In-Course Assessment Examination - II
Department of Physical Science
IT1134 – Fundamentals of Programming (Practical)
First Semester

Time:60 minutes   **March 2022**

Create a folder mentioning your registration number, subject code, and ICA2 (e.g: 2019ICTXX_IT1134_ICA2) in Desktop and save your files.

Write a C++ program with the following functionalities. Q1 and Q2 should be implemented in a single code file as two functions.

(Q1) Vowel counter

Create a parameterized function to do the followings.

- Count how many vowels (a, e, i, o, u characters respectively), are in a given word.
- Count the total number of vowels.
- In the main method, the user should enter a lower-case word and pass that word in the function as a parameter.

The output should be like this:

```
Enter a lower case word: adamantium
'a' count is 3
'i' count is 1
'u' count is 1
Number of Vowels: 5
```

[40%]

(Q2) Pattern implementation

Create a parameterized function with parameters: symbol, length, and shape

- It should return a string containing a pattern, which is implemented using any proper iterative statement.
- The main method should prompt the user to enter values for symbol, length, and shape
- When calling the function from the main method the user entered values should be passed as parameters.
- Based on those values, the pattern should be returned from the function and printed on the main method.
- If the user's given shape is "triangle", any triangle pattern should be returned.
- If the user's given shape is "square", a square pattern should be returned.
- Length is the width and height of the pattern.

The output should be like this:
Case 1:

```
Enter symbol: #
Enter shape: triangle
Enter length: 5
#
# #
# # #
# # # #
# # # # #
```

Case 2:

```
Enter symbol: *
Enter shape: square
Enter length: 7
* * * * * * *
* * * * * * *
* * * * * * *
* * * * * * *
* * * * * * *
* * * * * * *
* * * * * * *
```

[60%]

Hint:
Your main method should be as follows:

```cpp
int main()
{
    string s;
    cout << "\nEnter a lower case word: ";
    cin >> s;
    findVowels(s);

    string symbol,shape;
    int length;
    cout << "\nEnter symbol: ";
    cin >> symbol;
    cout << "Enter shape: ";
    cin >> shape;
    cout << "Enter length: ";
    cin >> length;

    cout << pattern(symbol,length,shape);
    return 0;
}
```