**SVKM’s NMIMS**

**Mukesh Patel School of Technology Management & Engineering**

**Computer Engineering Department**

Program: BTech Integrated Sem III

**Course: C Programming**

**2022-2023**

**Experiment No.03**

PART A

(PART A: TO BE REFFERED BY STUDENTS)

A.1 Aim: **To study components of a C program. (Using Operators)**

|  |
| --- |
| 1. Write a program to convert temperature in Fahrenheit to Celsius. 2. Write a program to find greatest of three numbers. 3. Write a program that takes one integer number as input, assign its value to another variable with pre and post increment operator and display its value. 4. Write a program to find greatest of three numbers using conditional operators. 5. Program to accept 2 numbers and compute all arithmetic operations 6. Input radius, compute area, diameter, & circumference of the circle and display them. |

A.2 Prerequisite:

Basic Expressions and Operators in C

A.3 Outcome:

After successful completion of this experiment students will be able to Develop and Execute C programs using Various Operators. Example conditional operator.

A.4 Theory:

Operators form expressions by joining individual constants, variables. C includes a large number of operators which fall into different categories.

**ARITHMETIC OPERATORS**

There are five main arithmetic operators in ‘C’. They are ‘+’ for additions, ‘-' for subtraction, ‘\*’ for multiplication, ‘/’ for division and ‘%’ for remainder after integer division. This ‘%’ operator is also known as modulus operator. For exponentiation there is no specific operator in ‘C’ instead there is one library function known as pow to carry out exponentiation.

**UNARY OPERATORS**

‘C’ includes a class of operators that act upon a single operand to produce a new value. Such operators are known as unary operators. Unary operators usually precedes their single operands, though some unary operators are written after their operands. The most common unary operator is unary minus, where a minus sign precedes a numerical constant, a variable or an expression. e.g. -5,-10, -20(numbers) x=-y(variable)

**RELATIONAL, LOGICAL, ASSIGNMENT, CONDITIONAL OPERATORS**

Relational operators are symbols that are used to test the relationship between two variables, or between a variable and a constant. The test for equality, is made by means of two adjacent equal signs with no space separating them. ‘C’ has six relational operators as follows:

**> greater than**

**< les than**

**!= not equal to**

**>= greater than or equal to**

**>= less than or equal to**

**logical operators** in C language, they are and or. They are represented by && and !! respectively. These operators are refered to as logical and, logical or, respectively. The result of a logical and operation will be true only if both operands are true, whereas the result of a logical or operation will be true if either operand is true or if both operands are true.

**Suppose x=7, y=5.5 , z= 'w'**

**Logical expressions using these variables are as follows:**

**Expression Interpretation Value**

**(x>=6) &&(z= =’w’) true 1**

**(x>=6) (y = =119) true 1**

**(x<=6) && (z=='w') false 0**

**conditional operator( ?: )** in ‘C’ language. An expression that makes use of the conditional operator is called a conditional expression. A conditional expression is written in the form Expression 1 ? expression 2 : expression 3 When evaluating a conditional expression, expression 1 is evaluated first. If expression 1 is true, then expression 2 is evaluated and this becomes the value of the conditional expression. If expression 1 is false, then expression 3 is evaluated and this becomes the value of the conditional expression

For example ( i< 1) ? 0:200

i is integer variable here.

The expression (i<1) is evaluated first, if it is true the entire conditional expression takes on the value 0. Otherwise, the entire conditional expression takes on the value 200.

PART B

(PART B: TO BE COMPLETED BY STUDENTS)

**(Students must submit the soft copy as per following segments within two hours of the practical. The soft copy must be uploaded on the Blackboard or emailed to the concerned lab in charge faculties at the end of the practical in case the there is no Black board access available)**

|  |  |
| --- | --- |
| Roll No. | Name: |
| Program: | Division: |
| Semester: | Batch : |
| Date of Experiment: | Date of Submission: |
| Grade : |  |

B.1 Algorithm

1.

2.

3.

4.

B.2 Flow Chart

1.

2.

3.

4.

B.3 Program Code

1.

2.

3.

4.

B.4 Input-Output

1.

2.

3.

4.

B.5 Conclusion:

*(****Students must write the conclusion as per the attainment of individual outcome listed above and learning/observation noted in section B.3)***