

```

area = l * b;
printf("The area of rectangle %d", area);
getch();
}
    
```

Output:
Enter length and breadth 7 3
The area of rectangle 21

Practical No: 1

Aim:- Program to understand the frame datatype and input / output

Program 1: Area of rectangle

Algorithm:

Step 1: Initialize three variable for length, breadth, Area

Step 2: Take a input from a user & store the value in the value in the variable de

Step 3: Find the area of rectangle

Step 4: Print the area of rectangle

Step 5: End

Code:-

```

#include <stdio.h>
#include <conio.h>
void main()
{
    int l, b, are;
    clrscr();
    printf("Enter length and breadth");
    scanf("%d %d", &l, &b);
    are = l * b;
    printf("The area of rectangle %d", are);
}
    
```

Output

Enter the radius ?
volume of sphere 1436.026733

Practical 1.

Prog 2: Volume of sphere

```
# include < stdio.h>
# include < conio.h>
void main()
{
    float pi, r, vol
    pi = 3.14
    clrscr();
    printf("Enter the radius");
    scanf("%f", &r);
    vol = 40/30 * pi * r * r * r;
    printf("The volume of sphere:", vol);
    getch();
}
```

Prog 3

```
#include <stdio.h>
#include <conio.h>
void main()
{
    float x,y,z,avg;
    clrscr();
    printf("Enter three no: ");
    scanf("%f %f %f", &x, &y, &z);
    avg = (x+y+z)/3;
    printf("The average of three numbers.", avg);
    getch();
}
```

Output

Enter three number 3 10 50
The average of three no. 21

Output
 enter the value of celsius 31
 The farenheit is 87.8

prog 4

void main()

{

float c, f;
 clrscr();

printf("Enter the value of celsius");

scanf("%f", &c);

f = (c * 9/5) + 32;

printf("The farenheit is : ", f);

getch();

prog 5

void main()

{

float c, f;

clrscr();

printf("Enter the value of farenheit");

scanf("%f", &f);

c = (9.0 / 5.0) * (f - 32)

getch();

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Practical 2

Aim:- Programs and operators and expression

Program 1:

Algorithm

Step 1: Initialize four variable with datatype int

Step 2: clear screen

Step 3: Store the value 25 in a and 10 in b

Step 4: Print the value of a & b

Step 5: Do the expression $c = ++a - b$

Step 6: Do post increment b and add to a, store it in d

Step 7: Print the value of a, b, c, d

Step 8: Do a%b and store in c

Step 9: Do a/b and store in d

Step 10: Print the value of c and d

```
#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)
```

Output:- a= 25, b= 10

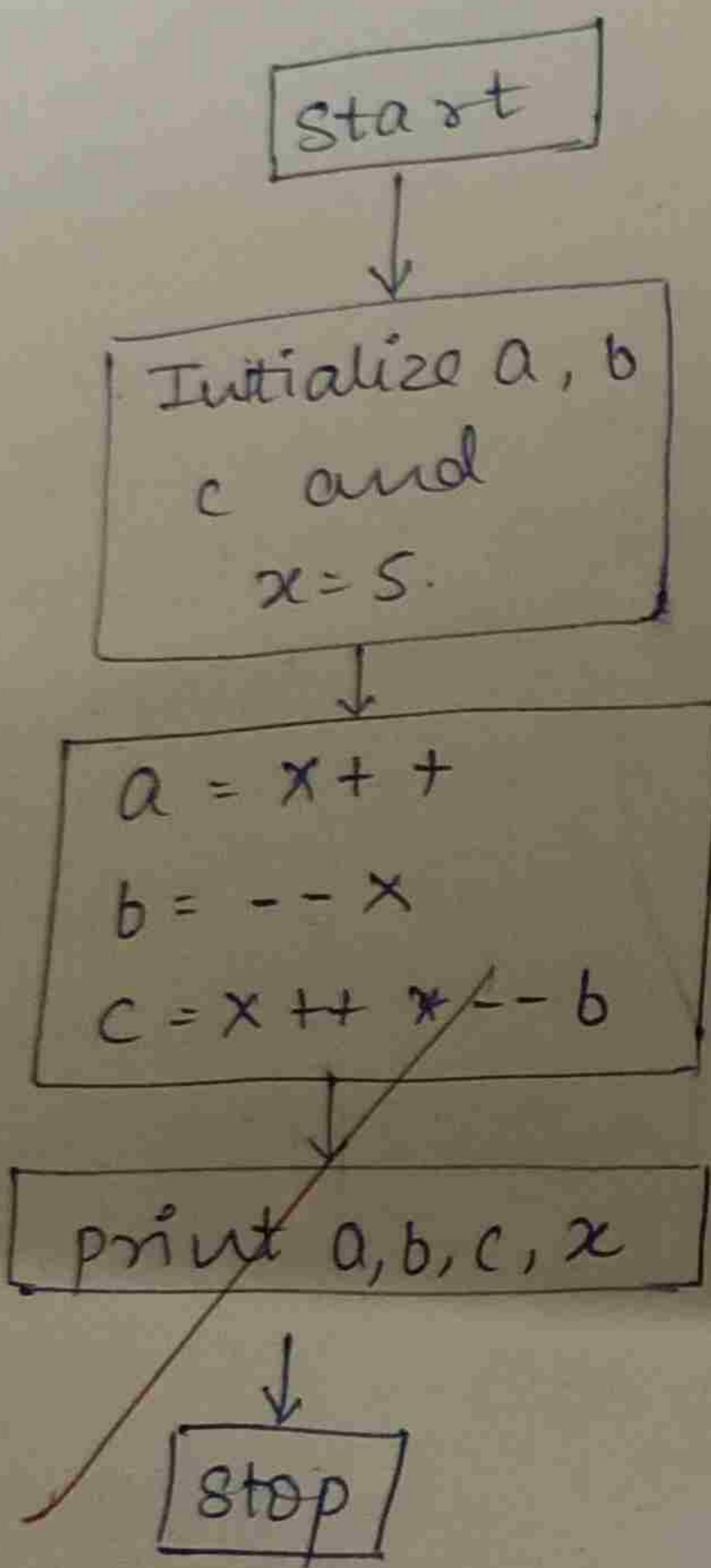
a = 26, b=11, c=16, d= 36

c = 16, d= 2

Output

Program 4

$$a=5, b=4 \quad c=20 \quad x=6$$



Program 2:

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    clrscr ();
    int x=5, a,b,c
    a = x++;
    b = --x;
    c = x++ * --b;
    printf ("\n a=%d b=%d c=%d x=%d", a,b,c,x);
    getch ();
}
```

Program 3:

```
void main ()
{
    int a, b, c, ans;
    clrscr ();
    a = 6; b = 4; c = 1;
    ans = ++a && b++ || c++;
    printf ("a=%d, b=%d, c=%d, ans=%d", a,b,c,ans);
    getch ();
}
```

Practical 3

Aim: Program on decision making and draw
Prog 1: check whether no. is odd or even

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    int n, r;
    printf("Enter 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();
}
```

Prog 2: leap year or not

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    int x, y;
```

printf("Enter the year");

Output:

Enter value of n : 12

12 is even

Enter value of n : 51

51 is odd

* Output

Enter the year 2001
2001 is not a leap year

Enter the year 2004
2004 is a leap year

* Output

Enter the alphabet : i
i is a vowel

Enter the alphabet : S.
S is a consonant

scanf ("%d", &y);

x = y % 4

if (x == 0)

printf ("\n %d is a leap year", y);

else

printf ("\n %d is not a leap year", y);

getch ();

}

Prog 3: vowel or consonant

#include <stdio.h>

#include <conio.h>

void main ()

{

char ch;

printf ("In 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 ("\n %c is a vowel ", ch);

}

else

printf ("\n %c is a consonant", ch);

getch ();

}

No. HS
Prog 4: Print largest of 3 no using nested

```
#include <stdio.h>
#include <conio.h>
void main ()
{
    int a, b, c;
    printf ("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);
    }
}
```

output

Enter value of a,b,c: 5 9 1
9 is largest

Prog 5:

Unit consumed

1-100

101-200

201-300

300 and above

Rate

Rs 2 per unit

Rs 200 + Rs 4 per unit f abo

Rs 600 + Rs 5 per unit f ab

Rs 1100 + Rs 7 per unit f ab

include <stdio.h>

include <stdio.h>

void main ()

{

int cho, unit, amount;

print f("Enter customer no f unit consumed")

scanf ("%d %d", &cho, &unit);

if (unit <= 100 f f unit > = 0)

amount = unit * 2;

}

else if (unit <= 200 f f unit > 100)

{

amount = 200 + (unit - 100) * 4;

}

else if (unit <= 300 f f unit > 200)

{

amount = 600 + (unit - 200) * 5;

}

else if (unit > 300)

No.

```

1    amount = 100 + (unit - 300) * 7;
2
3
else
{
printf ("In error");
3
printf ("In customer no : %d", cno);
printf ("In units consumed : %d", unit);
printf ("In bill amount : %.d" amount);
getch();
3

```

Prog 7:- Program to perform addition , subtraction , multiplication and division using switch (cost)

```

#include <stdio.h>
#include <conio.h>
void main ()
{
int a,b,r,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);
3
switch (choice)
{

```

Output

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Exit

~~Enter your choice=3~~

Enter value of a & b: 5

$$10 \\ 5 * 10 = 50$$

output

2
4
6
8
10
.
100

Practical No. 4

Aim:- Programs to understand looping structure

⇒ while loop

Prog 1: even no. from 1 to 100

```
# include <stdio.h>
# include <conio.h>
void main()
{
    int i, r
    i = 1
    while (i <= 100)
    {
        r = i % 2
        if (r == 0)
            printf("%d", i);
        i++;
    }
    getch();
}
```

Prog 2: print no. from 1 to n which is divisible by 7

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

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

```
void main()
```

```
{
```

```
int i,n,r
```

```
printf("Enter value of n: ")
```

```
scanf("%d", &n);
```

```
i=1
```

```
while (i<=n)
```

```
{
```

```
r=i%7;
```

```
if (r==0)
```

```
printf("7.d", i);
```

```
}
```

```
i++;
```

```
}
```

```
getch();
```

output

7

14

21

28

35

42

49

56

63

70

Output

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

Prog 3: Prog to obtain the following output:

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

```
#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 ();
}
```

Prog 4: Write a program to print following output

```

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

```

#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

```

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

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Practical 5.

Do while

Prog 1: Print sum of all even numbers between 1 to n

include <stdio.h>

include <conio.h>

void main()

{

int i, n, r, s;

printf ("\n Enter value of n");
scanf ("%d", &n);

i=1

s=0

do

{

r = i % 2

if (r == 0)

s = s + i;

}

++i;

}

while (i <= n);

printf ("\n sum of all even number between 1 to
n, s);

getch();

}

For loop

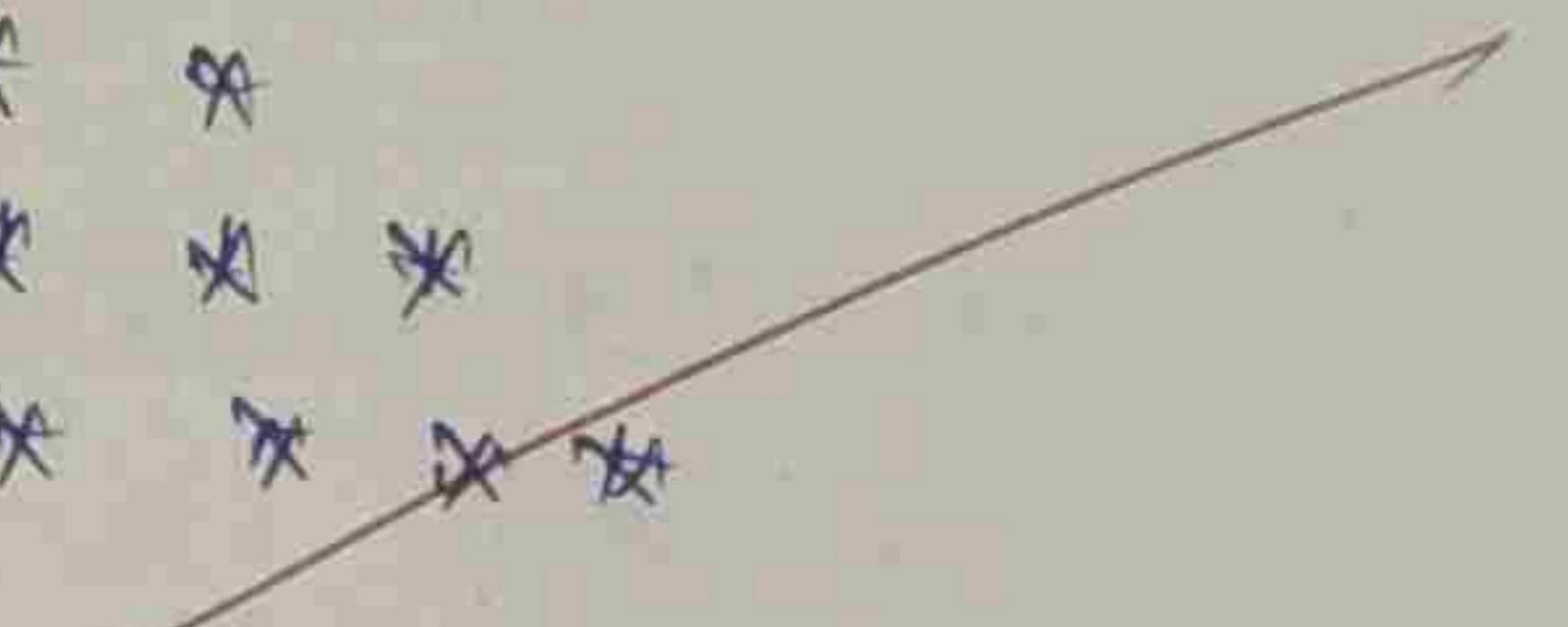
Prog 1: Obtain following output

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

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

Output

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



prog 2: Print following output:

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

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

Prog 3: fibonacci series for first 20 terms

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

output

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

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output

Enter text of word: My name is aachal

Word1 = My

Word2 = name

Word3 = is

Word4 = aachal

Output

p
a
r
i
s

Aim : Program using string function

Prog 1: To read string of words using scanf();

include <string.h>

include <stdio.h>

include <conio.h>

void main ()

{

char w1[20], w2[20], w3[20], w4[20]

printf ("In Enter text of words:");

scanf ("%s %s %s %s", &w1, &w2, &w3, &w4);

printf ("In word1 = %s", w1);

printf ("In word2 = %s", w2);

printf ("In word3 = %s", w3);

printf ("In word4 = %s", w4);

getch();

}

Prog 2: Read line of text using putchar

include <stdio.h>

include <conio.h>

include <string.h>

void main ()

{

char city [6] = "Paris"

int k ;

for (k=0, k<5; k++)

```

{
    putchar(city[K]);
    printf("\n");
}
getch();

```

Prog 3: Read line of text using gets()

```

#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
    char l[20]
    printf("In Enter line of text:");
    gets(l);
    puts(l);
    getch();
}

```

output

~~Enter line of text: Hello world~~
~~Hello word~~

Output

Enter line of text : My name is shinchan

My name is shinchan

prog 4: Read line of text using getchar()

```
# include < stdio.h>
# include < conio.h>
# include < string.h>
void main()
{
    char l[80], p;
    int k = 0;
    printf ("\n Enter line of text:");
    do {
        p = getchar();
        l[k] = p;
        ++k;
    } while (p != '\n');
    --k;
    l[k] = '\0';
    printf ("\n %.8s", l);
    getch();
}
```

Prog 5: Reverse a string using `strrev()`

```
#include <stdio.h>
#include <conio.h>
#include <string.h>
void main()
{
    char h[10];
    printf("In Enter string : ");
    scanf("%s", h);
    strrev(h);
    printf("In Reverse string : %s", h);
    getch();
}
```

Output :-

Enter string: Hello
reverse string: olleH

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~~03~~

100

Output:

Enter value of r = 5,

Area = 78.500000.

Circumference = 31.40000000

Digit in Practical 7

Part 3: A program using user-defined function

Aim: Programs using USER-defined function

Prog 1: Area & circumference of a circle

include <stdio.h>

include <conio.h>

void circle (void);

void main ()

{

circle ();

getch ();

}

void circle (void)

{

int r;

float a, c;

printf ("Enter value of r: ");

scanf ("%d", &r);

area = 3.14 * r * r;

circum = 2 * 3.14 * r;

printf ("\n Area = %.2f", area);

printf ("\n circumference = %.2f", circum);

getch ();

}

Prog 2: Write a C prog to find Print digit of the entered numbers

```
#include <stdio.h>
#include <conio.h>
int get_n(void);
void main()
{
    clrscr();
    int m;
    m = get_n();
    printf("Entered num = %d", m);
    getch();
}

int get_n(void)
{
    int get_num
    printf("Enter num = ");
    scanf("%d", &num);
    return (num);
}
```

Output

Enter num = 5

~~Entered num = 5~~

Prog. 3:- sum of digits of enter numbers.

Output
Enter number : 31
sum of digit = 4

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

```
void abc (int n)
{
```

```
    int r, s = 0;
    while (n != 0)
{
```

```
    r = n % 10;
    s = s + r;
    n = n / 10
}
```

```
printf ("sum of digits = %d", s);
}
```

Prog 4: Average of 3(entered number)

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

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

```
void average(int sum);
```

```
void sum(int a, int b, int c)
```

```
void main()
```

```
{
```

```
clrscr()
```

```
int x, y, z;
```

```
printf("In enter value of x,y,z");
```

```
scanf("%d %d %d", &x, &y, &z);
```

```
sum(x, y, z)
```

```
getch();
```

```
}
```

```
void sum (int a, int b, int c)
```

```
{ int s;
```

```
s = a+b+c;
```

```
average (s)
```

```
}
```

```
void average (int sum)
```

```
{
```

```
float avg;
```

```
avg = sum/3.0;
```

```
printf("In Average: %.2f", avg);
```

```
}
```

Output

Enter value of x,y,z : 4,6,9
 Average = 6.333333

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Practical No. 8

Aim: Programs on structure

Prog 1: Student structures

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

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

```
struct student
```

```
{
```

```
int rollno;
```

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

```
int total;
```

```
}
```

```
void main()
```

```
{
```

```
struct student x;
```

```
clrscr();
```

```
printf ("In Enter name, rollno & total of student");
```

```
printf ("%d %s %d", &x.rollno, &x.name, &x.total);
```

```
printf ("Rollno = %d", x.rollno);
```

```
printf ("\n Name = %s", x.name);
```

```
printf ("\n Total = %d", x.total);
```

```
getch();
```

Output

Enter roll no, name & total of student : 1837
payal
100

Roll no=1837
Name=payal
Total=100

Prog 2 Employee comparison

```
#include <stdio.h>
#include <conio.h>
struct employee
{
    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();
}
```

OUTPUT

Enter eno and salary: 5 20000
 Enter eno and salary: 5 20000
 both are equal

Enter eno and salary: 3 15000
 Enter eno and salary: 4 25000
 both are unequal

	name	price	qty
Enter			
apple	apple	20	5
mango	mango	15	3
banana	banana	50	9
cherry	cherry	30	7
grapes	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

```

# Program 3: Fruit structure
#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();
}

```

```

Prog 4: Cricketers & their teams
#include <stdio.h>
#include <conio.h>
#include <string.h>
struct cricket
{
    char pname[20], tname[20];
    float average;
};

void main()
{
    clrscr();
    struct cricket p[5], t;
    int i, k, x;
    printf("Enter records of 5 players:");
    for(i=0; i<5; i++)
    {
        scanf("%s %s %f", &p[i].pname, &p[i].tname, &p[i].average);
    }
    for(i=0; i<4; i++)
    {
        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("Teamwise players name\n");
    for(i=0; i<5; i++)
    {
        printf("%s %s %f\n", p[i].pname, p[i].tname, p[i].average);
    }
    getch();
}

```

output

Enter records of 5 players

MS Dhoni	India	100
Virat	India	100
Rohit	India	100
Sikhar	India	100
Rahane	India	100

Teamwise	Players
MS Dhoni	India
Virat	India
Rohit	India
Sikhar	India
Rahane	India

OUTPUT

Roll no. 22 Name=Prakash

salary = 500

53

Prog 5 :- Structure within structure

includes < stdio.h >

includes < conio.h >

struct employee

{

int salary;

};

struct employees

int id;

char name[10];

struct employee b2;

};

void main ()

{

struct employee s={22,"prakash",500};

printf("IN Roll no = %d It Name = %s It salary %d",
id , s.name, s.b2.salary);

getch();

}

by
03/03

Practical No:-9

Aim: Programs on pointers in C-languages

prog1:

```
#include <stdio.h>
#include <conio.h>
void main()
{
    clrscr();
    int a=12, b=4, x, y, *p, *q;
    p = &a;
    q = &b;
    x = *p, *p = 0;
    y = 4 * (*p - *q) + 10;
    printf ("In a=%d", a);
    printf ("In b=%d", b);
    printf ("In x=%d", x);
    printf ("In y=%d", y);
    getch();
}
```

Output

a = 12

b = 4

x = 42

y = 42

)

Output

sum = 150

7

#prog 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("In sum = %d", sum);
 getch();
}

Prog 3: Pointers as function argument

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

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

Output

x=30

Output

Before exchange $x=10$ $y=20$
 After exchange $x=20$ $y=10$

Prog 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 (); y
}

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

By
03/03

Practical No: 10

Aim: Programs on file handling

program 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 in write mode");
return 1;
printf("\n Enter some text from keyboard to write
in file:");
while (strlen(gets(data))>0)
{ fputs(data,fp);
fputs ("In",fp);}
printf("closing the file test.c");
fclose (fp);
return 0;}
```

Output

opening one file test.c in write mode
Enter some text from keyboard to write in
file test.c

~~Hi, how you doing?
using the file test.c~~

Output

Name : Fresh & refresn

Age : 5

Total numbers of character in file is 15

Prog 2: Using putw() & getw() functions

```
# include <stdio.h>
int main()
{ FILE *fp;
int i=1, j=2, k=3, num;
fp = fopen ("test.c", "w");
putw (i, fp);
putw (j, fp);
putw (k, fp);
fclose (fp);
fp = fopen ("test.c", "r");
while (getw (fp) != EOP)
```

Prog 3: fscanf(), fprintf(), ftell(), rewind() functions

```
#include <stdio.h>
int main()
{
    char name[20]
    int age, length;
    FILE *fp;
    fp = fopen ("text.txt", "w");
    fprintf(fp, "%s%d", "Fresh2refresh", 5);
    length = ftell(fp);
    rewind(fp);
    fscanf(fp, "%d", &age);
    fscanf(fp, "%s", &name);
    fclose(fp);
    printf("Name : %s in Age : %d in ", name, age);
    printf("Total number of characters in file is %d", length);
    return 0;
}
```

Output

Name: Fresh2refresh

Age 5

Total number of characters in file is 5

8
03/03