EST102 : PROGRAMMING IN C

SEMESTER : 2

<u>TUTORIAL BOOK</u>

Name :

Roll No :

Class :

Faculty : T Sobha, CSE

MODULE 1

Tutorial No.   Date:

Hour:

Topic:

FLOWCHART

The flowchart is a diagram which visually presents the flow of data through processing systems. This means by seeing a flow chart one can know the operations performed and the sequence of these operations in a system. Algorithms are nothing but a sequence of steps for solving problems. So a flow chart can be used for representing an algorithm.

A flowchart, will describe the operations (and in what sequence) are required to solve a given problem. You can see a flow chart as a blueprint of a design you have made for solving a problem.

Flowchart Symbols

There are 6 basic symbols commonly used in flowcharting of assembly language Programs:

- o Terminal,
- o Process,
- o input/output,
- o Decision,
- o Connector and
- o Predefined Process.

| Symbol	Name	Function
	Process	Indicates any type of internal operation inside the Processor or Memory
	input/output	Used for any Input / Output (I/O) operation. Indicates that the computer is to obtain data or output results
	Decision	Used to ask a question that can be answered in a binary format (Yes/No, True/False)
	Connector	Allows the flowchart to be drawn without intersecting lines or without a reverse flow.
	Predefined Process	Used to invoke a subroutine or an Interrupt program.
	Terminal	Indicates the starting or ending of the program, process, or interrupt program
	Flow Lines	Shows direction of flow.

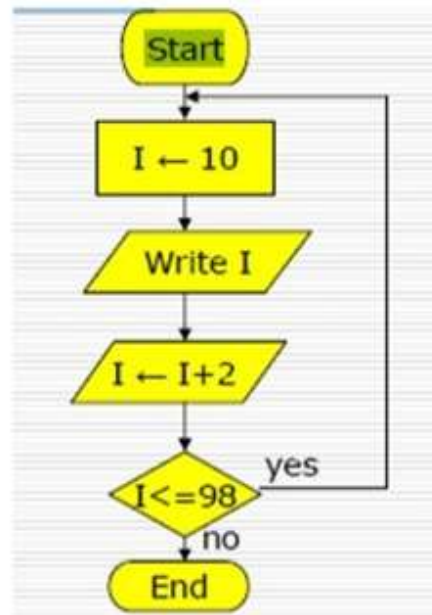**Problem** 1: Flowchart to calculate the area of circle.
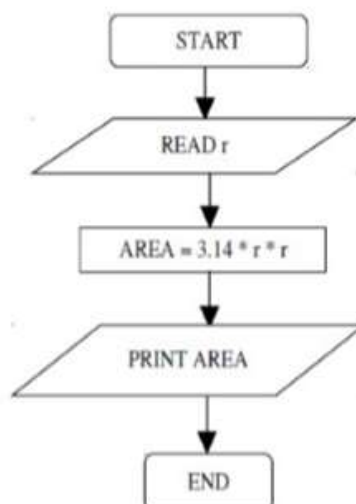
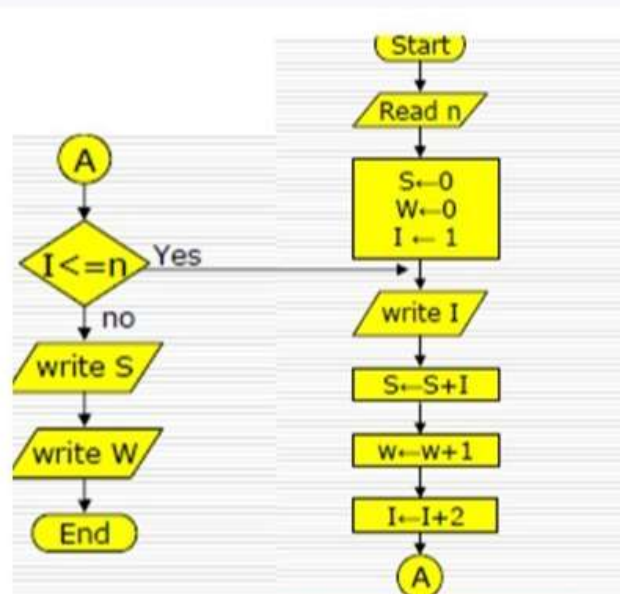**Problem 2**: Convert temperature Fahrenheit to Celsius.
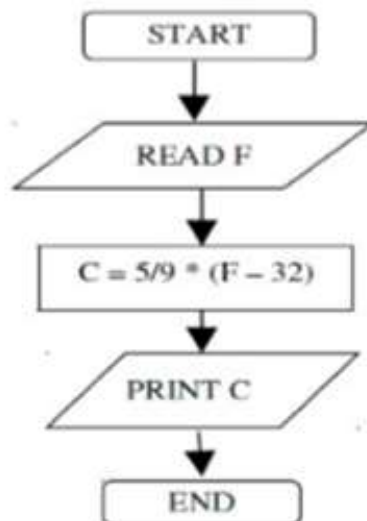
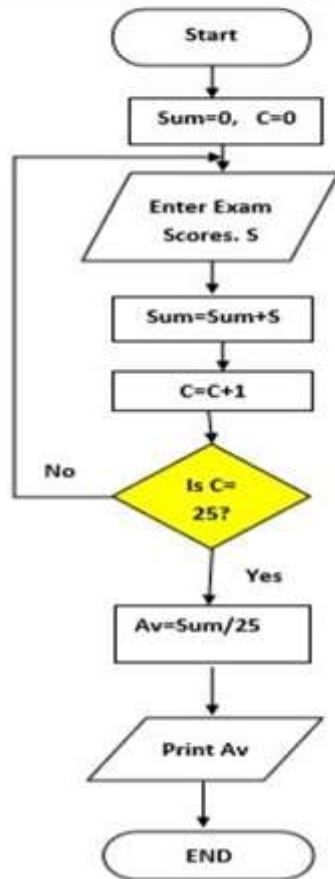**Problem 3**: Flowchart to find the greatest from 2 numbers.
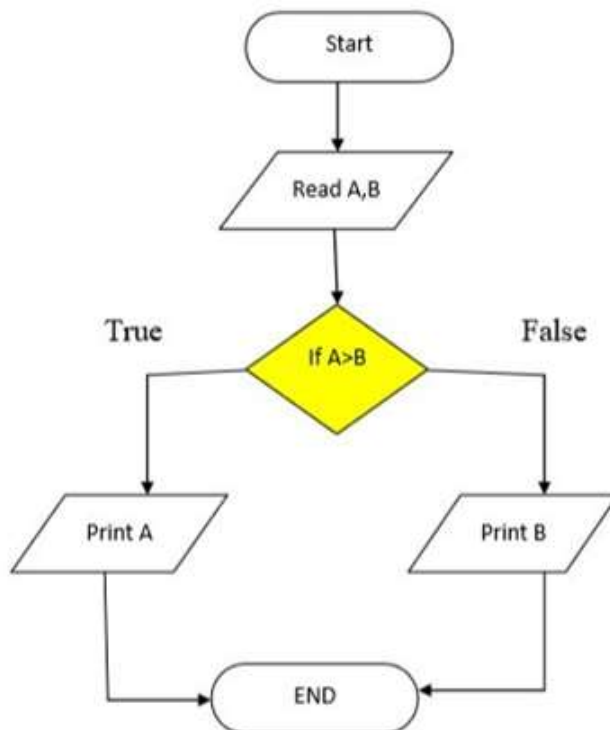
Problem 4: Flowchart to print the Even numbers between 9 and 100.

Problem 5: Flowchart for printing odd numbers less than a given number. It should also calculate their sum and count.

Problem 6: Flowchart for the calculate the average from 25 exam scores.

Additional Questions

1. Draw a flowchart to find the sum of first 100 natural numbers.
2. Draw a flow chart to find the largest of 3 numbers.
3. Draw a flowchart for check a given number is prime or not.
4. Draw a flowchart to find the roots of a quadratic equation.
5. Draw a flowchart to Check Whether a Number is Positive, Negative, or Zero
6. Draw a flowchart to Check Whether Number is Even or Odd
7. Draw a flowchart to Check Whether a Character is Vowel or Consonant
8. Draw a flowchart to Find Largest Number Among Three Numbers
9. Draw a flowchart to Calculate Sum of Natural Numbers
10. Draw a flowchart to Print Alphabets From A to Z Using Loop
11. Draw a flowchart to Check Leap Year
12. Draw a flowchart to Find Factorial of a Number
13. Draw a flowchart to Make a Simple Calculator
14. Draw a flowchart to Generate Multiplication Table

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MODULE 2

Topic: Operators in C

1. Explain different types of Operators in C
2. Implement all arithmetic operations in C ,assuming variable a holds 7 and variable b holds 5.
3. Explain the purpose of modulo operator
4. Demonstrate the working of increment and decrement operator
5. Explain the difference between = and == operator
6. Explain Bitwise operator in c
7. Solve 5+2*10/1-3+([++4]-5*2-1) using operator precedence
8. What is the output of the below program?
    ```
    #include<stdio.h>
    int main()
    { int a = 5, b = 10;int c;
    c = a * 2 + b;
    printf("\n output = %d", c);
     return 0; }
    ```
9. Solve the program
    ```
            #include <stdio.h>
            main() {
             int a = 20;  int b = 10;int c = 15;int d = 5; int e;
               e = (a + b) * c / d;
      printf("Value of (a + b) * c / d is : %d\n",  e );
      e = ((a + b) * c) / d;
      printf("Value of ((a + b) * c) / d is  : %d\n" ,  e );
      e = (a + b) * (c / d);
      printf("Value of (a + b) * (c / d) is  : %d\n",  e );
      e = a + (b * c) / d;
     printf("Value of a + (b * c) / d is  : %d\n" ,  e );
        return 0;
    }
    ```

10. How does x++ differ from ++x?

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Topic: Control Flow statements in c

1. Check whether a number is even or odd
2. Find the largest number among three numbers
3. Program to find the sum of digits of the given number
4. Reverse a number
5. Check whether an integer is prime or Not
6. Display prime numbers between two intervals
7. Program to find the grade of the student
8. Program to print day of the week
9. Program to understand the use of break ,continue and goto statement*
10. Print the pattern

```
*
* *
* * *
* * * *
* * * * *
```

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