Assingmnet 13

}ooooop ?????? More on Recursion in C Language

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

Solve -

#include<stdio.h>

int sum(int n);

int main()

{

printf("%d\n",sum(5));

return 0;

}

int sum(int n){

if(n>0){

return n+ sum(n-1);

}

}

Output-

15

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

Solve -

#include<stdio.h>

int sum( int n);

int main()

{

printf("%d\n",sum(5));

return 0;

}

int sum( int n){

if(n>0){

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

}

}

Output -

25

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

#include<stdio.h>

int sum( int n);

int main()

{

printf("%d\n",sum(5));

return 0;

}

int sum( int n){

if(n>0){

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

}

}

Output

30

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

Solve -

#include<stdio.h>

int sum( int n);

int main()

{

printf("%d\n",sum(5));

return 0;

}

int sum( int n){

if(n>0){

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

}

}

Output -

55

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

Solve -

#include<stdio.h>

int sum( int n);

int main()

{

printf("%d\n",sum(1234));

return 0;

}

int sum( int n){

if( n>0){

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

}

}

Output –

10

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

#include<stdio.h>

int fact( int n);

int main()

{

printf("%d\n",fact(5));

return 0;

}

int fact( int n){

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

return 1;

return n \* fact( n-1);

}

Output –

120

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

Solve -