

5. A mathematician has written a program to generate the first six numbers in a mathematical sequence. The next number in the sequence is the sum of the previous two numbers. For example, if the sequence starts with

5, 7, ...

Then the first six numbers of the sequence would be

5, 7, 12, 19, 31, 50

The following code has been developed to generate the sequence of six numbers.

```
...
Line 10 DECLARE sequence INITIALLY [0,0,0,0,0,0]
Line 11 SET sequence[0] TO 5
Line 12 SET sequence[1] TO 7
Line 13 FOR n FROM 2 TO 5 DO
Line 14     SET sequence[n] TO sequence[n] + sequence[n-1]
Line 15 END FOR
...
```

- (a) A logic error in the code means that an incorrect sequence is generated. The trace table below shows the line numbers where a variable has changed.

Line Number	sequence	n
10	[0, 0, 0, 0, 0, 0]	
11	[5, 0, 0, 0, 0, 0]	
12	A	
13		2
14	B	
13		3
14	C	

State the missing values at A, B and C.

3

A _____

B _____

C _____



* X 8 1 6 7 6 0 1 0 4 *



MARKS	DO NOT WRITE IN THIS MARGIN

5. (continued)

(b) Re-write Line 14 of the code to generate the correct sequence.

2