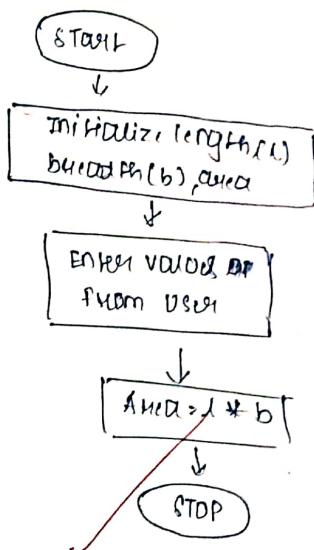


Output:

Program 1:

Enter the number : 5
The area is : 40.



Output:

Program 1:

Enter the number : 5
The area is : 40.

29

PRACTICAL NO.1

Aim: program to understand understand basic datatypes and input and output.

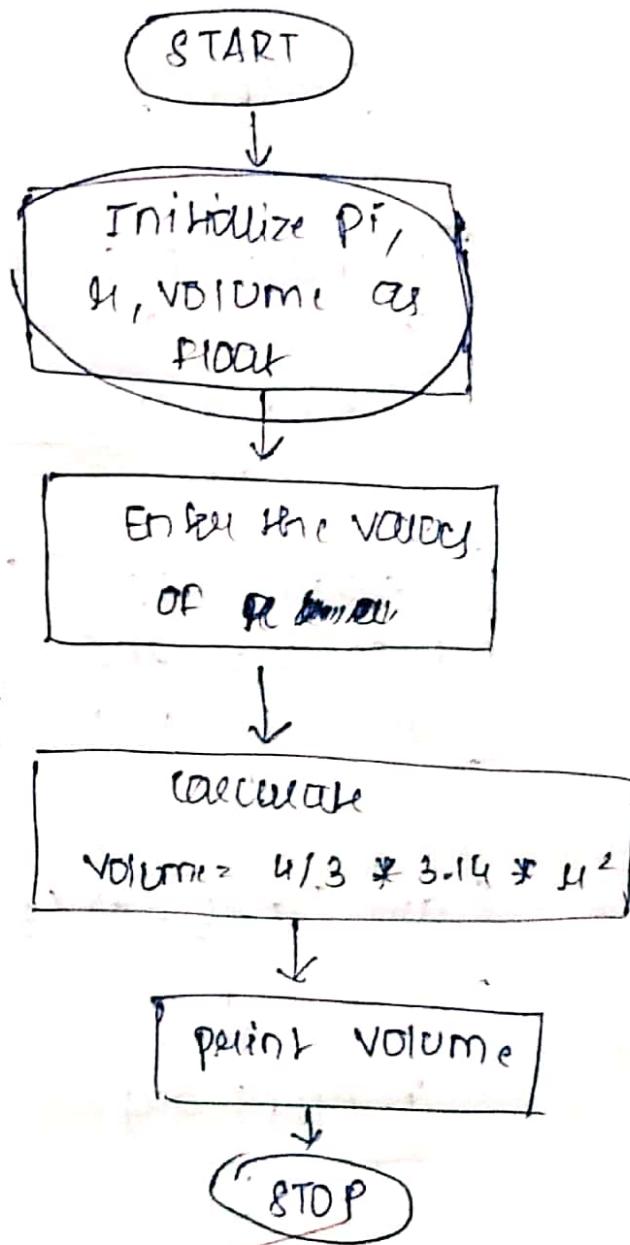
Program 1: Area of rectangle

Algorithm

- Step 1: specify 2 header files namely stdio & conio.
- Step 2: define 3 variables of datatype float, namely, l-length, b-breadth & area.
- Step 3: use clrscr().
- Step 4: Accept the length of triangle from the user & store it in the variable l.
- Step 5: Accept the breadth from the user and store it in a variable b.
- Step 6: calculate the area of the rectangle by multiplying the width & height ie length & breadth taken from the user.

Source code:

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



OUTPUT

Program 3

Enter the radius: 7

The volume is: 1436.026733.

```

scanf("%f", &H);
PI = 3.14;
V = 4.0 / 3.0 * PI * R * H * H;
printf("The volume is : %.2f", V);
getch();
}

```

program 3: Average of those numbers.

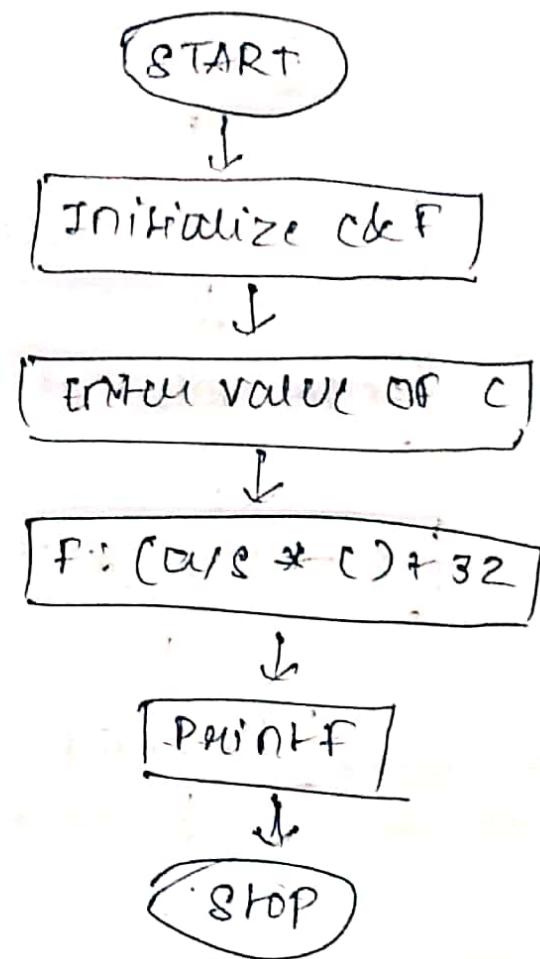
- Algorithm:
- Step 1: specify 2 header file i.e stdio.h and conio.h
 - Step 2: clrscr()
 - Step 3: Define 3 variable i.e a, b & c also any to calculate avg.
 - Step 4: Ask the user to enter 3 numbers.
 - Step 5: Add 3 no. to calculate sum and average, by formula sum / 3.0 i.e $n_1 + n_2 + n_3 / 3.0$.
 - Step 6: print the corresponding output.

Source code:

```

#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    float a, b, c, avg;
    printf("Enter the number: ");
    scanf("%f %f %f", &a, &b, &c);

```

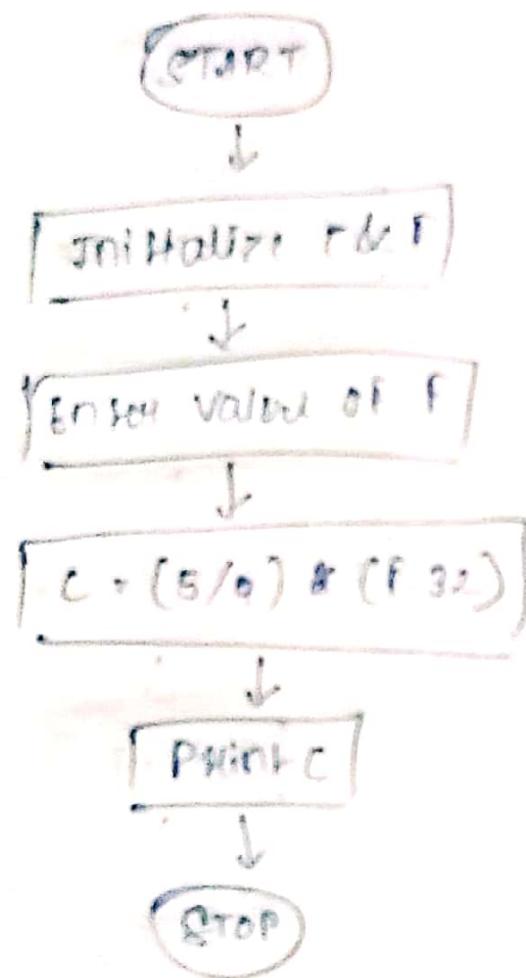


OUTPUT :

Enter the value of celsius : 3

Fahrenheit : 37.400002

18



OUTPUT :

Enter the value of F : 20

Output : 26.6666

Practical No. 2.

Aim: programs on operators & expressions

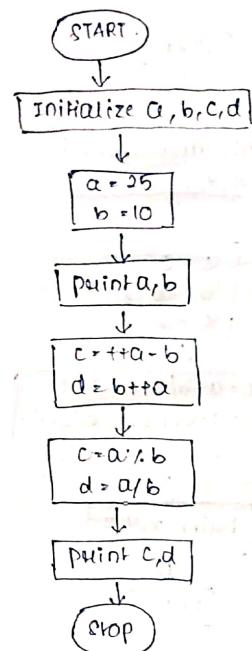
Program 1: Increment & decrement

Algorithm:-

- Step 1: specify header file i.e. conio and stdio.
- Step 2: Install the void main block, define 4 variables a, b, c and d of datatype intger.
- Step 3: Initialize variable a and b with a value.
- Step 4: print the value of a and b.
- Step 5: $c = ++a - b$ and $d = b + +a$;
- Step 6: print the value a, b, c, d and $c = a + b$, $d = a / b$.
- Step 7: print the value c, d and print getch();

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



OUTPUT:

a = 25, b = 10
 a = 26, b = 11, c = 16, d = 36
 c = 4, d = 2

program 2 : operator precedence.

Algorithm :

Step 1: specify header file conio and stdio.

Step 2: Inside the void main block define 6 variables a,b,c and x,y,z.

Step 3: Initialize 3 variables a,b,c with float values.

Step 4: print the values of a,b,c.

Step 5: perform the operations and stored in x,y and z.

Step 6: print the values of x,y and z.

Code :

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

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

```
void main()
```

```
{
```

```
float a, b, c, x, y, z;
```

```
clrscr();
```

```
a = 8;
```

```
b = 15;
```

```
c = 3;
```

```
printf ("The values of a=%f, b=%f, c=%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;
```

```
printf ("The value of x=%f, y=%f, z=%f, x,y,z);
```

```
getch();
```

```
}
```

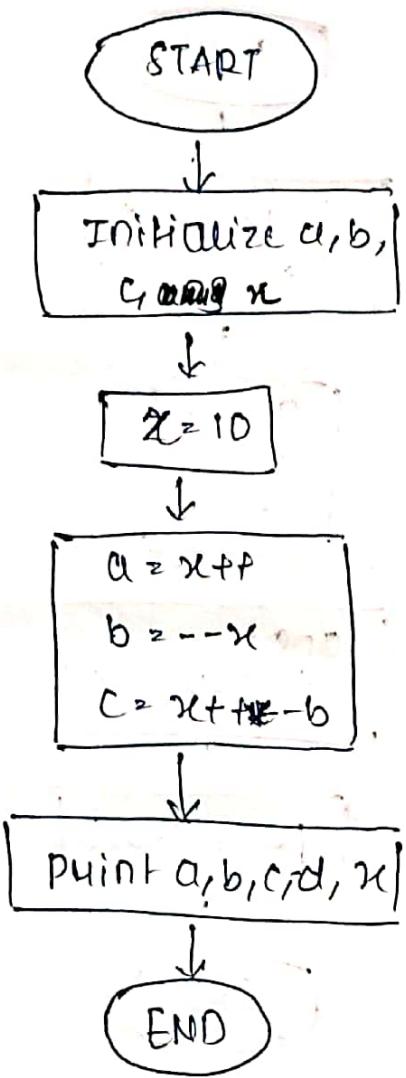
Program 3:

Algorithm:

- Step 1: Specify the header files conio and stdio.
- Step 2: Inside the void main block define 3 variable namely a, b, c and ans.
- Step 3: Initialize the variable a, b, c with a value
- Step 4: Perform the operation $a = a + b + c$ and store in variable ans.
- Step 5: Print the value of a, b, c and ans.

Source 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 value of a=%d, b=%d, c=%d and %d\n",
            a, b, c, ans);
    getch();
}
```



OUTPUT:

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

Practical 3.

Aim: program on decision making & branching

Program 1: check whether number is odd or even

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

88.

OUTPUT:

Enter the year 2001

2001 is NOT a leap year.

Enter the year 2004

2004 is a leap year.

Program 3: Check whether entered alphabet is a vowel or consonant.

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

OUTPUT :

Enter the alphabet : i

i is a vowel

Enter the alphabet : s

s is a consonant.

Program 4:

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

Program 5 : program to enter single digit decimal number from keyboard and print the digit in word form.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int n;
    printf("In Enter single digit decimal number");
    scanf("%d",&n);
    if(n==0)
        printf("In zero");
    else if(n==1)
        printf("In one");
    else if(n==2)
        printf("In two");
    else if(n==3)
        printf("In three");
    else if(n==4)
        printf("In four");
    else if(n==5)
        printf("In five");
    else if(n==6)
        printf("In six");
    else if(n==7)
        printf("In seven");
}
```

OUTPUT:

Enter single digit decimal no. 1
one

Enter single digit decimal no.: 15
Error.

```
else if (n == 8)  
    printf("In Eight");  
else if (n == 9)  
    printf("In Nine");  
else  
    printf("In error");  
getch();  
}
```

OUTPUT :
Enter your choice.

2
Enter value of a & b &
10
2

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

```
case 2:  
    a = a + b;  
    printf ("In %d + %d = %d", a, b, a);  
    break;  
case 3:  
    a = a * b;  
    printf ("In %d * %d = %d", a, b, a);  
    break;  
case 4:  
    a = a / b;  
    printf ("In %d / %d = %d", a, b, a);  
    break;  
default:  
    printf ("In NO operation");  
    break;  
}  
getch();
```

10
12/10/2017

OUTPUT :

2
4
6
8
10
12
14
16
18
20

Practical NO. 4.

Aim : programs to understand looping statements

program 1: program to print even numbers from 1 to 100.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i;
    clrscr();
    for(i=2; i<=20; i=i+2)
    {
        printf("%d \t", i);
    }
    getch();
}
```

OUTPUT:

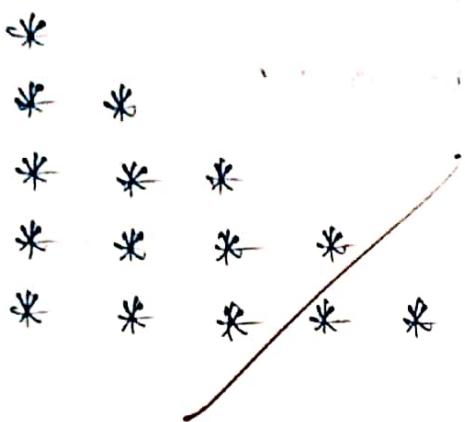
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

Program 3:

```
#include <stdio.h>
#include <conio.h>
Void main()
{
    int i, n, sum, x;
    clrscr();
    printf (" Enter the value of n");
    scanf ("%d", &n);
    i = 1;
    sum = 0;
    do
    {
        x = i % 2
        if (x == 1)
        {
            sum = sum + i;
        }
        i++;
    }
    while (i <= n)
    printf (" The sum of all odd no.'s are %d", sum);
    getch();
}
```

84.

OUTPUT :



Program 5:

```
→ #include <stdio.h>
#include <conio.h>
void main()
{
    int a, b, f, i;
    clrscr();
    a = 1;
    b = 0;
    for (i = 3; i <= 20; i++)
    {
        f = a + b;
        printf("%d\n", f);
        a = b;
        b = f;
    }
    getch();
}
```

OUTPUT:

Enter the elements into array : 3

4

5

6

7

Entered array elements are: 3 4 5 6 7
sum of elements is : 25.

Practical No. 5

Aim: programs on arrays.

Program 1: write a c program to find the sum of 5 numbers (array).

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

Program 2: write a C program to find the largest of the 10 numbers.

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

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Output :

Enter the values into array :

-55

22

5

-3

4

11

16

-19

20

No. of positive numbers present are : 6

QUESTION

Program to count & print all the
negative numbers in the array.

→ ~~for loop~~ (for loop)

open(),
int i, num[10].

scanf("Enter 10 values and sum =")

new (-1, 10, 10).

for (i=0; i<10);

P+i,

for (i=0, i<10, i++)

i

if (num[i] < 0)

i P+i

i

printf("No. of neg numbers is %d", i)
quit().

i

→ ~~for loop~~ (for loop)

→ ~~if condition~~ (if condition)

→ ~~print statement~~ (print statement)

18:

OUTPUT :

Enter the value into array 2

4

6

9

1

Sorted array : 1 2 4 6 9

55

program 5

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int i, j; num[5], t;
    printf (" Enter the value into array ");
    for (i=0; i<5; i++)
        scanf ("%d", &num[i]);
    for (j=0; j<5; j++)
    {
        for (j=i+1; j<5; j++)
        {
            if (num[i] > num[j])
            {
                t = num[i];
                num[i] = num[j];
                num[j] = t;
            }
        }
    }
    printf (" Sorted array ");
    for (i=0; i<5; i++)
    {
        printf ("%d\n", num[i]);
    }
    getch();
}
```

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Program 6 : write a C program to print matrix multiplication.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int x[3][3], y[3][3], z[3][3];
    int i, j, k, l;
    printf (" \n Enter elements of matrix X:");
    for (i=0; i<3; i++)
    {
        for (j=0; j<3; j++)
        {
            scanf ("%d", &x[i][j]);
        }
    }
    printf (" \n Enter elements of matrix Y:");
    for (i=0; i<3; i++)
    {
        for (j=0; j<3; j++)
        {
            scanf ("%d", &y[i][j]);
        }
    }
    printf (" \n Enter the value of matrix Z:");
    for (i=0; i<3; i++)
    {
        for (j=0; j<3; j++)
        {
            z[i][j] = 0;
            for (k=0; k<3; k++)
            {
                z[i][j] = z[i][j] + x[i][k] * y[k][j];
            }
        }
    }
    for (i=0; i<3; i++)
    {
        for (j=0; j<3; j++)
        {
            printf ("%d ", z[i][j]);
        }
        printf ("\n");
    }
}
```

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OUTPUT

Enter elements of matrix X: 2

1
2
3
4
5
6
7
8

Enter elements of matrix Y: 3

2
2
2
2
2
2
2

matrix X: 12 10 10
22 24 24
48 42 42

```
POH (C=0; C<3; C++)
```

```
{
```

```
scanf ("%d", &Y [H] [C]);
```

```
}
```

```
POH (H=0; H<3; H++)
```

```
{
```

```
POH (C=0; C<3; C++)
```

```
{
```

```
POH (t=0;
```

```
POH (K=0; K<3; K++)
```

```
{
```

```
t=t+X [H] [K] * Y [K] [C];
```

```
}
```

```
Z [H] [C] = t;
```

```
}
```

```
}
```

```
printf ("\n matrix z:");
```

~~```
POH (H=0; H<3; H++)
```~~~~```
{
```~~~~```
POH (C=0; C<3; C++)
```~~~~```
{
```~~~~```
printf ("%d", Z [H] [C]);
```~~~~```
}
```~~

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

```
}
```

```
getch();
```

```
}
```

Program 7: write a c program to 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("Enter the elements of matrix-m:");
    for (x=0; x<3; x++)
    {
        for (y=0; y<3; y++)
        {
            scanf("%d", &m[x][y]);
        }
    }
    printf("Enter the elements of matrix-n:");
    for (x=0; x<3; x++)
    {
        for (y=0; y<3; y++)
        {
            scanf("%d", &n[x][y]);
        }
    }
    for (x=0; x<3; x++)
    {
        for (y=0; y<3; y++)
        {
            sum[x][y] = m[x][y] + n[x][y];
        }
    }
    for (x=0; x<3; x++)
    {
        for (y=0; y<3; y++)
        {
            printf("%d", sum[x][y]);
        }
    }
}
```

52

for ($y=0$; $y < 9$; $y+t$)

{

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

}

p;

Practical No. 6.

Aim : programs to understand string manipulation.

Program 1: write a program to display your name using string.

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

60

OUTPUT :

Enter a character a
The character is a.

OUTPUT :

Enter a string. gkrillek
The entered string is gkrillek.

61

Program 2 : write a program to print the entered character

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

Program 3: write a program to enter a string

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

Program 4 : write a program to print the string in vertical order.

```
#include <stdio.h>
#include <conio.h>
void main()
{
    char name[10] = "My name";
    clrscr();
    printf("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

OUTPUT:-

Enter a string : Vishnu

The reversed string is unheisiv.

program 5: program to print reverse string.

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

✓
✓✓✓

Practical NO. 7.

Aim : programmes using user-defined function

program 1: write a c program to calculate area and circumference of a circle.

```
#include <stdio.h>
#include <conio.h>
void circle(void);
void main()
{
    clrscr();
    circle();
    getch();
}
void circle(void)
{
    int r;
    float area, circum;
    printf("Enter the radius");
    scanf("%d", &r);
    area = 3.14 * r * r;
    circum = 2 * 3.14 * r;
    printf("In Area: %.2f", area);
    printf("In Circumference : %.2f", circum);
    getch();
}
```

18

Output:

Enter a number: 25
sum of digits is 7.

65

Program 2: write a C program to find the sum of digits of entered number.

```
#include <stdio.h>
#include <conio.h>
void sum (int n);
void main ()
{
    clrscr();
    int n;
    printf ("Enter 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 is %d", S);
    getch();
}
```

a.

Program 8:

```
#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 is : ", a);
    getch();
}
```

OUTPUT:

Enter two numbers : 78 66

Sum of two numbers is : 144

18

Program 4: write a C program to calculate the total & 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 (" Enter four 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 totale;
    totale = m1 + m2 + m3 + m4;
    printf (" The total is %.d ", totale);
    average (totale);
}
void average (int tot)
{
    float avg;
    avg = tot / 4;
    printf (" Average is %.f ", avg);
    getch();
}
```

Output :

Enter four marks : 20

80

40

50

~~total is 140~~

~~average is 35.000~~

Program 5 : Write a c program to find the Factorial of a number.

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

int Factorial (int n)
{
    int f;
    if (n == 1)
        return 1;
    else,
        f = n * Factorial (n-1);
    return (f);
}
```

OK

a
output:
enter a number: 3
Factorial of 3 is 6.

Practical No. 8.

Program 1: Student Structure.

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

void main()
{
    struct student x;
    clrscr();
    printf("Enter roll no.");
    scanf("%d", &x.roll_no);
    printf("Enter name:");
    scanf("%s", &x.name);
    printf("Enter total:");
    scanf("%d", &x.total);
    printf("\n Student name : %s", x.name);
    printf("\n Roll no. : %d", x.roll_no);
    printf("\n Total : %d", x.total);
    getch();
}
```

OUTPUT:

Enter eno and salary: 5 20000

Enter eno and salary: 5 20000

both are equal

Enter eno and salary: 2 25000

Enter eno and salary : 5 50000

both are unequal

program 2: Employee comparison.

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

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

```
{
```

```
int eno, salary;
```

```
}
```

```
void main()
```

```
{
```

```
struct employee n, y;
```

```
printf("Enter eno and salary:");
```

```
scanf("%d %d", &n.eno, &n.salary);
```

```
printf("Enter eno and salary:");
```

```
scanf("%d %d", &y.eno, &y.salary);
```

```
if (n.eno == y.eno & n.salary == y.salary).
```

```
{
```

```
printf("both are equal");
```

```
}
```

```
else
```

```
printf("both are unequal");
```

```
getch();
```

Scanned with CamScanner

Program 8 : Struct Structure

```

#include <stdio.h>
#include <conio.h>
{
    char name[20];
    int price, qty, total;
}
void main()
{
    struct fruit F[5];
    int k;
    clrscr();
    printf("In 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("In name = %s, price = %d, qty = %d",
               F[k].name, F[k].price, F[k].qty);
    }
    getch();
}

```

15

OUTPUT :

Enter records of 5 player.

| | | |
|----------|-------|-----|
| MS Dhoni | India | 100 |
| Virender | India | 100 |
| Rohit | India | 100 |
| Shikhar | India | 100 |
| Rahane | India | 100 |

| Teamwise | player | Names |
|----------|--------|-------|
| MS Dhoni | India | 100 |
| Virender | India | 100 |
| Rohit | India | 100 |
| Shikhar | India | 100 |
| Rahane | India | 100 |

program 5 : 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, "Vishnu", {3000}};
    printf ("in roll no = %d its Name = %s its
            salary = %d", s.id, s.name, s.b2);
    getch();
}

```

7.8

OUTPUT:

$$a = 12$$

$$b = 4$$

$$x = 42$$

$$y = 42$$

5.

Program 2:

```
#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();
}
```

25

OUTPUT:

$$u = 30$$

Program 4:

```
#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 y=%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 = b;
}
```

OUTPUT:

~~BEFORE exchange x=10, y=20
AFTER exchange x=20, y=10.~~

10
20 ✓

67

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 2: fscanf(), fprintf(), FILE(),
rewind() Functions.

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

OUTPUT:

Name: Prachi Mehta.

Age: 5

Total no. of character in file is 15.

80
✓