Python Fundamentals Test

Instructions:

- **Open VS Code and create a new file named python_test.md.**

- **Copy and paste the following questions into the file.**

- **After each question, write the Python code solution.**

- **Save the file and submit it.**

Section A: Multiple Choice Questions

1. What will be the output of the following code?

   print(type(5 / 2))

   a) int
   b) float
   c) double
   d) error

2. Which of the following is a valid variable name in Python?
   a) 2variable
   b) variable_name
   c) variable-name
   d) variable name

3. How do you take user input in Python?
   a) input()
   b) scan()
   c) cin >>
   d) read()

4. What will bool([]) return?
   a) True
   b) False
   c) None
   d) Error

5. What does len([1, 2, 3, 4]) return?
   a) 3
   b) 4
   c) 5
   d) Error

Section B: Short Answer Questions

6. Write a Python program to swap two numbers without using a third variable.

7. What is the difference between is and == in Python?

8. Write a Python function that returns whether a number is even or odd.

9. Explain **mutable** and **immutable** objects in Python with an example.

10. Write a Python program to find the largest number in a given list.

Section C: Coding Questions

11. Write a Python program to check if a string is a palindrome (same forward and backward).

12. Write a Python program to generate the Fibonacci series up to n terms.

13. Write a function that takes a list and returns a new list with only the unique elements.

14. Write a Python function to count the number of vowels in a given string.

15. Write a Python program to find the factorial of a number using recursion.