

Note:

- 1- Answers can be provided either in Algorithmics or C language; both are accepted
- 2- The written algorithms or C programs must include the variable declaration section.

Exercise 1: (5 pts)

Write an algorithm/C program that displays the biggest and the smallest divisors of a given number.
(Example: biggest and smallest divisor of **10** are respectively **5** and **2**, the number itself and the number 1 are not included).

Exercise 2: (5 pts)

- Write an algorithm/C program that:

- 1- Asks the user if he wants to calculate the area of a circle or a rectangle.
- 2- Allows the user to input data, including the width and length for a rectangle, and the radius for a circle.
- 3- Displays the result.

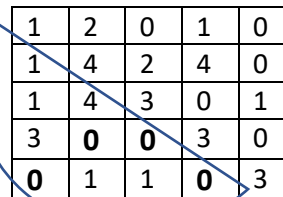
- Provide a solution using a flowchart.

Exercise 3: (5 pts)

Write an algorithm/C program that calculates the number of '0' (zeros) in the lower part of a square matrix regarding its first diagonal.

Example:

Number of 0 = 4.



| | | | | |
|---|---|---|---|---|
| 1 | 2 | 0 | 1 | 0 |
| 1 | 4 | 2 | 4 | 0 |
| 1 | 4 | 3 | 0 | 1 |
| 3 | 0 | 0 | 3 | 0 |
| 0 | 1 | 1 | 0 | 3 |

Exercise 4: (5 pts)

Write an algorithm/C program that:

- 1- Searches for a given letter in one dimension array.
- 2- Moves all its occurrences to the left and shift the others to the right.

Example:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| C | A | L | C | U | L | A | T | E |
|---|---|---|---|---|---|---|---|---|

Processed letter is 'A'

