

Aim: Program to understand basic datatypes and input & output.

I) To calculate area of the triangle.

Algorithm: i) Specify two header files namely stdio and conio.

ii) Define three variables of datatype float namely, l-length, b-breadth and others.

iii) Use clrscr()

iv) Accept the length of triangle from the user and store it in the variable l. Repeat the same to store the breadth in variable b.

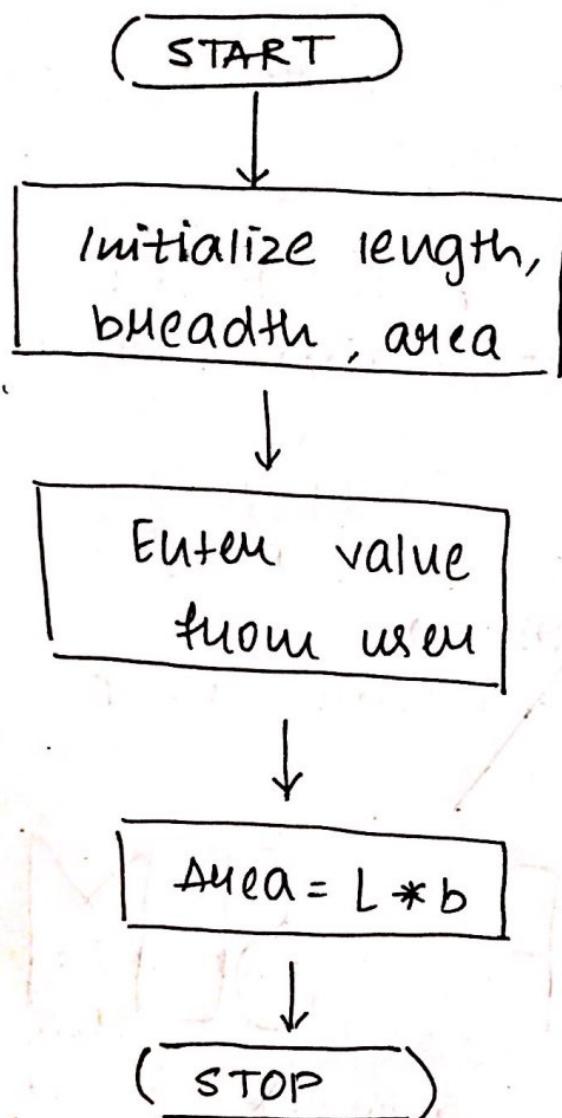
v) Calculate the area of the rectangle by multiplying the width and height and print the area to the output.

Source code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int l, b, area;
    printf("Enter a number : ")
    scanf("%d", &l, &b)
    area = l * b
    printf("The area is %d");
    getch()
}
```

Flowchart:

QUESTION



Output:

Enter a number: 4 3

The area is: 12

II) Volume of sphere

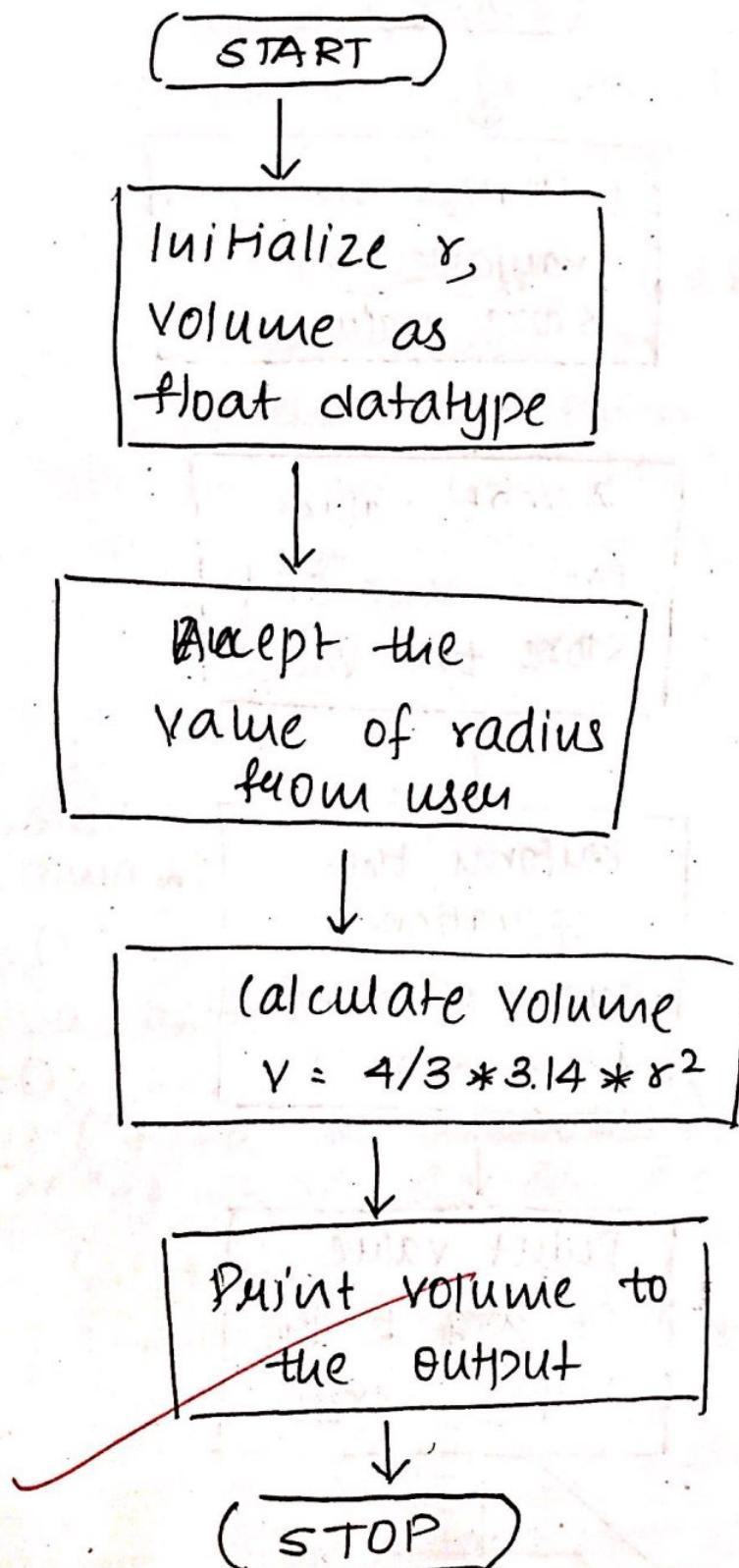
- Algorithm:
- Specify the necessary header files
 - Declare the variables necessary with float datatypes.
 - Use clrscr() to clear the output screen.
 - Accept the radius from the user
 - Calculate the volume using the formula $\frac{4}{3} * 3.14 * r^2$
 - Print the ~~area~~ to the output

Code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    float r, area volume
    clrscr();
    printf("Enter the radius:");
    scanf("%f", &r);
    volume = 4/3 * 3.14 * r^2; Output show
    printf("\n Volume : %f", volume);
    getch()
}
```

Flowchart:

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Output:

Enter the radius: 7

Volume : 8436.023

II) calculate average of three numbers:

- Algorithm:
- specify the header files stdio and conio
 - clear the output screen using clrscr()
 - Define variable a, b and c to store variable input from the user.
 - Accept the input from the user and calculate sum and average.
 - Print the corresponding output to - the output screen.

Code:

```
#include <stdio.h>
#include <conio.h>

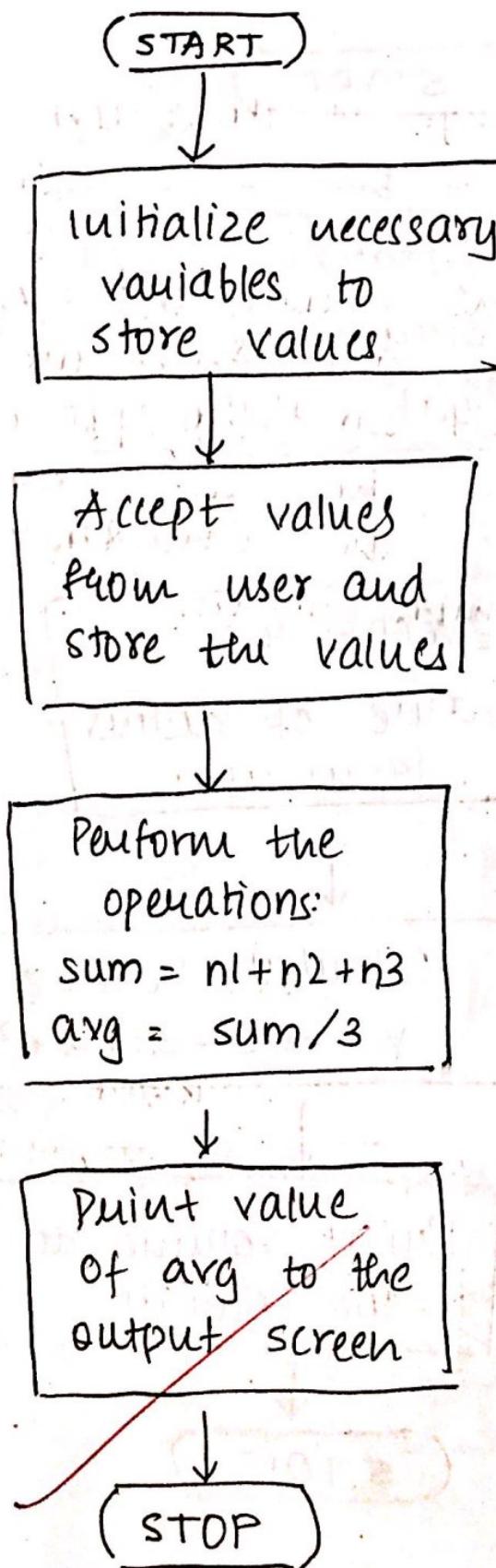
void main()
{
    float a, b, c, avg;
    clrscr();
    printf("Enter the numbers: ");
    scanf("%f %f %f", &a, &b, &c);
    avg = (a+b+c)/3;
    printf("Average of no.'s: ", avg);
    getch();
}
```

Output:

Enter the numbers: 3 4 5

Average of no.'s : 4

SS



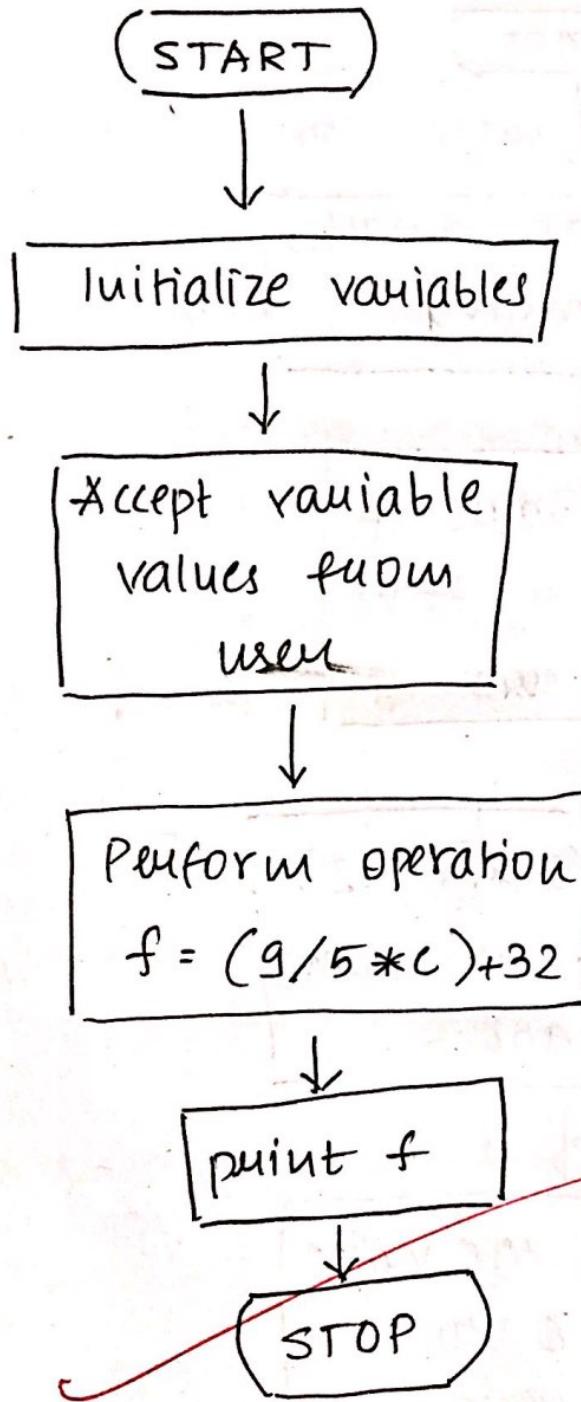
CS

IV) convert temperature from celcius to fahrenheit.

- Algorithm:
- (i) Specify the 2 header files ie. stdio and conio.
 - (ii) Define 2 variables to store values for celcius and fahrenheit.
 - (iii) Ask the user to enter enter the temperature in celcius.
 - (iv) Store the calculated result in the second variable using the formula $(c * 9/5) + 32$.
 - (v) Print the output to the output screen.

Code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    float c, temp;
    clrscr();
    printf("Enter the temp in celcius:");
    scanf("%f", &c);
    temp = (c * 9/5) + 32;
    printf("The temp in fahrenheit is : %f", temp)
    getch()
}
```

Output:

Enter the temp in celcius: 45

The temp in fahrenheit is: 113

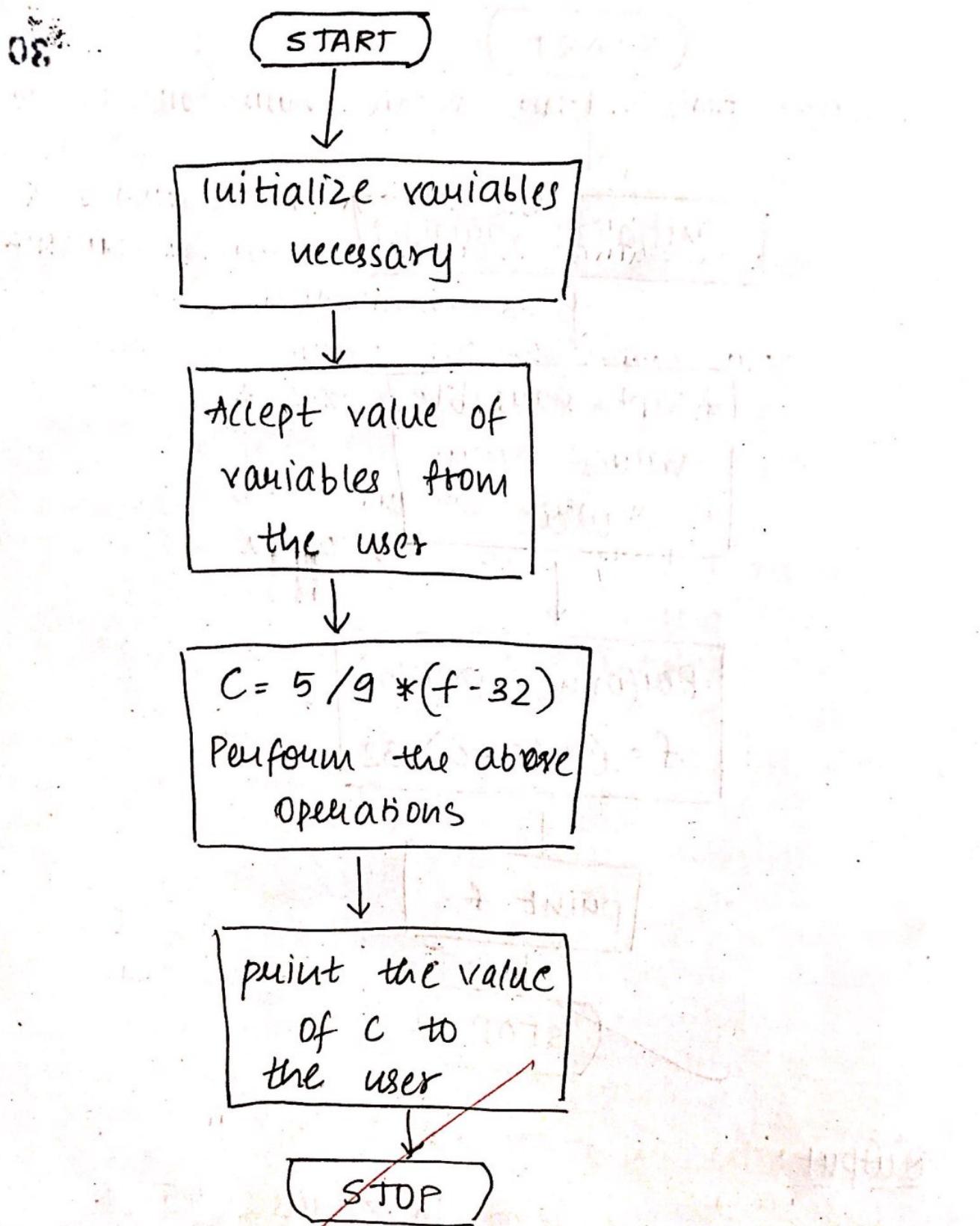
II) Convert temperature from Fahrenheit to Celsius.

- Algorithm:
- Specify the header files stdio and conio.
 - Declare necessary variables to store input and calculated result values.
 - Accept the input from the user and use it to calculate the temperature in Celsius.
 - Use the formula $(5.0 / 9.0) * (f - 32)$
 - Print the variable that stores the value to the calculated output result.

Code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    float f, temp;
    clrscr();
    printf("Enter the temp in Fahrenheit:");
    scanf("%f", &f);
    temp = (5.0 / 9.0) * (f - 32)
    printf("The converted temperature is: %f", temp);
    getch()
}
```

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91°



Output :

Enter the temp in fahrenheit : 98.0
Enter the converted temperature is : 36.60

Aim: Programs on operators and expression.

I) increment and decrement.

Algorithm: (i) Specify appropriate header files stdio and conio.

(ii) Inside the void main block define 4 variables a, b, c and d of datatype integer.

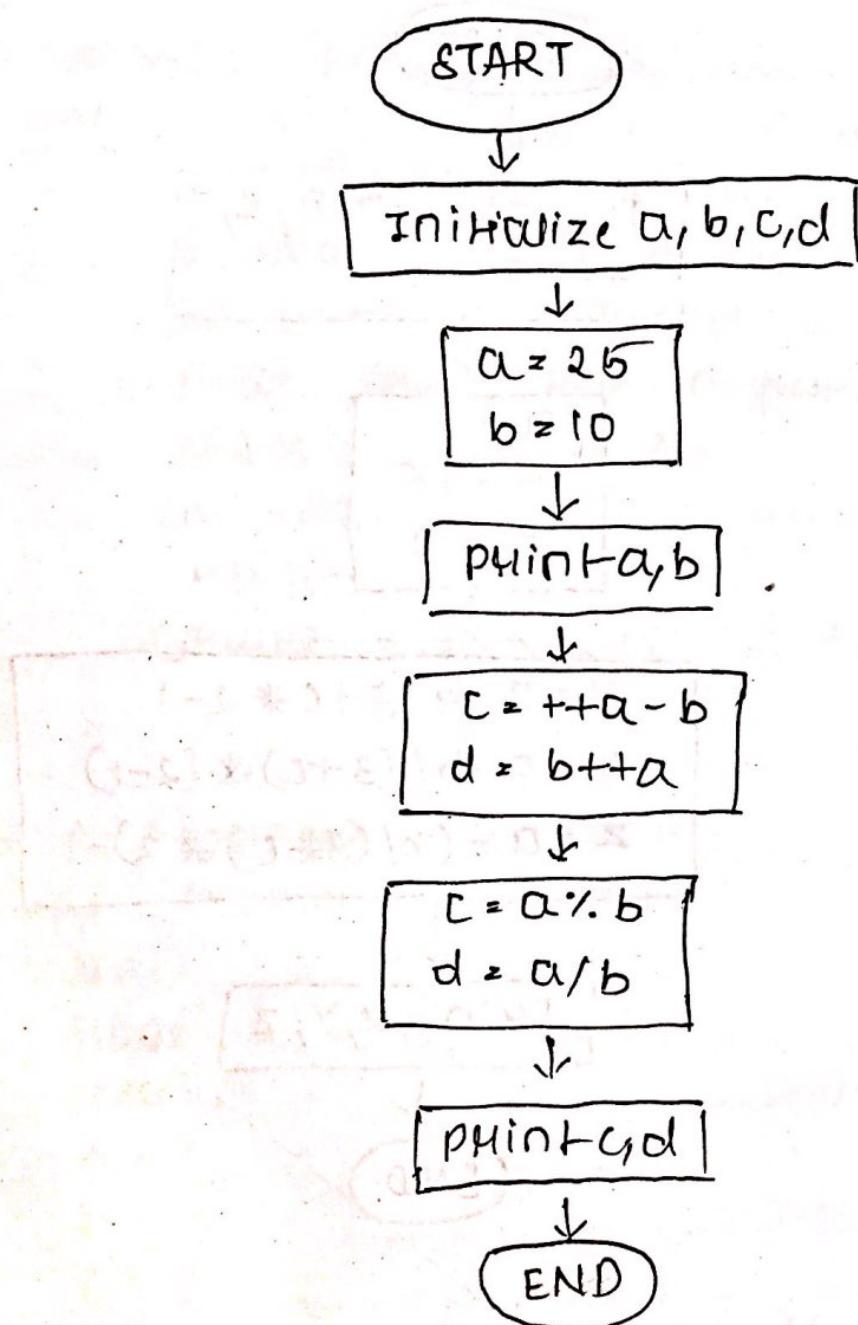
(iii) Initialize variable a and b with a value and print the values to the user.

(iv) Perform the expression $c = ++a - b$ and $d = b++ + a$.

(v) Print the value of the variable storing the result.

Code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, c, d;
    clrscr();
    a = 25, b = 10;
    printf("\n a=%d, b=%d ", a, b);
    c = ++a - b;
    d = b++ + a;
    printf("\n a=%d, b=%d, c=%d, d=%d ", a, b, c, d);
    c = a % b;
    d = a / b;
    printf("\n c=%d, d=%d ", c, d);
}
```



Output:

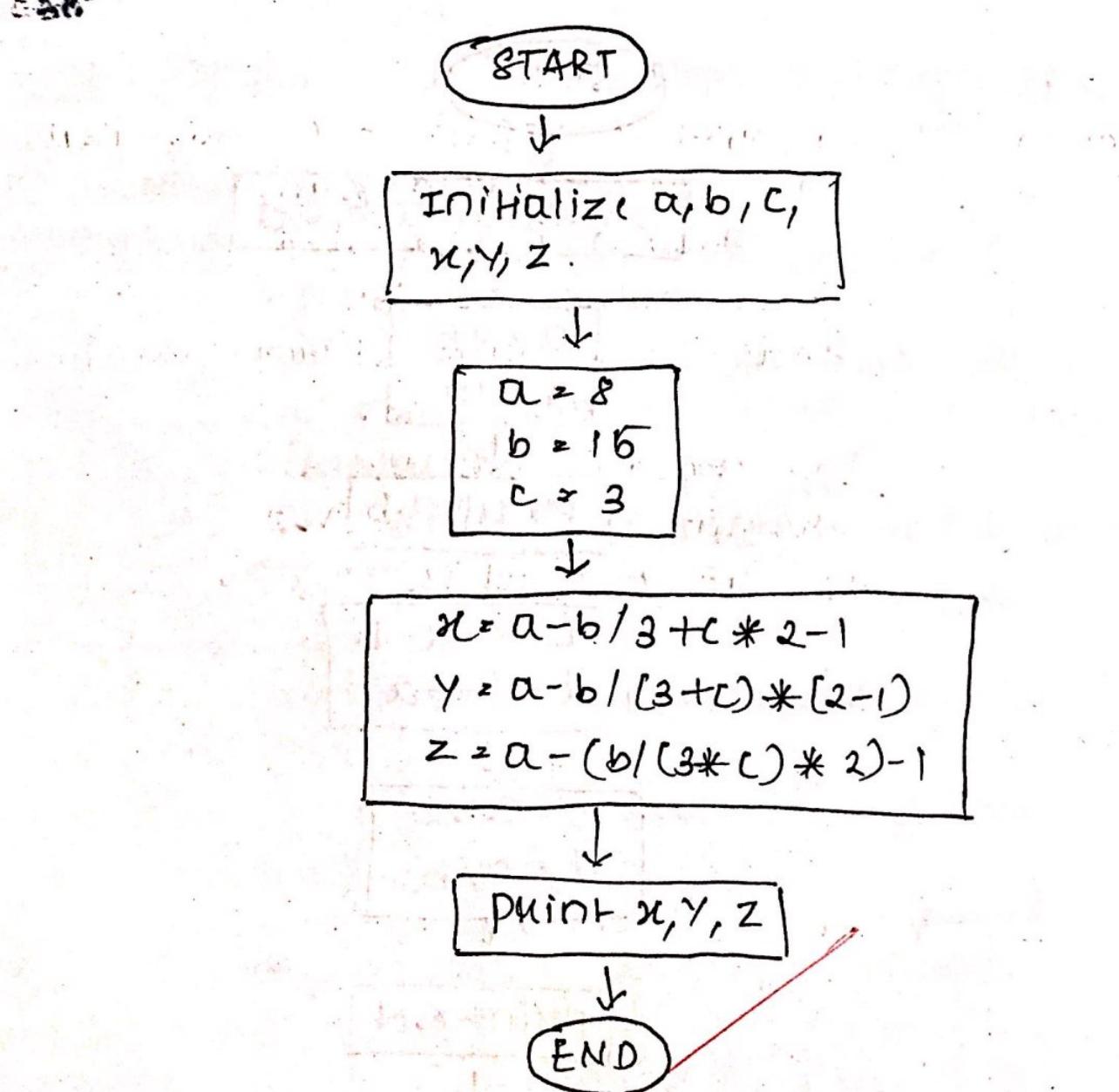
~~$a = 25 \quad b = 10$~~
 $a = 26 \quad b = 11 \quad c = 16 \quad d = 36$
 $c = 4 \quad d = 2$

~~Practical 2~~ II) Operator precedence.

- Algorithm:
- specify header file conio and stdio
 - Inside the void main block define 6 variables a, b, c and x, y, z.
 - Initialize variable a, b, c with float values and correspondingly print those values.
 - Perform the operations and store result in x, y and z.
 - Print the values of x, y, z.

Code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    float a, b, c, x, y, z;
    clrscr();
    a = 8;
    b = 15;
    c = 3;
    cout ("The values of a = 7.f, b = 7.f, c = 7.f, a, b, c");
    x = a - b / 3 + c * 2 - 1;
    y = a - (b / (3 * c)) * 2 - 1;
    z = a - b / (3 + c) * (2 - 1);
    cout ("\n The value of x = 7.f, y = 7.f, z = 7.f, z = 7.f", x, y, z);
    getch();
}
```



Output :

The value of $a = 8.0 \quad b = 15.0 \quad c = 3.0$

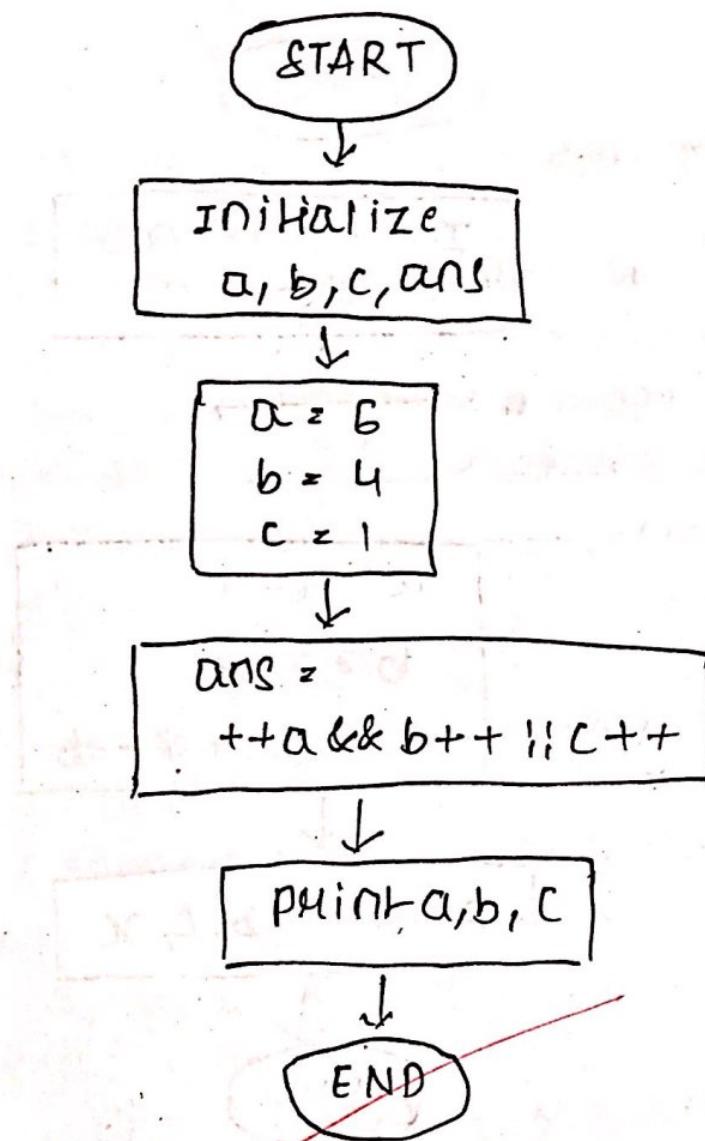
The value of $x = 5.5 \quad y = 5.5 \quad z = 2.0$

III

- Algorithm:
- (i) specify the header files conio and stdio
 - (ii) Inside the void main block define 3 variables a, b, c and ans.
 - (iii) Initialize the variables with resp. values
 - (iv) Perform the operation $++a \& \& b + + \& \& c + +$ and store in variable ans.
 - (v) Print the value of a, b, c and ans.

Code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, c, ans;
    clrscr();
    a = 6;
    b = 4;
    c = 1;
    ans = ++a && b + + && c + +;
    printf ("The values of a=%d, b=%d, c=%d and ans=%d", a, b, c, ans);
    getch();
}
```



Output:

The value of $a = 7$ $b = 5$ $c = 1$ and

$ans = 1$

IV)

- Algorithm:
- specify the header files namely stdio and conio.
 - Define variables a, b, c and x
 - Perform the operation $a = x++$;
 $b = -x$; $c = x++x - b$
 - Print the value of a, b, c and x.
 - Perform the print operation and display the values for all variable.

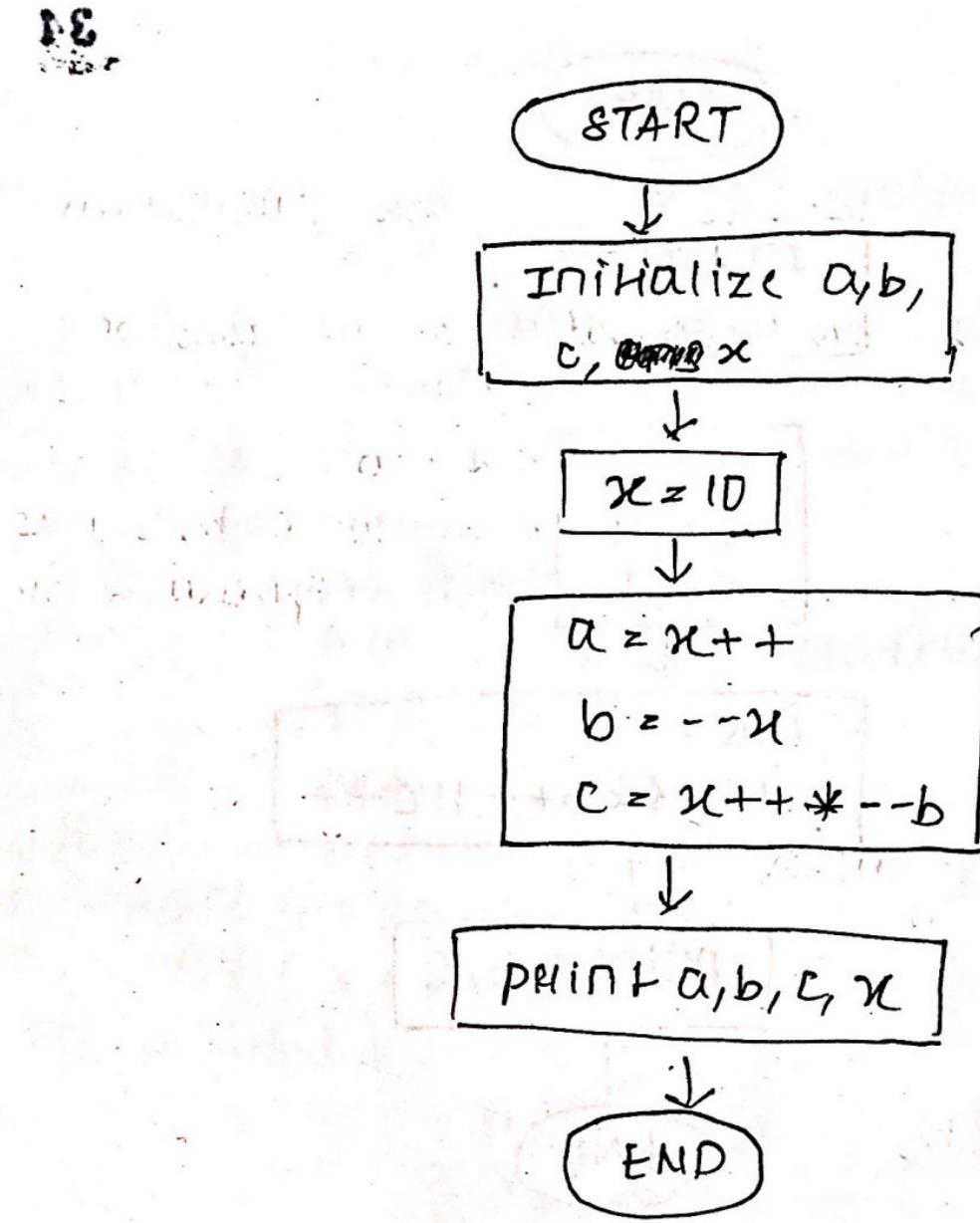
Code:

```
#include <stdio.h>
#include <conio.h>

void main()
{
    int a, b, c, x;
    x = 10;
    clrscr();
    a = x++;
    b = -x;
    c = x++x - b;
    printf ("The values of a=%d, b=%d, c=%d  

            and x=%d", a, b, c, x);
    getch();
}
```

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Output:

The value of $a = 10$, $b = 9$, $c = 90$
and $x = 11$

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PRACTICAL NO. 03

Aim: Program on decision making and branching.

Program: # Check whether no. is even or odd.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int n, r;
    clrscr();
    printf("\nEnter value of n: ");
    scanf("%d", &n);
    r = n % 2;
    if (r == 0)
        printf("\n%d is even.", n);
    else
        printf("\n%d is odd.", n);
    getch();
}
```

Output:

Enter value of n: 12

12 is even.

Enter value of n: 3

3 is odd.

Program: # Check if the entered year is a leap year or not.

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```
#include <stdio.h>
#include <conio.h>
void main()
{
    int r, y;
    clrscr();
    printf("Enter the year: ");
    scanf("%d", &y);
    r = y % 4;
    if (r == 0)
        printf("in %d is a leap year.", y);
    else
        printf("in %d is not a leap year.", y);
    getch();
}
```

Output: Enter the year : 2008

2008 is a leap year.

Enter the year : 2003

2003 is ~~a~~ not a leap year.

Program: # Check which no. is greater. 37

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, c;
    clrscr();
    printf("Enter 3 number:");
    scanf("%d %d %d", &a, &b, &c);
    if ((a>b) && (a>c))
        printf("\n %d is greater.", a);
    else if ((b>a) && (b>c))
        printf("\n %d is greater.", b);
    else
        printf("\n %d is greater.", c);
    getch();
}
```

Output:

Enter 3 number: 4
8

8 is greater.

Program: # Check whether entered alphabet is
a vowel or consonant.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    char ch;
    clrscr();
    printf("\nEnter the alphabet:");
    ch = getchar();
    if ((ch == 'a') || (ch == 'e') || (ch == 'i') || (ch == 'o') ||
        (ch == 'u') || (ch == 'A') || (ch == 'E') || (ch == 'I') ||
        (ch == 'O') || (ch == 'U'))
        printf("\n%c is a vowel.", ch);
    else
        printf("\n%c is a consonant.", ch);
}
```

Output:

Enter the alphabet: i
i is a vowel.

Enter the alphabet: s
s is a consonant.

Program: # Enter single digits and print
that digit in word form.

```
# include <stdio.h>
# include <conio.h>
void main()
{
    int n;
    clrscr();
    printf("Enter single digit decimal no : ");
    scanf("%d", &n);
    if (n == 0)
        printf("\n Zero");
    else if (n == 1)
        printf("\n One.");
    else if (n == 2)
        printf("\n Two.");
    else if (n == 3)
        printf("\n Three");
    else if (n == 4)
        printf("\n Four");
    else if (n == 5)
        printf("\n Five");
    else if (n == 6)
        printf("\n Six");
    else if (n == 7)
        printf("\n Seven");
```

```
else if (n == 8)  
printf ("\\n Eight");  
else if (n == 9)  
printf ("\\n Nine");  
else  
printf ("\\n ERROR!");
```

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Output:

Enter single digit decimal no.: 3

Three

Enter single digit decimal no.: 20

ERROR!

~~89102~~

Program: # Perform switch case.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, c, choice;
    clrscr();
    printf ("\n Select your choice : ");
    printf (" \n 1. Addition \n 2. Subtraction \n 3. "
           "Multiplication \n 4. Division \n 5. Exit. ");
    if (choice >= 1 && choice <= 4)
    {
        printf ("\n Enter value of a & b : ");
        scanf ("%d %d", &a, &b);
    }
    switch (choice)
    {
        case 1:
            c = a + b;
            printf ("\n %d + %d = %d", a, b, c);
            break;
        case 2:
            c = a - b;
            printf ("\n %d - %d = %d", a, b, c);
            break;
        case 3:
            c = a * b;
            printf ("\n %d * %d = %d", a, b, c);
            break;
        case 4:
            c = a / b;
            printf ("\n %d / %d = %d", a, b, c);
            break;
        case 5:
            exit(0);
    }
}
```

case 4 :

$$r = a/b;$$

```
printf("In %.d / %.d = %.d", a, b, r);  
break;
```

case \t:

default :

```
printf("\n ERROR");
```

```
break;
```

}

```
getch();
```

Output :

Enter your choice : 3

Enter the values of a & b : 2 6

$$2 * 6 = 12$$

PRACTICAL NO. 4

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Program: #Print Even numbers upto 100

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i;
    clrscr();
    for (i=2; i<100; i=i+2)
    {
        printf(" %d \t ", i);
    }
    getch();
}
```

~~PRINT~~

ON:

Output :

2	4	6	8	10	12	14	16	18	20
22	24	26	28	30	32	34	36	38	40
42	44	46	48	50	52	54	56	58	60
62	64	66	68	70	72	74	76	78	80
82	84	86	88	90	92	94	96	98	100



QUESTION

Program: # Print all no.'s from 1 to n
divisible by 10.

```
#include <conio.h>
#include <stdio.h>
{
    int i, n, r;
    printf("\n enter the nth no : ");
    scanf("%d", &n);
    i = 1
    while (i <= n)
    {
        r = i % 10;
        if (r == 0)
            printf("%d\n", i);
        i++;
    }
    getch();
}
```

Output :

42

Enter the nth no : 100

10

20

30

40

50

60

70

80

90

100

Program: # sum of all odd numbers upto n.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n, x, sum;
    clrscr();
    printf("\nEnter value of n: ");
    scanf("%d", &n);
    i=1;
    sum=0;
    do
    {
        r = i%2
        if (r==1)
        {
            sum = sum + i;
            i++;
        }
    } while (i<=n);
    printf("Sum of no. upto n: %d", sum);
    getch();
}
```

Output:

Enter the value of n: 5

Sum of no. upto 5 : 9

Program : # Print following :

1 2

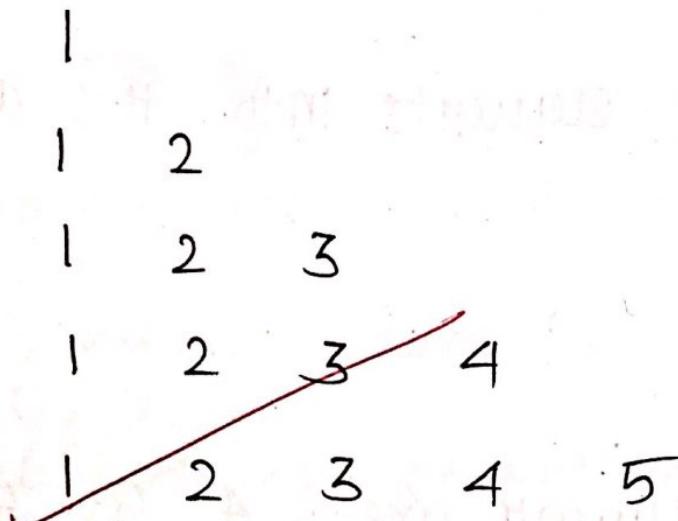
1 2 3

1 2 3 4

1 2 3 4

```
# include <stdio.h>
# include <conio.h>
void main()
{
    int i, k ;
    i = 1
    while (i <= 5)
    {
        k = 1 ;
        while (k <= i)
        {
            printf("%d", k);
            k++;
        }
        printf("\n");
        i++;
    }
    getch();
}
```

Output:



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29/02

PRACTICAL NO. 5

45

Program: # Array implementation to find sum of 5 numbers.

```
# include <stdio.h>
# include <conio.h>
void main()
{
    int i, num[5], sum = 0;
    clrscr();
    printf("Enter the element into the array : ");
    for (i=0; i<5; i++)
        scanf("%d", &sum[i]);
    printf("\n Entered elements : ");
    for (i=0; i<5; i++)
        printf("%d\t", num[i]);
    for (i=0; i<5; i++)
        printf("\n sum of elements : ");
    printf("%d", sum);
    getch();
}
```

Output :

Enter the elements into the array:

3
4
5
6
7

Entered elements are : 4 5 6 7 3

Sum of elements : 25

Program: # Find largest no. in array.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, num[10], l;
    clrscr();
    printf("\nEnter array elements: ");
    for (i = 0, i < 10; i++)
        scanf("%d", &num[i]);
    l = num[0];
    for (i = 1; i < 10; i++)
        l = num[i];
    for (i = 1; i < 10; i++)
        if (l < num[i])
            l = num[i];
    printf("Largest is: %d", l);
    getch();
}
```

Output:

Enter the value in array 2

4

5

6

8

9

0

10

11

13

Largest is: 13

Program: # write a c program to find the number of positive no. in array.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int i, num[10], p;
    printf("In enter the values into array : ");
    for (i=0; i<10; i++)
        scanf("%d", &num[i]);
    p = 0;
    for (i=1; i<10; i++)
    {
        if (num[i] > 0)
            p = p + 1;
    }
    printf("No. of positive array present
           in the given array : ");
    getch();
}
```

Output:

Enter the value into array

-55
 $\frac{22}{5}$
-3
4
11
16
-19
20

No. of positive array present in
the given array : 6

Program: # Write a program to find the odd numbers available in an array.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int i, num[10];
    printf ("Enter the values into array : ");
    for (i=0; i<10; i++)
        scanf ("%d", &num[i]);
    P = 0
    for (i=0; i<10; i++)
    {
        if (num[i] % 2 == 1)
            P = P + 1;
    }
    printf ("No. of odd numbers is %d", P);
    getch();
}
```

Output :

48

Enter the values in the array

2

3

4

5

6

7

8

9

No. of odd numbers is 5

Program : #TO sort an given array.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int i, j, num[5], t;
    printf("\n Enter the values into array : ")
    for(i=0; i<5; i++)
        scanf("%d", &num[i]);
    for(j=0; j<5; j++)
    {
        if(num[i] > num[j])
        {
            t = num[i];
            num[i] = num[j];
            num[j] = t;
        }
    }
    printf("\n Sorted array : ");
    for(i=0; i<5; i++)
    {
        printf("%d\t", num[i]);
    }
    getch();
}
```

8

Output :

Enter the values into array :

2

4

6

9

1

Sorted array : ~~1 2 4 6 9~~

Program: # Print matrix multiplication.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int x[3][3], y[3][3], z[3][3];
    int u, c, t;
    printf("\n Enter elements of
matrix x : ");
    for (u = 0; u < 3; u++)
    {
        for (c = 0; c < 3; c++)
            for (t = 0; t < 3; t++)
                scanf("%d", &x[u][c]);
    }
    printf("\n Enter values of matrix y: ");
    for (u = 0; u < 3; u++)
    {
        for (c = 0; c < 3; c++)
            scanf("%d", &y[u][c]);
    }
    for (u = 0; u < 3; u++)
    {
        for (c = 0; c < 3; c++)
            z[u][c] = 0;
        for (t = 0; t < 3; t++)
            z[u][c] += x[u][t] * y[t][c];
    }
    for (u = 0; u < 3; u++)
    {
        for (c = 0; c < 3; c++)
            printf("%d ", z[u][c]);
        printf("\n");
    }
}
```

```

for (M=0; M<3; M++)
{
    for (C=0; C<3; C++)
    {
        t = 0;
        for (K=0; K<3; K++)
        {
            t = t + x[M][K] * y[K][C];
        }
        z[M][C] = t;
    }
}

printf("In Matrix Z: ");
for (M=0; M<3; M++)
{
    /*for (C=0; C<3; C++)*/
    printf("\t%.d", z[M][C]);
    printf("\n");
}
getch();

```

Q8:

Output:

Enter elements of matrix X: 2

2

1

2

3

4

5

6

7

8

Enter elements of matrix Y: 3

2

2

2

2

2

2

2

Matrix : 12 10 10
 27 24 24
 48 42 42

sum \rightarrow
Program: # Print matrix addition.

```
#include <stdio.h>
#include <conio.h>
void main()
{
```

```
    int m[3][3], n[3][3], sum[3][3];
    int x, y;
    printf("In enter the elements of matrix
           m : ");
```

```
    for (x = 0; x < 3; x++)
    {
```

```
        for (y = 0; y < 3; y++)
    {
```

```
            scanf("%d", &m[x][y]);
    }
```

```
}
```

```
    printf("In enter the elements of
           matrix n : ");
```

```
    for (x = 0; x < 3; x++)
    {
```

```
        for (y = 0; y < 3; y++)
    {
```

```
            scanf("%d", &n[x][y]);
    }
```

```
}
```

```
for (y = 0; y < 3; y++)
```

{

```
    sum[x][y] = m[x][y] + n[x][y];
```

}

}

```
printf("In matrix sum: ");
```

```
for (x = 0; x < 3; x++)
```

{

```
    for (y = 0; y < 3; y++)
```

{

```
        printf("\t %.d", sum[x][y]);
```

}

```
    printf("\n");
```

```
getch();
```

}

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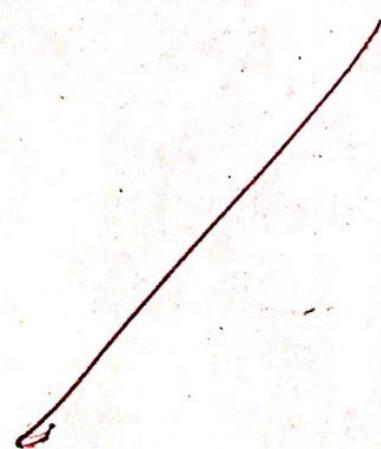
Output:

Enter the element of matrix m : 3

4
5
6
7
8
9
2
3

Enter the element of matrix n : 2

3
4
5
6
7
8
9
0



Matrix sum : 5 7 9
11 13 15
17 11 3



PRACTICAL NO. 6

Aim: Program to understand string manipulation.

Program: # Program to display name using string.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    char name[20];
    printf("In Enter your name : ");
    scanf("%s", &name);
    printf("In My name is: %s", name);
    getch();
}
```

Output :

Enter your name : KauhikRaj

my name is ~~KauhikRaj~~.

Program: # Program to enter character.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    char a;
    clrscr();
    printf("Enter a character: ");
    a = getch();
    printf("The character: ");
    putchar(a);
    getch();
}
```

Program: # Program to enter a string.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    char a[50];
    clrscr();
    printf("Enter a string: ");
    gets(a);
    printf("Entered string: ");
    puts(a);
    getch();
}
```

~~Ques~~ - Output:

Enter a character : a

The character is a.

Output:

Enter a string : Hello

The entered string is Hello.

Program: # Print the string into vertical order.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    char name[10] = "My name";
    clrscr();
    printf("\n My name is : ");
    for( int i=0; i<10; i++)
    {
        printf("\n");
        putchar(name[i]);
    }
    getch();
}
```

Output :

My name is

M

Y

N

a

m

e

Program: #Print reverse string.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    char str[10];
    clrscr();
    printf("\n Enter a string: ");
    scanf("%s", &str);
    reverse(str);
    printf("\n Reversed string: %s", str);
    getch();
}
```

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Output:

Enter a string : KautikRaj

The reversed string : jaRkitmak



PRACTICAL NO. 7

Program: # calculate area & circumference.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    circle();
    getch();
}

void circle(void)
{
    int r;
    float area, circum;
    printf("Enter radius:");
    scanf("%d", &r);
    area = 3.14 * r * r;
    circum = 2 * 3.14 * r;
    printf("Area: %.f", area);
    printf("Circumference : %.f", circum);
    getch();
}
```

Output:

58

Enter radius : 5

Area : 78.5

Circumference : 31.40

Program: Find the sum of digit entered.

```
#include <stdio.h>
#include <conio.h>
void sum( int n );
void main()
{
    clrscr();
    int n;
    printf("Entered a number: ");
    scanf("%d", &n);
    sum(n);
    getch();
}
```

```
void sum(int n)
```

```
{
    int m, s = 0;
    while (n != 0)
    {
        m = n % 10;
        s = s + m;
        n = n / 10;
    }
}
```

```
printf("\n Sum of digits : %d ", s);
getch();
```

88:

Output:

Enter a number : 25

sum of digits : 7

Program

```
#include <stdio.h>
#include <conio.h>
void sum (int n1, int n2);
void main()
{
    clrscr();
    int n1, n2;
    printf("Enter two numbers : ");
    scanf("%d %d", &n1, &n2);
    sum (n1, n2);
    getch();
}

void sum (int n1, int n2)
{
    int a;
    a = n1 + n2;
    printf("Sum of two numbers : ");
    getch();
}
```

Output :

Enter two numbers : 78 66

Sum of two numbers : 144

Program: Find factorial of a number.

```
#include <stdio.h>
#include <conio.h>
int factorial (int n);
void main()
{
    int x, fact;
    printf ("\n Enter a number : ");
    scanf ("%d", &x);
    fact = factorial (x);
    printf ("\n Factorial : %d", fact);
    getch();
}

int factorial (int n)
{
    int f;
    if (n == 1)
        return (1);
    else :
        f = n * factorial (n - 1);
        return (f);
    getch();
}
```

73

Output :

Enter a number : 3

Factorial : 6

Program: # calculate average of 4 marks.

```
#include <stdio.h>
#include <conio.h>
void total (int m1, int m2, int m3, int m4);
void main ()
{
    int a, b, c, d ;
    printf ("\n Enter marks : ");
    scanf ("%d %d %d %d", &a, &b, &c, &d);
    total (a,b,c,d);
    getch ();
}
void total (int m1, int m2, int m3, int m4)
{
    int total ;
    total = m1 + m2 + m3 + m4 ;
    printf ("\n The total is : %d", total);
    average (total);
}
void average (int total)
{
    float avg ;
    avg = total / 4 ;
    printf ("\n Average : %d", avg);
    getch ();
}
```

Output:

62

Enter four marks : 20 30 40 50

The total is : 140

Average : 35

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PRACTICAL NO. 8

63

Program: Student Structure

```
#include <stdio.h>
#include <conio.h>
struct student
{
    int rollno;
    char name[20];
    int total;
};

void main();
{

    struct student x;
    clrscr();
    printf("In Enter Roll no.");
    scanf("%d", &x.rollno);
    printf("In Enter name:");
    scanf("%s", x.name);
    printf("In Enter Total:");
    scanf("%d", &x.total);
    printf("In Student Name: %s", x.name);
    printf("In Roll no. : %d", x.rollno);
    printf("In Total : %d", x.total);
    getch();
}
```

Output:

Enter Roll no. 51

Enter Name : KauthikRaj

Enter total : 100

Student Name: KauthikRaj

Roll No. 51

Enter Total: 100

Program: Employee comparison.

```
#include <stdio.h>
#include <conio.h>
{
    int eno, salary;
}
void main()
{
    struct employee n, y;
    printf("\nEnter eno & salary : ");
    scanf("%d %d", &n.eno, &n.salary);
    printf("\nEnter eno & salary : ");
    scanf("%d %d", &y.eno, &y.salary);
    if(n.eno == y.eno && n.salary == y.salary)
    {
        printf("Both equal.");
    }
    else
        printf("Both aren't equal.");
    getch();
}
```

Output:

64

Enter eno & salary : 51 20000
Enter eno & salary : 22 25000

Both are not equal.

Enter eno & salary : 22 25000
Enter eno & salary : 22 25000

Both equal.

Program: Fruit structure

```
#include <stdio.h>
#include <conio.h>
struct fruit
{
    char name[20];
    int price, qty, total;
};

void main()
{
    struct fruit f[5];
    clrscr();
    printf("Enter name, price & qty : ");
    for (k=0; k<5; k++)
    {
        scanf("%s %d %d", &f[k].name, &f[k].price,
              &f[k].qty);
        f[k].total = f[k].price * f[k].qty;
    }
    for (k=0; k<5; k++)
    {
        printf("Name = %s, Price = %d,
               Qty = %d", f[k].name, f[k].price,
               f[k].qty);
    }
    getch();
}
```

Output:

Enter name , price & qty :

Apple	20	5
Mango	15	3
Banana	50	9
Cherry	30	7
Grapes	30	15

Name = Apple , Price = 20 , Qty = 5

Name = Mango , Price = 15 , Qty = 3

Name = Banana , Price = 50 , Qty = 9

Name = Cherry , Price = 30 , Qty = 7

Name = Grapes , Price = 30 , Qty = 15

6.2

Program: Structure within structure

```
#include <stdio.h>
#include <conio.h>
struct employee
{
    int salary;
};

struct employee
{
    int id;
    char name[10];
    struct employee b2;
};

void main()
{
    clrscr();
    int l;
    struct employee s={22, 'JAY', {500}};
    printf("\n Roll no. %d \t Name = %s \t
           salary = %d ", s.id, s.name, s.b2
           salary);
    getch();
}
```

Output :

Roll no. 22

Name : JAY

salary : 500

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Aim: Programs on pointers in C language.

Program:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int a=12, b=4, x, y, *p, *q;
    p = &a;
    q = &b;
    x = *p * *q - 6;
    y = 4 * (*p - *q) + 10;
    printf ("\n a = %.d", a);
    printf ("\n b = %.d", b);
    printf ("\n x = %.d", x);
    printf ("\n y = %.d", y);
    getch();
}
```

3a

Output :

$$a = 12$$

$$b = 4$$

$$n = 42$$

$$y = 42$$

Programme

```
# include <stdio.h>
# include <conio.h>
void main()
{
    clrscr();
    int x[5] = {10, 20, 30, 40, 50};
    int *p, i, sum = 0;
    p = x[0];
    for (i = 0; i < 5; i++)
    {
        sum = sum + *p;
        p = p + 1;
    }
    printf("\n sum = %.d", sum);
    getch();
}
```

Output :

$$\text{sum} = 150.$$

Program: #Point & all Function argument

```
# include <stdio.h>
# include <conio.h>
void change (int *p);
void main()
{
    clrscr();
    int x=20;
    change (&x);
    printf ("\n x=%d ; x");
    getch();
}

void change (int *p)
{
    *p = *p + 10;
}
```

Output:

$$x = 30$$

021 = 300

Program:

```
#include <stdio.h>
#include <conio.h>
void exchange (int *a, int *b);
void main()
{
    int x, y;
    x = 10;
    y = 20;
    printf ("In Before exchange x=%d\ny=%d", x, y);
    exchange (&x, &y);
    printf ("In After exchange x=%d y=%d",
           x, y);
    getch();
}

void exchange (int *a, int *b)
{
    int b;
    b = *a;
    *a = *b;
    *b = t;
}
```

Output:

before exchange $x = 10, y = 20$

After exchange $x = 20, y = 10$

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Aim: Program on file handling.

Program: Open file → write & close file.

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
int main()
{
    FILE * FP;
    char data[50];
    printf("Opening the file test.c in write mode");
    FP = fopen ("test.c", "w");
    if (FP == NULL)
    {
        printf ("could not open file test.c");
        return 1;
    }
    printf ("\n Enter some text from keyboard
            to write in file");
    while (strlen (gets (data)) > 0)
    {
        fputs (data, FP);
        fputs ("\n", FP);
    }
    printf ("closing the file test.c");
    FP.close (FP);
    return 0;
}
```

Output :

Opening the file test.c in write mode
Enter some text from keyboard to write
in file test.c.

Hi, How are you ~~doing~~?

Closing the file test.c

Program: fscanf(), fprintf(), ftell(), rewind() functions.

```
#include <stdio.h>
#include <conio.h>
int main()
{
    char name[20];
    int age, length;
    FILE *fp;
    FP = fopen("test.txt", "w");
    fprintf(fp, "%s %d", "Prast2 refresh", 5);
    length = ftell(fp);
    rewind(fp);
    fscanf(fp, "%d", &age);
    fscanf(fp, "%s", &name);
    fclose(fp);
    printf("Name : %s \n age : %d \n", name, age);
    printf("Total no. of characters in file
is %d", length);
    return 0;
}
```

Output:

Name: Fresh2refresh

Age : 5

Total no. of characters in file is 15.

Fresh2refresh