Total Marks	**100 Marks**
Time	**3 Hours**
Instructions	**Complete 5 tasks of your choice. Your code must be commented on and follow good programming practices. Submit all source code files and a single documentation file for Section D.**

Section A

Task A.1:

(20 Marks)

Write a C program that performs the following:

1. Declare a **one-dimensional integer array** of size 10 in the main function and initialize it with any values.
2. Implement a user-defined function named calculate Sum that accepts an **integer array** and its size as arguments.
3. The calculate Sum function must **use a pointer** to traverse the array elements and calculate their sum.
4. The main function must call calculate Sum and print the returned sum.

Task A.2:

(20 Marks)

Write a C program that uses a function to find the largest number with strict input validation:

1. **Validation Function:** Implement a user-defined function named “validateAndFindLargest” that accepts three integers (A, B, and C) and **returns** the largest number.
2. **Input Validation Logic:** Inside the function, use **if statements** to check if A, B, or C is greater than **100**. If any number exceeds 100, the function must immediately **return 0** (as an error indicator).
3. **Finding the Largest:** If all numbers are valid, use **if...else if...else statements** to determine and return the largest of the three.
4. **Main Function Handling:** The main function must call this function. Based on the return value:

- If the result is **0**, print a message indicating a validation error occurred.
- If the result is **greater than 0**, print the largest number found.

Section B

Task B.1:

(20 Marks)

Create a Python script that uses a global list named inventory list (initially empty). The script must include two functions:

1. **Add Function(item name):** Takes an item name (string) as input and **appends** it to the inventory list.
2. **Search Function(item name):** Takes an item name as input. It should use a **for loop** to check if the item is present in the inventory list. Print a message indicating whether the item was found or not.

Demonstrate the use of both functions by adding three items and then searching for an existing item and a non-existing item.

Task B.2:

(20 Marks)

Write a Python script that iterates through the numbers 1 to 20 using a **while loop**.

1. If the current number is **divisible by 5**, use the **continue statement** to skip the rest of the loop body for that iteration.
2. If the current number is **greater than 15**, use the **break statement** to exit the loop entirely.
3. For all other numbers, print the current number.

Section C

(20 Marks)

Develop a Python application using the **Tkinter library** that includes the following elements:

1. Import the necessary libraries.
2. Set up the **fundamental structure** (e.g., the main window and Main Loop).
3. Add a **Label** that says, "Enter Your Name:".
4. Add a **Text Box** where the user can type their input.
5. Add a **Button** labeled "Submit". When the button is clicked, it should execute a function that retrieves the text from the text box and prints it to the console.

Section D

(20 Marks)

Prepare a short document or a set of clear notes that addresses the following:

1. Briefly describe the purpose of the **Deployment Step** and the **Maintenance Step** in the **SDLC** (Software Development Life Cycle).
2. Describe **two advantages** of using a **Version Control System (VCS)** like Git in a team environment.
3. Name the **most usable IDEs** (Integrated Development Environments) you would recommend for: a) C Language development, and b) Python development.