ALGORITHM

STEP-1: Start the program.

- Initialize required variables and arrays.
- Display the title "Verification of KVL and KCL".

STEP-2: Display the menu with two choices:

- Option 1 → Verify Kirchhoff's Voltage Law (KVL)
- Option 2 → Verify Kirchhoff's Current Law (KCL)
- Prompt the user to enter their choice.

STEP-3: Read the user's choice and store it in the variable *choice*.

STEP-4: If *choice = 1* (KVL selected), then:

a) Ask the user to enter the number of voltage elements "n".

b) Input the value of "n".

c) Prompt the user to enter n voltages representing voltage rises (+) and drops (–).

d) Read all voltage values into the array.

STEP-5: Calculate the algebraic sum of all entered voltages:

a) Initialize sum ← 0.

b) Traverse the voltage array from index 0 to n–1.

c) Add each voltage to variable *sum*.

STEP-6: Check the KVL condition:

a) If *sum == 0*, display message: "KVL Verified: Sum of voltages = 0".

b) Otherwise, display: "KVL Not Satisfied: Sum of voltages ≠ 0".

STEP-7: If *choice = 2* (KCL selected), then:

a) Ask the user to enter number of entering currents (n1).

b) Read n1 current values and store them in array *in*.

c) Ask the user to enter number of leaving currents (n2).

d) Read n2 current values and store them in array *out*.

STEP-8: Compute total entering and leaving currents separately:

a) Initialize variables Sum(in) = 0 and Sum(out) = 0.

b) Sum all currents in *in[]* and store in Sum(in).

c) Sum all currents in *out[]* and store in Sum(out).

STEP-9: Check the KCL condition:

a) If Sum(in) == Sum(out) → Print "KCL Verified: Sum of entering currents = Sum of leaving currents".

b) Else → Print "KCL Not Satisfied: Current sum mismatch".

STEP-10: If the user chooses neither 1 nor 2, print "Invalid Choice".

- Stop all operations and terminate the program.
- End the program execution.