9. A function is written to remove a specified number from an array and return a new array without that number. If the number is not present then the original array should be returned.

For example, if the value 12 is to be removed from the array [42, 12, 67] then the array [42, 67] is returned.

```
…
Line 4   FUNCTION removal(ARRAY OF INTEGER values, INTEGER target)
         RETURNS ARRAY OF INTEGER
Line 5      DECLARE newList INITIALLY [0] * length(values)-1
Line 6      DECLARE position INITIALLY 0
Line 7      FOR index FROM 0 TO length(values)-1 DO
Line 8         IF values[index] ≠ target THEN
Line 9            SET newList[position] TO values[index]
Line 10           SET position TO position+1
Line 11        END IF
Line 12     END FOR
Line 13     RETURN newList
Line 14  END FUNCTION
…
…
Line 20  DECLARE numbers INITIALLY [42,12,67]
Line 21  DECLARE deleteValue AS INTEGER INITIALLY FROM KEYBOARD
Line 22  newNums = removal(numbers,deleteValue)
Line 23  SEND newNums TO DISPLAY
```

(a) The code above limits the scope of several variables.

(i) Explain what is meant by the scope of a variable. **1**

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(ii) Describe one benefit of limiting the scope of a variable in modular programming. **1**

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(b) Describe the operation of line 22 during the execution of this program. **2**

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9. (continued)

(c) One test case is to enter the number 99 when prompted at line 21. The expected output would be [42,12,67].

Complete the trace table below by identifying the missing values in the highlighted boxes. **3**

Line number	newList	position	index
5	[0,0]		
6		0	
7			0
9	[42,0]		
10			
7			1
9			
10			
7			

(d) Describe how a debugging technique could be used to check the values in the trace table. **2**

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[Turn over

9. (continued)

(e) (i) Explain why the code does not produce the correct output. **2**

(ii) Describe the additional code that should be added to the function to make it fit for purpose. **2**

(f) Evaluate the robustness of the function. Explain your answer. **1**