1. Write a recursive function to calculate sum of first N natural numbers

```
#include<stdio.h>
int sum(int n)
{
   if(n==1)
      return 1;
   return (n+sum(n-1));
}
int main()
{
   int n= 9;
   sum(9);
   printf("%d",sum(9));
}
```

2. Write a recursive function to calculate sum of first N odd natural numbers

```
#include<stdio.h>
int sum(int n)
{
   if(n==1)
      return 1;
   return (2*n-1)+sum(n-1);
}
int main()
{
   int n= 8;
   sum(8);
   printf("%d",sum(8));
}
```

3. Write a recursive function to calculate sum of first N even natural numbers.

```
#include<stdio.h>
int sum(int n)
{
   if(n==1)
      return 2;

   return (2*n)+sum(n-1);
}
int main()
{  int n;
  printf("Enter a number;\n");
  scanf("%d",&n);
   sum(n);
   printf("Sum of %d even numbers is:\n",n);
   printf("%d",sum(n));
}
```

4. Write a recursive function to calculate sum of squares of first n natural numbers

```
#include<stdio.h>
int sum(int n)
{
   if(n==1)
      return 1;
   return (n*n)+sum(n-1);
}
int main()
{  int n;
  printf("Enter a number;\n");
  scanf("%d",&n);
   sum(n);
```

```
    printf("Sum of square of %d natural numbers is:\n",n);
    printf("%d",sum(n));
}
```

5. Write a recursive function to calculate sum of digits of a given number

```
#include<stdio.h>
int sum(int n)
{
    if(n%10==1)
        return n;
    return (n%10)+sum(n/10);
}
int main()
{  int n;
   printf("Enter a number;\n");
   scanf("%d",&n);
    sum(n);
    printf("Sum of number digit %d is:\n",n);
    printf("%d",sum(n));
}
```

6. Write a recursive function to calculate factorial of a given number

```
 #include<stdio.h>
int fact(int n)
{
    if(n==1)
        return 1;
    return n*fact(n-1);
}
int main()
{  int n;
```

```
   printf("Enter a number;\n");
   scanf("%d",&n);
    fact(n);
    printf("Fcatorial of %d is:\n",n);
    printf("%d",fact(n));
}
```

7. Write a recursive function to calculate HCF of two numbers

```
#include<stdio.h>
int HCF(int n1,int n2)
{
    if(n2==0)
       return n1;
    return HCF(n2,n1%n2);
}
int main()
{  int n1,n2;
   printf("Enter two number\n");
   scanf("%d %d",&n1,&n2);
    printf("HCF = %d",HCF(n1,n2));
    return 0;
}
```

8. Write a recursive function to print first N terms of Fibonacci series

```
#include<stdio.h>
int fib(int n)
{
    if(n==1||n==2)
    return 1;
    return fib(n-1)+fib(n-2);
}
```

```
int main()
 {
   int n,i;
       printf("Enter a number:\n");
       scanf("%d ",&n);
 {
    for(i=1;i<=n;i++)
        printf(" %d ",fib(i));}
 }
}
```

9. Write a program in C to count the digits of a given number using recursion.

```
#include<stdio.h>
int count(int n,int c)
{
   if(n==0)
       return c;
   else
       count(n/10,c+1);
}
int main()
{ int n;
   printf("Enter a number:\n");
   scanf("%d",&n);
   printf("Count = %d",count(n,0));
   return 0;
}
```

10. Write a program in C to calculate the power of any number using recursion.

```
#include<stdio.h>
int pow(int n,int m)  //n menas number and m means power
```

```
{
   if (m==1)
   return n;
return n*pow(n,m-1);
}
int main()
{  int n,m;
   printf("Enter the no. and power\n");
   scanf("%d %d",&n,&m);
   printf("Sum = %d",pow(n,m));
}
```