MARKS | DO NOT WRITE IN THIS MARGIN

10. A shop has a unique product code for each item it sells, for example X756.

The linear search algorithm shown below is used to find the position of a product code in an array.

```
Line 1    FUNCTION linearSearch (ARRAY OF STRING list)
          RETURNS INTEGER
Line 2       DECLARE position INITIALLY 0
Line 3       DECLARE target INITIALLY ""
Line 4       SEND "Enter target value" TO DISPLAY
Line 5       RECEIVE target FROM KEYBOARD
Line 6       FOR index FROM 0 TO length(list)-1 DO
Line 7          IF target=list[index] THEN
Line 8             SET position TO index
Line 9          END IF
Line 10      END FOR
Line 11      RETURN position
Line 12   END FUNCTION
```

The array of unique product codes is shown below.

C232	T546	X756	W482	B629	.....

(a) State the value that will be returned by the function if `target` is X756. **1**

IT will return / give the position of 'X756' value

(b) This linear search algorithm is inefficient.

Describe how the algorithm could be made more efficient. **2**

Even if the target was found, the code will still be running even tho its already found

meaning if another thing have the same name in an array or something it will override it

To improve it you can just stop the function if the target was first found

(c) The product code 'F333' is entered. It is not in the array.

(i) State the value returned by the function. **1**

ERROR 404

(ii) State the type of error. Explain your answer. **2**

Error Target was not found in an array ERROR

Explanation In order to fix the error you could add try and except method

this will try to get the value from the array if not then output some error

like 'Target of name {NAME} was not found.'