**EX 11: C program that demonstrates operator precedence parsing and helps students understand the PEMDAS rule.**

**Aim:**

To write a C program that demonstrates operator precedence parsing and helps students understand the PEMDAS rule.

**Algorithm:**

1. Start the program.
2. Take an arithmetic expression as input (or define one in the code).
3. Use parentheses to explicitly define precedence.
4. Evaluate the expression step by step while following the PEMDAS order:
   * Parentheses
   * Exponents (Handled via pow() function)
   * Multiplication and Division (left to right)
   * Addition and Subtraction (left to right)
5. Display the result of the evaluated expression.
6. End the program.

**CODE:**

#include <stdio.h>

#include <math.h>

int main() {

int a = 3, b = 6, c = 5, d = 4, e = 3, f = 7;

double result;

printf("Given Expression: 3 + 6 \* (5 + 4) / 3 - 7\n\n");

printf("Step 1 (Parentheses first): (5 + 4) = 9\n");

int step1 = c + d;

printf("Step 2 (Multiplication first): 6 \* 9 = 54\n");

int step2 = b \* step1;

printf("Step 3 (Division next): 54 / 3 = 18\n");

int step3 = step2 / e;

printf("Step 4 (Addition next): 3 + 18 = 21\n");

int step4 = a + step3;

printf("Step 5 (Subtraction last): 21 - 7 = 14\n");

result = step4 - f;

printf("\nFinal Result: %d\n", (int)result);

return 0;

}

