Last name_____ **First name**_____

Student ID number_____

Question 1
Explain the difference between the following two MATLAB commands. What will be the value of variables X and Y after their execution? Explain your answer.
```
>>X=0:5:10
>>Y=linspace(0,10,5)
```

Question 2
Describe the main components of a computer system and explain how they interact.

Question 3
Using the flow diagram notation, write an algorithm to find the position of the maximum value in a vector provided as input. The algorithm returns as output such position.
Example: when the vector in input is [7 8 4 2 3 4], the output will be 2, being 8 the maximum value and 2 its position in the vector.

Question 4
Which of the following statements is true? Explain your answer.
- You can modify variables in the Base Workspace only executing assignment statements/commands in the MATLAB console.
- You can modify variables in the Base Workspace only executing a MATLAB script.
- You can modify variables in the Base Workspace executing both assignment statements/commands in the MATLAB console and a MATLAB script.

Question 5
Explain the role of the selection statement in a programming language and describe the selection statements you can use in MATLAB, outlining how they differ from each other. For each selection statement, provide one example of usage.

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Exercise 1
Write a function that takes in input a vector V of integer elements, checks if the vector is non-void and returns as output a vector R that contains in each position i the sum of the first i elements of V.
Example: if the input is V = [5 2 0 3 6], the function returns as output the vector R = [5 7 7 10 16].
<u>Do not use</u> the MATLAB built-in function `sum` or `cumsum`.