UNIT 1

1. How are computers classified according to Memory capacity and size?
2. What are Program Development Steps ? Explain with a neat diagram.
3. Write an Algorithm to find Largest of 3 numbers.
4. Draw a flowchart to find largest of 3 numbers.
5. Draw the flowchart to check if a number is Even or Odd.
6. What is an Algorithm ? Explain with an example.
7. What is a Flowchart ? Explain with examples.
8. What are Input devices. Give examples for Input devices.
9. What are Output devices. Give examples for Output devices.
10. What are the differences between Analog and Digital computers.
11. What is the use of preprocessor directive? Write any two preprocessor directives in C
12. What is the variable? Illustrate with an example
13. What is the importance of keywords in C?
14. Explain the basic structure of a C program with an example
15. What is Token? What are the different types of token available in C language
16. What is an identifier? What are the rules to construct an identifier? Classify the following as valid/invalid Identifiers. i) num2 ii) $num1 iii) +add iv) a_2 v) 199_space vi) _apple vii)#12
17. Explain with example, the various constants available in „C“ language
18. What are the basic data types available in „C“? Write the significance of each data type
19. Write a C program that computes the size of int, float, double and char variables
20. Explain the need for the following:
    #include<stdio.h>
    #include<math.h>
21. Illustrate the process of compiling and executing C program using a flowchart
22. Differentiate between syntax errors and run-time errors.
23. Define type conversion in C. Explain its types with suitable examples.
24. List and explain various formatted Input and output in C.
25. List and explain various unformatted Input and output in C.
26. Illustrate formatted input for different data type with example.
27. Solve the following expressions

i. X += 10 != 15 && !(10<20) || 15 > 30 where X = 9
ii. a + b / c > 2 * c || a – b < c && c << 2 where a = 5, b = 4 and c = 6.
iii. --a * (5 + b) / 12 – c++ * b + 15 % 4 where a = 3,b = 4 and c = 5

Questions on Operator

1. What is an operator? Explain the arithmetic operators with an example of simple calculator program.
2. Explain relational and logical operators with appropriate examples.
3. Explain assignment and compound assignment operator with an example.
4. Explain Increment/decrement operators in C. Evaluate the following expressions:

Let a = 5, b = 5

(i) c = a++ + ++a

(ii) b -= -a-- - --b

5. Explain the usage of conditional operator in C. Evaluate the following expressions:

(i) Let x = 3, y = 4, z = 4

c = (z >= y >= x ? 100 : 200)

(ii) Let c=5, d=0, e=10

a = c > 1 ? d > 1 || (e = 0) ? 100 : 200 : 300

1. Demonstrate the functioning of Bitwise operator in C
2. Explain the syntax of the ternary operator in C.
3. Explain the difference between implicit and explicit type conversion with examples
4. Develop a C program to find the largest of three numbers using ternary operator.
5. Develop a program to convert an integer into the corresponding floating point number using Type casting.
6. Evaluate the following expression
   i. X = a – b / 3 – c * 2 – 1 when a=9,b=12, c=3
   ii. 10 != 10 || 5 < 4 && 8
   i. 100 % 20 <= 20 – 5 + 100 % 10 – 20 == 5 >= 1 != 20
   ii. a += b *= c -= 5 where a=3, b=5 and c=8
7. write the output for the following snippet code

```
#include <stdio.h>
int main() {
  int a = 5, b = 10, c = 15;
  int result = (a > b) ? a : (b > c) ? b : c;
  printf("Result: %d\n", result);
  return 0;
}
```

```
#include <stdio.h>
int main() {
  int a = 5, b = 10, c = 15;
  int result = (a + b * c) > (b - a) && c / a < b;
  printf("Result: %d\n", result);
  return 0;
}
```

```
#include <stdio.h>
int main() {
  int a = 5, b = 10, c = 15;
```

```
  int result = (a + b * c) > (b - a) && c / a < b;
  printf("Result: %d\n", result);
  return 0;
}
```

Questions on decision making and looping

1.Explain simple-if, else-if and nested –if statements with syntax and examples for each.
2. Describe with syntax and flowchart, switch and else-if ladder
3. Write a program to find greatest/smallest number among three numbers using nested if else.
4. Write a C program to read a number, if number is even make its square and display, if odd make its cube and display.
5. Build a C program to read percentage of marks and display grade of a student using else-if ladder and switch statement in separate programs.
   Percentage is to calculated as follows:
   % >= 90 (Grade A+), % >= 75 (Grade A), % >= 60 (Grade B), % >= 50 (Grade C), % >= 40 (Grade D), % < 40 (Fail).

6. Define a loop? Explain for,while and do-while loops with a syntax and example.
7. Write the differences between while and do-while loop
8. What is pretest and post test looping? Explain them with examples.
9. What are unconditional statements? List them and explain.
10. Explain goto statement with an example.
11. Explain break and continue statements with examples.

1. C program to demonstrate arithmetic operators.
2. Finding sum and average of three numbers
3. Swapping of two numbers using temporary variable
4. Swapping of two numbers without temporary variable
5. Finding area and perimeter of the circle
6. Finding area and perimeter of the rectangle
7. Finding area and perimeter of the triangle
8. To find simple interest: SI = PTR/100
9. Program to find biggest of three numbers using nested if else/cascading if else
10. Program to find the vowels using switch statement.
11. Program to display suitable grade of a student based on his percentage(make suitable consumption)
    FCD=percentage>=70

    FC = percentage<70 && percentage>=60

    SC=percentage<60 && percentage>=35

    Fail=percentage<35

12. Write a C program to simulate a simple calculator that performs arithmetic operations using switch statement. Error message should be displayed, if any attempt is made to divide by zero.
13. Program to find the factorial of a number using while/do-while/for loop
14. Program to generate fibonacci series using while/do-while/for loop.
15. Program to find the sum of n numbers or to find sum of 1 to n number or to find sum of the series: 1+2+3+.....+n. (using while/do-while/for loop)
16. Write a program to check whether the number is even or odd.
17. Write a program to find the value of sum where
    SUM = $1 + 1/2x + 1/3x^2 + 1/4x^3 + ……..1/n*x^{n-1}$.
18. Check whether the number is palindrome or not.
19. Find whether a year is a leap year or not.

Lab Programs :1,2,3,4