

## Activity 01

### March 2018 – A3

#### A3

The array **x** has been initialised as follows

index	0	1	2	3	4	5	6	7	8	9	10	11
x	1	9	5	0	8	6	3	5	1	0	2	9

The subroutine **a** in the code below is going to be executed with parameter **b** set to 1 and parameter **c** set to 6.

- a) Trace the call of the function **a (1,6)** and show clearly the results of the call. If there are any numerical calculations for which you would need a calculator, just leave them written as a formula.

(8 marks)

	function
1	float a(int b, int c){
2	float d;
3	int e;
4	d = 0;
5	e = b;
6	while(e <= c){
7	d += x[e];
8	e++;
9	}
10	return( d/(c-b+1) );
11	}

- b) Write a brief summary of what the subroutine does. (6 marks)
- c) Decide on better names for the identifiers (the subroutine name, its parameters and the variables) and rewrite the code using your new names and include suitable comments. (10 marks)
- d) Rewrite lines 6 to 9 using a for-loop instead of a while-loop. (6 marks)

### March 2016 – B6

#### B6

Write a function **factorial** (n) in pseudocode (or a programming language of your choice) to calculate the factorial of n:

[Definition: factorial (n) = n \* (n-1) \* (n-2) ... \* 2 \* 1]

- a) Using recursion (6 marks)
- b) Using iteration (6 marks)