

Practical - 1

Algo: Program to understand basic datatypes and input and output

Program: 1 Area of rectangle.

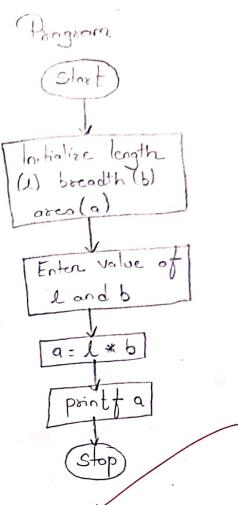
Algorithm:

- Step 1: Specify 2 header files namely stdio & conio
- Step 2: define 3 variables of datatype float namely, l-length, b-breadth and other
- Step 3: Use clrscr()
- Step 4: Accept the length of triangle from the user and 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 octangle by multiplying the width and height i.e length and breadth taken from the user
- Step 7: print the area of the octangle.

Source Code:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int l, b, area;
    printf("Enter the number:");
```

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86.

Output:-

Program 1:

Enter the number: 8
The area is 64

Program 2

(Final)

Initialize variables
and declare a
constant for pi

Enter value of
pi

$V = \frac{4}{3} \pi r^3$

{ print V
(end p)}

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```
scanf ("%d", &r, &b)
area = l * b
printf ("The area is %d");
getch()
```

Program 2 Volume of Sphere

Algorithm:-

- Step 1: specify 2 header files i.e stdio and conio
- Step 2: Define 3 variables in float datatype i.e PI, r, & area
- Step 3: Use clrscr()
- Step 4: Accept the radius of the circle from the user and store it in variable r
- Step 5: Calculate the volume by using the formula $(4/3) * (\text{PI}) * (r)^3$
- Step 6: print the volume of the sphere.

Coding:-

```
#include <stdio.h>
#include <conio.h>
Void main()
{
    clrscr()
    float r, v, PI
```

```

scanf("Enter the radius:");
scanf("%f", &r);
pi = 3.14;
v = 4.0/3.0 * pi * r * r * r;
printf("The volume is: %f", v);
getch();

```

Program 3: Average of Three numbers

Algo:

step1: Specify 2 header file ie stdio and conio

step2: clrscr()

step3: define 4 variable ie a, b & c also avg to calculate

step4: Ask the user to enter a number

step5: Add 3 no to calculate sum and average by formula
 $\text{sum}/3.0$ ie $n_1+n_2+n_3/3.0$

Step6: print the corresponding output.

Program:

```

#include <stdio.h>
#include <conio.h>
Void main()
{
    clrscr();
    float a, b, c, avg;
    printf("Enter the numbers:");
    scanf("%f %f %f", &a, &b, &c);
    avg = (a+b+c)/3;
    printf("Avg: %f", avg);
}

```

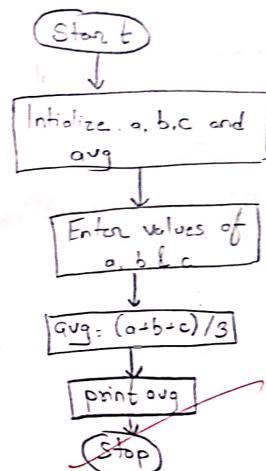
Output

Program 2

Enter the radius 7

The volume is: 1436.026733

Program 3:



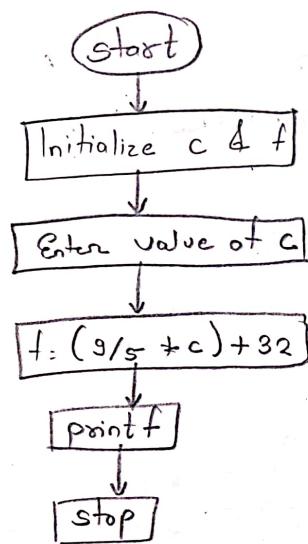
Output

Program 3

Enter the numbers 5 5 2

avg: 4.00

Program 4



Output

Enter the value of celsius: 3

Fahrenheit: 37.400002

Program 4 Convert temperature from celsius to farenheit.

Algo:-

- Step 1: Specify 2 header file ie stdio & conio
 Step 2: define 2 variable name c for celsius and keep for the converted value in float
 Step 3: Ask the user to enter temperature in celsius
 Step 4: store it in the variable c
 Step 5: Use the formula $(c * 9/5) + 32$
 Step 6: print the output

Code:-

```

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

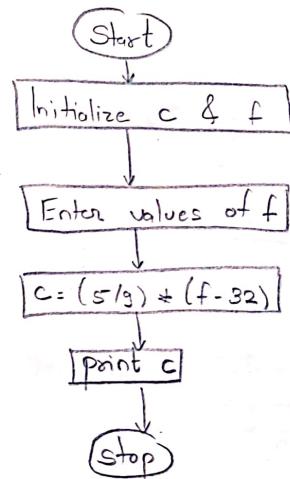
Program 5: Convert temperature from farenheit to celsuis

- Step 1: specify the header file.
- Step 2: define 2 variables namely f & temp
- Step 3: asks the user to enter the temp information
store it in variable f
- Step 4: Use the formula $(5.0/9.0) \times (f - 32)$
- Step 5: print the desired output

Code:-

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

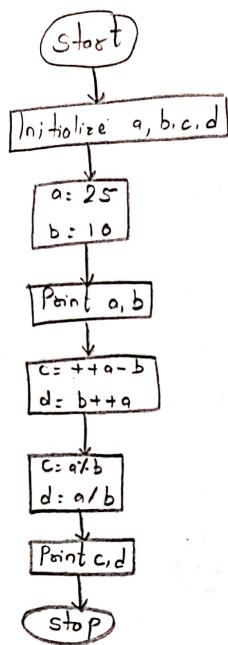
Program 5:-



Output

Enter the value of f : 80
celsius: 26.6666

80
10/12



Output

~~a=25, b=10~~

~~a=26, b=11, c=16, d=36~~

~~c=14, d=2~~

Practical no: 2

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Aim:- Programs on operators and Expressions.

Program 1:- Increment and Decrement

Algorithm:-

Step1: Specify the header files

Step2: define variable a, b, c, d; int integer

Step3: Do the operation a= 25, b= 10

c= ++a - b, d= b + +a, ~~c= a - b~~

Step4: print the variable

Code :-

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

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

```
void main()
```

```
{
```

```
int a, b, c, d;
```

```
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);
```

```
c= a % b;
```

```
d= a / b;
```

```
printf ("\n c=%d, d=%d", c, d);
```

```
getch();
```

Program 2:- Operator Precedence.

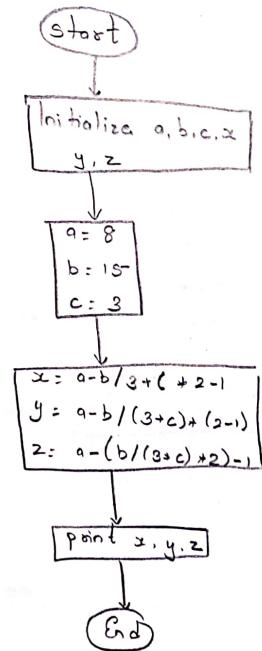
Algorithm:-

- Step1: Specify the header files ie conio & stdio.
- Step2: Inside the void main block declare variable a,b,c and x,y,z
- Step3: Initialize a variable a,b,c with an float value.
- Step4: print the values of a,b &c
- Step5: Perform the operations & store it in x,y &z
- Step6: Print the values of x,y &z

Source code :

```
##include <stdio.h>
##include <conio.h>
void main()
{
    float a, b, c, x, y, z;
    a = 8;
    b = 15;
    c = 3;
    printf("The value 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("\n The value of x=%f, y=%f, z=%f", x, y, z);
    getch();
}
```

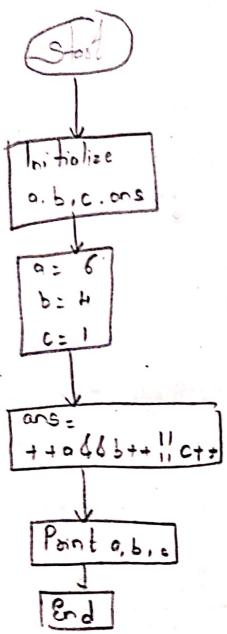
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Output:

The value of a=8.00, b=15.00, c=3.00

The value of x=5.500, y=5.500, z=2.00



Output

The values of a=7, b=5, c=1 & ans=1

Program 3:

Algorithm

- step1: specify the header files
- step2: Inside the void main block define 3 variable a, b, c.
- step3: Initialize the variables a, b, c with a value.
- step4: perform the operation `++a & b++ || c++` & store in variable ans.
- step5: print the value of a, b, c & ans.

Source code:-

```

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

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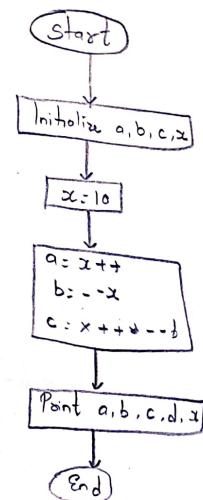
Q. Program 4:-
Algorithm:-

- Step 1: specify the header files
- Step 2: define variable a, b, c & x
- Step 3: perform the operation a = x++, b = -x, c = x++ & ~
- Step 4: print the values of a, b & c
- Step 5: perform the getch function and exist the void main block

Source code:

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    a, b, c, x;
    x=10;
    a=x++;
    b=-x;
    c=x++&~b;
    printf ("The value of a=%d, b=%d, c=%d & x=%d",
            a, b, c, x);
    getch();
}
```

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Output

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

17/2

Practical - 3

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Aim:-

Program 1:- Even and Odd

Algorithm:

- Step1: Initialize a variable with datatype
- Step2: Clear the
- Step3: Take a value from the user
- Step4: Store it in the variable initialized
- Step5: Use conditional statement to check the value
in modulus by 2 and equal to 0
- Step6: If equal to zero print even or else
display odd.

Code

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

Output:- Enter the value 5-

It is odd

Program 2: leap year

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Flagstaff

Step 1: Initialize year with

Code

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

Output: Enter the ~~year~~ 2021

~~It is not a leap year~~

program 3:-

Output : enter 3 nos 3

7
1
b is greater than a & b

Code

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int a,b,c;
    Pointf ("Enter 3 no:");
    scanf ("%d %d %d", &a, &b, &c);
    if((a>b) && (a>c))
        printf ("\n a is greater");
    else if((b>a) && (b>c))
        printf ("\n b is greater");
    else
        printf ("\n c is greater");
    getch();
}
```

Program 4:-

Code

```
#include <stdio.h>
#include <conio.h>
Void main()
{
    char ch;
    printf("Enter an alphabet:");
    scanf("%c", &ch);
    if (ch == 'a' || ch == 'A' || ch == 'e' || ch == 'E' || ch == 'i'
        || ch == 'I' || ch == 'o' || ch == 'O' || ch == 'u')
        printf("\n entered character is vowel");
    else
        printf("\n entered character is consonent");
    getch();
}
```

Output: Enter an alphabet
 entered character consonent

Code:-

```

#include <stdio.h>
#include <conio.h>
Void main()
{
    int a, b, c;
    printf("\n Enter value of a, b, c:");
    scanf("%d %d %d", &a, &b, &c);
    if (a > b)
    {
        if (a > c)
            printf("\n %d is largest", a);
        else
        {
            printf("\n %d is largest", c);
        }
    }
    else
    {
        if (b > c)
            printf("\n %d is largest", b);
        else
        {
            printf("\n %d is largest", c);
        }
    }
    getch();
}

```

Output: Enter a single digit decimal no.: 2
starts with 2
two digits

Program 6:

Code:

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

Output :

Enter your choice
2
Enter value of a & b:
10
-2

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printf("In %d - %d = %d", a, b, &);
break;
case 3:

x = a * b;
printf("%d * %d = %d", a, b, &);
break;

Case 4

x = a / b;
printf("%d / %d = %d", a, b, &);
break;
default:

printf("No operation");
break;

getch();

10

Practical no.: 04

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Output

2
4
6
8
10
...
100

Output

Enter value of n: 70

7
14
21
28
35
42
49
56
63
70

Aim: Programs to understand looping structure
while loop

Q1) Program to print Even numbers upto 100.

Code:-

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

Q2) Program to print numbers from 1 to n:

Code:-

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n;
    printf ("Enter the value of n: ");
    scanf ("%d", &n);
    i = 1
```

```

if (x==1)
{
    sum = sum + i;
}
++i;
while (i<=n);
printf("The sum of all odd numbers is %d", sum);
getch();
}

```

Q3) Write a C program to find sum of all odd numbers upto n.

```

#include <stdio.h>
#include <conio.h>
void main()
{
    int i, n, x, sum;
    clrscr();
    printf("Enter the value of n");
    scanf("%d", &n);
    i = 1;
    sum = 0;
    do
    {
        x = i%2;

```

Output:-

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

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Q) Write a program to print the output

```
#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();  
}
```

Q) Write a program to print the output

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

```
{ int i, k;
for (i=1; i<=5, i++)
    for (k=1; k<=i, k++)
        printf ("%d", i);
    printf ("\n");
getch();}
```

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

Output

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

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Do while

Program: Program to print sum of all even numbers
b/w 1 to n

```
#include <stdio.h>
#include <conio.h>
Void main()
{ clrscr();
int i, n, s;
```

88

Output:-

Enter value of n: 20
sum of all even numbers 1 to 20 = 110

89

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pointf ("In Enter value of n: ");
scanf ("%d", &n);

i=1

s=0;

do

{

s=s+i

i++;

}

if (s==0)

{

s=s+i

i++;

}

while (i<=n)

pointf ("In sum of all even numbers b/w 1 to %d = %d", n);

getch();

}

⇒ For loop:-

Program:- Write program to obtain the following output

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

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

```
Void main()
```

```
{ int i, k;
```

```
    for(i=1; i<=5, i++)
```

```
    { for(k=1; k<=i; k++)
```

```
        printf("*");
```

```
    }
```

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

```
}
```

Program: Program to print the following output

1 2 3 4 5

2 3 4 5

3 4 5

4 5

5

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

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

```
Void main()
```

```
{ int i, k;
```

```
    for(i=5, i>=1; i--)
```

Output:-

```
*
```

```
* *
```

```
* * *
```

```
* * * *
```

```
* * * * *
```

50

Output:-

```

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

```

Output

Fibonacci series:

```

0
1
1
2
3
5
8
13
21
34
55
89
144
233
377
610
987
1597
2584

```

```

for(k=1, k<=i, k++)
{
    printf("%d", k);
    if(k!=i)
        printf("\n");
    getch();
}

```

Program 3: Fibonacci series of first 20 terms.

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

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

```
Void main()
```

```
{
    int a,b,i,f;

```

```
    printf("\n fibonacci series: ");
    a=1;
    b=a;

```

```
    printf("\n%d",b);
    for(i=3;i<=20;i++)
    {
        f=a+b;
        printf("\n%d",f);
        a=b;
        b=f;
    }
    getch();
}
```

84162

Practical: 5

Aim: To understand the concept of Arrays

① Write a program to find the sum of 5 numbers.

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

② find a largest number of the 10 numbers

```
#include <conio.h>
#include <stdio.h>
void main()
{
    int i, num[10], l;
```

Output

Enter the element into array 3

4

5

6

7

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

```

printf("Enter 10 values in array:")
for (i=0; i<10; i++)
    scanf("%d", &num[i]);
d = num[0];
for (i=1; i<10; i++)
    d = num[i];
    if [d, num[i])
        d = num[i];
    }
printf("Largest number is %d", d);
getch();
}

```

⑤ find the number of positive no in the array

```

#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int i, num[10], p;
    printf("Enter the values into array:");
    for (i=0; i<10; i++)
        scanf("%d", &num[i]);
    p = 1;
    for (i=1; i<10; i++)
        if [num[i] > 0]
            p++;
    printf("Number of positive numbers = %d", p);
}

```

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```
{  
    if (num[i] > 0)  
        p = p + 1  
}  
printf ("\\n no. of positive numbers are: %d", p);
```

Program 4: (To find odd numbers)

Code

```
#include <stdio.h>  
#include <conio.h>  
Void main()  
{  
    int i, num[10], p;  
    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 != 0) p++;  
    }  
    p=p+1;  
    printf ("\\n no. of odd numbers present are: %d", p);  
    getch();
```

Output

Enter the values into array

-55

22

5

-3

4

11

16

-19

20

No. of odd numbers present are:

Output

Enter the values into array

2

3

4

5

6

7

8

no. of odd numbers present: 5

Prog: 5. Program to print in ascending order

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

```
void main()
```

```
{ int i, j, num[5], t; clrscr(); for (i = 0; i < 5; i++)
```

```
printf("Enter the values into array: ");
```

```
for (i = 0; i < 5; i++) { num[i] = 0; }
```

```
scanf("%d", &num[i]);
```

```
for (i = 0; i < 5; i++)
```

```
{ 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++)
```

```
{ point("In num["),
```

```
getch(); }
```

Output

Enter the values into array 2

4
6
9

Sorted array 1 2 4 6 9

Program 6: program to print matrix multiplication

```

#include <conio.h>
#include <stdio.h>
void main()
{
    int x[3][3], y[3][3], z[3][3];
    int r, c, k, t;
    printf("\nEnter elements of matrix x:");
    for (r=0; r<3; r++)
        for (c=0; c<3; c++)
            scanf("%d", &x[r][c]);
    printf("\nEnter elements of matrix y:");
    for (r=0; r<3; r++)
        for (c=0; c<3; c++)
            scanf("%d", &y[r][c]);
    printf("\nEnter the value of matrix z:");
    for (r=0; r<3; r++)
        for (c=0; c<3; c++)
            scanf("%d", &z[r][c]);
}

```

g
for ($r=0; r<3; r++$)

{
t=0;
for ($k=0; k<3; k++$)

{
t=t+x[r][k]*y[k][c];
z[r][c]=t;

printf("\n matrix z:");
for ($r=0; r<3; r++$)

{
for (c=0; c<3; c++)
printf("%d ", z[r][c]);
getch();

Output

Enter element of matrix x:
2
3
4
5
6
7
8

Enter elements of matrix y:
2
2
2
2
2
2
2
2

Matrix 7 12 10
 27 24 24
 48 42 42

Q. Enter elements of matrix $x=2$

3
4
5
2
3
4
2
3

Output

Enter elements of matrix $y=4$

1
5
6
7
7
8
1
3

Output

Matrix $2 \begin{matrix} 6 & 4 & 9 \\ 11 & 9 & 10 \\ 12 & 3 & 6 \end{matrix}$

11
12
21
22
23

$\begin{matrix} 6 & 4 & 9 \\ 11 & 9 & 10 \\ 12 & 3 & 6 \end{matrix}$

Output

Program 7: To print matrix addition
Code

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

04/02

Practical 6

Ques: Programs using string functions.

Program: To read string function

#include <string.h>

#include <stdio.h>

#include <conio.h>

Void main()

{ char s[20]; clrscr();

char name[20]; /* to store name in " " */

pointf ("enter your name:");

scanf ("%s", name);

pointf ("\n my name is: %s", name);

getch();

}

Enter your name: Akash

My name is Akash

(2) Write a program to enter a string & display it.

#include <string.h>

#include <stdio.h>

#include <conio.h>

Void main()

{ char a[50];

pointf ("Enter a string"),

getch(a);

pointf ("\n the entered string is: ");

puts(a);

getch();

Enter a string bts

The entered string is: bts

My name is

M
y
n
a
m
e
i
s

3) Print string in vertical order

```
#include <string.h>
#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();
}
```

4) Reverse string

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
    char str[10];
    clrscr();
    printf("Enter a string");
}
```

```
scanf("%s", &str);
str = (str);
printf("The reversed string is: %s", str);
getch();
}
```

⑤ Point the entered character

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

Enter a string. Alka
The reversed string is ~~Alka~~ hsakA

Output

Enter a character
the character is: d

10
11/02

Output:
 Enter the radius: 23
 area 1661.06069
 circumference 144.11401

Practical no: 7

60

Topic: - Programming with function

Prog 1:- To calculate the area and circumference of the 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("\n area %.f", area);
    printf("\n circumference: %.f", circum);
}
```

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Program 2 To find the sum of the extend digit

#include <conio.h>

#include <stdio.h>

{

clrscr();

int n;

printf ("Enter a number");

scanf ("%d", &n);

sum(n);

getch();

}

void sum(int n)

{

int r, s=0;

while (n!=0)

{

r=n%10;

s=s+r;

n=n/10;

}

printf ("The sum of digits is %d", s);

Prog 3:

#include <stdio.h>

#include <conio.h>

void sum(int n1, int n2);

void main()

{

Output

Enter a number 13

The sum of digits is 4

18

Output

Enter two numbers : 7, 8

sum of two numbers is 15

61

```

int n1, n2;
printf("Enter 2 numbers:");
scanf("%d %d", &n1, &n2);
sum(n1, n2);
getch();
}

void sum(int n1, int n2)
{
    int a;
    a = n1 + n2
    printf("sum of 2 numbers is %d", a);
    getch();
}

```

prog 4: To calculate the total and avg of marks

```

#include <stdio.h>
#include <conio.h>
void average (int t);
void total (int m1, int m2, int m3, int m4);
Void main()
{
    int a, b, c, d;
    printf("Enter 4 subjects 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)

```

61

```
int tot;  
tot = m1 + m2 + m3 + m4;  
printf ("The total is %d", tot);  
average (tot);  
{  
    void average (int tot)  
    {  
        float avg;  
        avg = tot / 4  
        printf ("Average is %f", avg);  
    }  
}
```

prog 5: To find the factorial

```
#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 ("Factorial of %d is %d", x, fact);  
    getch();  
  
int factorial (int n)  
int f;
```

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```
if (n == 1)  
else  
f = n * factorial (n - 1);  
return (f);  
}
```

Output

Enter 4 subjects marks 23
84
78.98
56

The total is 91
Average is 22.75.

Output

Enter a number 3
Factorial of 3 is 6

100% ✓

Practical: 8

63

Aim: Programs on Structure

Program 1: Student Structure.

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

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

```
struct student
```

```
{
```

```
    int rollno;
```

```
    char name[20];
```

```
    int total;
```

```
};
```

```
void main()
```

```
{
```

~~struct student x;~~~~clrscr();~~~~printf("Enter RollNo:");~~~~scanf("%d", &x.rollno);~~~~printf("\nEnter Name:");~~~~scanf("%s", &x.name);~~~~printf("\nEnter Total:");~~~~scanf("%d", &x.total);~~~~printf("\n Student Name: %s", x.name);~~~~printf("\n RollNo: %d", x.rollno);~~~~printf("\n Total: %d", x.total);~~~~getch();~~~~{}~~

Program 2:- Employee

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

void main()
{
    struct employee n, y;
    printf("\nEnter emo and salary:");
    scanf("%d %d", &n.emo, &n.salary);
    printf("\nEnter emo and salary:");
    scanf("%d %d", &y.emo, &y.salary);
    if(n.emo == y.emo & n.salary == y.salary)
        printf("both are equal.");
    else
        printf("both are not equal.");
    getch();
}
```

Output:

1.) Enter emo and salary: 23
455 555

Enter emo and salary : 3444
455 55
both are not equal

2.) Enter emo and salary: 23
45
Enter emo and salary: 23
45
both are equal.

13

Enter name, price, & qty: apple

45

56

banana

89

56

grapes

34

23

65

Program 3: fruit

#include <stdio.h>

#include <conio.h>

struct fruit

{

char name [20];

int price, qty, total;

}

Void main()

{

struct fruit f[5];

int k;

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();

}

~~#~~ Program 4 - 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 i;
    struct employee s = {22, "Akash", 5000};
    printf("\n Rollno = %d \t Name = %s \t
           salary = %d", s.id, s.name, s.salary);
    getch();
}
```

~~#Output~~

~~Rollno: 22~~

~~Name: Akash~~

~~salary: 500~~

66

66

Output:-
Enter records of 5 players

Team	Player	Names
MS Dhoni	India	100
Virat	India	100
Rohit	India	100
Shikhar	India	100
Rahane	India	100

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Programs:- Cricketers & their name

```
#include < stdlib.h >
```

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

```
#include < string.h >
```

```
struct cricket
```

```
{
```

```
char pname [20], tname [20];
```

```
int average;
```

```
};
```

```
void main()
```

```
{
```

```
struct cricket p[5].t;
```

```
int i, k, x;
```

```
printf ("\n Enter records of 5 players . . .");
```

```
for (i=0; i<4; i++)
```

```
{ scanf ("\n %s %d \n", &p[i].name, &p[i].tname,
```

```
&p[i].average)}
```

```
{ for (k=i+1; k<5; k++)
```

```
(x = strcmp (p[i].tname, p[k].tname));
```

```
if (x>0)
```

```
{ t = p[i];
```

```
p[i] = p[k];
```

```
p[k] = t; } } }
```

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

```
for (i=0; i<5; i++)
```

```
{ printf ("\n %s %s %d \n", p[i].pname, p[i].tname,
```

```
p[i].average);
```

```
}
```

```
 getch();
```

Practical no: - 9

Aim :- Programs on pointers

~~Program 1~~

```
#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();
}
```

Output

a=12
b=4
x=42
y=42

80

Output
Sum = 150

Output
X = 30

69

#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();
}

#Program 3. Pointer as function:
#include <stdio.h>
#include <conio.h>
Void change(int *p);
void main()
{
 clrscr();
 int x = 20;
 change(&x);
 printf ("\\n x = %d", x);
 getch();
}

Q3

```

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

Program 4
#include <stdio.h>
#include <conio.h>
Void exchange (int *a, int *b);
Void main()
{
    int x, y;
    x = 10;
    y = 20;
    printf ("Before exchange x=%d y=%d", x, y);
    exchange (&x, &y);
    printf ("\n After exchange x=%d y=%d", x, y);
    getch();
}

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

```

Output

before exchange $x=10$
 after exchange $x=20$
 ~~$y=20$~~
 ~~$y=10$~~

~~for~~
~~25/2~~

Output

Opening the file test.c in write mode

~~Enter some text from keyboard to write in file~~
closing the file test.c

Practical 10

Ques: Programs on file handling.

Prog 1: Open file → write and 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");
    getch();
    printf ("\nEnter some text from keyboard:");
    while (scanf ("%s", data)) {
        fputs (data, fp);
        fputs ("\n", fp);
    }
    printf ("Closing the file test.c");
    fclose (fp);
    getch();
}
```

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Prog 2: fscanf() : fprintf(), ftell(), rewind() function

```
#include <stdio.h>
int main()
{
    char name[20];
    int age, length;
    FILE *fp;
    fp = fopen("text.txt", "w");
    fprintf(fp, "%s.%d", "AkashSharma", 5);
    length = ftell(fp);
    rewind(fp);
    fscanf(fp, "%d", &age);
    fscanf(fp, "%s", &name);
    fclose(fp);
    printf("Name: %s \nAge: %d \n", name, age);
    printf("Total number of char in file is %d", length);
    return 0;
}
```

72

Name: Akash Sharma

Age: 21

Total no of character in file is 11

89
✓ done