Class XI : ARTIFICIAL INTELLIGENCE
Instructor: Saptarshi Jana

Python programming for practical Exam 2025
Assignment 5-6

Due Date: 01.09.25   **20 marks**

INSTRUCTIONS

- *Don't copy from others*

- *Don't use AI blindly*

Assignment 5
Python programming for practical Exam - I

Question 1: Write a program to swap two numbers without using a third variable.
Python Basics

Question 2: Take a string as input and count how many vowels (a, e, i, o, u) it contains.
Strings

Question 3: Check whether a given number is even or odd using conditional statements.
Conditionals

Question 4: Reverse a string using slicing.
Strings

Question 5: Given a list of numbers, find the largest and smallest number.
Lists

Question 6: Write a function that takes a number and returns its factorial.
Functions

Question 7: Check if a given year is a leap year.
Conditionals

Question 8: Print the multiplication table of a given number.
Loops

Question 9: Remove all repeated elements from a list.
Lists

Question 10: Write a function `count_char(string, ch)` that counts how many times a character appears in a string.
Functions + Strings

Question 11: Find the second largest number in a list without using any in-bulit functions like max() or sort().
Lists

Question 12: Check whether a number is a strong number (sum of factorials of digits = number).
Numbers

Assignment 6
Python programming for practical Exam - II

Question 1: Accept a sentence from the user and count the frequency of each word.
Strings + Dictionaries

Question 2: Implement a function to compute the Fibonacci sequence up to n terms using recursion.
Recursion

Question 3: Write a program using a function to calculate the greatest common divisor (GCD) of two numbers.
Functions + Numbers

Question 4: Take a string input and return the longest word in the string.
Strings

Question 5: Check if two strings are anagrams of each other.
Strings

Question 6: Write a function to check whether a given number is prime.
Functions

Question 7: Sort a list of tuples based on the second element of each tuple.
Tuples + Sorting

Question 8: Create a function `calculate_grade(marks)` which accepts marks out of 100 and returns "A", "B", "C", "D" or "Fail" based on ranges.
Functions + Conditionals

Question 9: Print a pyramid pattern of stars for a given n.

```
    *
   * *
  * * *
 * * * *
* * * * *
```

Loops + Patterns

Question 10: Simulate a basic calculator performing +, −, ∗, and / using functions.
Functions + Operators

Question 11: Write a function that accepts a list of numbers and returns the sum of squares of all numbers.
Functions + Lists

Question 12: Define a function `is_palindrome(word)` that checks whether a word is a palindrome. Test it with different inputs.
Functions + Strings