKS	GUIDANCE
3(a) J277 2.3.2	A username of exactly 6 characters, e.g. `Pebble` A username of exactly 12 characters, e.g. `RiverOtter42`	**2**	Count the characters. Any characters may be used. Two different 6-character usernames (or two 12-character usernames) score 1 mark only: the two edges are different tests. Allow a clearly stated length with an example of that length. A length alone with no username (e.g. "6 letters") scores 0.
3(b) J277 2.3.2	A username of 5 or fewer / 13 or more characters, e.g. `Ab12` / `Pebble1234567` It is the correct data type / it is text / a string … but its length is outside 6 to 12, so it should be rejected	**2**	Mark 2 needs the idea of the correct data type. Allow an empty username for mark 1. Do not allow "it is too short" on its own for mark 2.
4(a) J277 2.3.2	1	**1**	More than one value given scores 0.
4(b) J277 2.3.2	It rejects 1 / outputs "Setting must be 1 to 8" / asks for the setting again It should accept 1 / save the setting / output "Setting saved" (because 1 is in the range 1 to 8)	**2**	Mark (b) for the value 1 only: 5, 8 and 9 are handled correctly by this code, so no FT from a wrong answer to (a). Do not allow "it crashes".
4(c) J277 2.3.2	Boundary (test data)	**1**	Allow "boundary and normal".
4(d) J277 2.3.2	Any value that is not a whole number / integer, e.g. `"five"` / `4.5` / `"#"`	**1**	Do not allow a whole number such as 0, 9 or −3 (this is invalid test data, the correct data type). Do not allow a description such as "a word" with no actual value.

QUESTION	ANSWER	MARKS	GUIDANCE
5(a) J277 2.3.2	Max 4 from: All three values are normal data / only checks that valid data is accepted Boundary test data should be used, e.g. 1 / 50 (to check the edges are accepted) Invalid test data should be used, e.g. 0 / 51 / −5 (to check it is rejected) Erroneous test data should be used, e.g. `"ten"` / 2.5 (to check it is rejected) Errors at the edges of the range / in the validation (e.g. > used instead of >=) would not be found	**4**	Mark points 2 to 4 each need a correct example value for that type. Allow "Invalid/erroneous" as one category if the example fits. If 0 or 51 is given as "boundary" data that should be rejected, credit it for mark point 3 (invalid). Do not allow a whole number as erroneous. Do not allow "they should test more values" on its own.

Total: 21 marks