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

Ans #include<stdio.h>

int sum (int n)

{

if(n==1)

return 1;

return(n+sum(n-1));

}

int main()

{

int n;

printf("Enter a Number : ");

scanf("%d",&n);

printf("%d",sum(n));

return 0;

}

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

Ans #include<stdio.h>

int sumodd (int n)

{

if(n==1)

return 1;

return((2\*n-1)+sumodd(n-1));

}

int main()

{

int n;

printf("Enter a Number : ");

scanf("%d",&n);

printf("%d",sumodd(n));

return 0;

}

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

Ans #include<stdio.h>

int sumeven (int n)

{

if(n==0)

return 0;

return((2\*n)+sumeven(n-1));

}

int main()

{

int n;

printf("Enter a Number : ");

scanf("%d",&n);

printf("%d",sumeven(n));

return 0;

}

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

Ans #include<stdio.h>

int sumsqnatural (int n)

{

if(n==0)

return 0;

return((n\*n)+sumsqnatural(n-1));

}

int main()

{

int n;

printf("Enter a Number : ");

scanf("%d",&n);

printf("%d",sumsqnatural(n));

return 0;

}

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

Ans #include<stdio.h>

int sumdigt(int n)

{

if(n==0)

return 0;

return((n%10)+sumdigt(n/10));

}

int main()

{

int n;

printf("Enter a Number : ");

scanf("%d",&n);

printf("%d",sumdigt(n));

return 0;

}

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

Ans #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 : ");

scanf("%d",&n);

printf("%d",fact(n));

return 0;

}

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

Ans #include<stdio.h>

int hcf(int a,int b)

{

if(b==0)

return a;

hcf(b,a%b);

}

int main()

{

int a,b,HCF=0;

printf("Enter two Numbers : ");

scanf("%d%d",&a,&b);

if(a>b)

{

HCF=hcf(b,a%b);

printf("%d",HCF);

}

else

{

HCF=hcf(a,b%a);

printf("%d",HCF);

}

return 0;

}

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

Ans #include<stdio.h>

int fib(int n)

{

if(n==0 || n==1)

return n;

return fib(n-1) + fib(n-2);

}

int main()

{

int n,i;

printf("Enter a Number : ");

scanf("%d",&n);

for(i=0;i<n;i++)

printf("%d ",fib(i));

return 0;

}

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

Ans #include<stdio.h>

int digit(int n)

{

static int count=0;

if(n>0)

{

count++;

digit(n/10);

}

else

{

return count;

}

}

int main()

{

int n,count=0;

printf("Enter a Number : ");

scanf("%d",&n);

count=digit(n);

printf("Total digit is %d ",count);

return 0;

}

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

Ans include<stdio.h>

int pow(int b, int p)

{

if(p==0)

return 1;

return (b\*pow(b,p-1));

}

int main()

{

int b,p,r;

printf("Enter a Number: ");

scanf("%d",&b);

printf("\n Enter power: ");

scanf("%d",&p);

r=pow(b,p);

printf("Result=%d",r);

return 0;

}