Assignment 12

Recursion in C Language

Que : 1 Write a recursive function to print first N natural numbers

```c
#include<stdio.h>

int print(int n){

    if(n==0)
    return 1 ;


    print(n-1);
    printf("%d",n);

}

int main(){

    int x;
    printf("eneter a number");
    scanf("%d",&x);
     print(x);return 0;

}
```

Que : 2 Write a recursive function to print first N natural numbers in reverse order

```c
#include<stdio.h>

int print(int n){

    if(n==0)
    return 1 ;



    printf("%d",n);
    print(n-1);

}
```

```c
int main(){

    int x;
    printf("eneter a number");
    scanf("%d",&x);
     print(x);return 0;

}
```

Que : 3 Write a recursive function to print first N odd natural numbers

```c
#include<stdio.h>

void oddnumber(int i ,int n ){


    if(i == n){

        printf("%d",i);
        return;
    }
    else{

  printf("%d",i);
  return oddnumber(i+2,n);
    }

}

int main(){

    int x ,num;
    printf("eneter 2 number");
    scanf("%d%d",&x,&num);
     oddnumber(x,num);
     return 0;

}
```

Que : 4 Write a recursive function to print first N odd natural numbers in reverse order

```c
#include<stdio.h>

void oddnumber(int n ,int i ){


    if(n == i){
```

```c
        printf("%d",n);
        return;
    }
    else{
        printf("%d ",n);
    return oddnumber(n-2,i);

    }

}

int main(){

    int x ,num;
    printf("eneter 2 number");
    scanf("%d%d",&x,&num);
     oddnumber(x,num);
     return 0;

}
```

Que : 5 Write a recursive function to print first N even natural numbers

```c
#include<stdio.h>

void evennumber(int i ,int n ){

    if(i == n){

        printf("%d",i);
        return;
    }
    else{
        printf("%d ",i);
    return evennumber(i+2,n);

    }

}

int main(){

    int x ,num;
    printf("eneter 2 number");
    scanf("%d%d",&x,&num);
     evennumber(x,num);
```

```c
    return 0;

}
```

Que -6 Write a recursive function to print first N even natural numbers in reverse order

```c
#include<stdio.h>

void evennumber(int n ,int i ){


    if(n == i){

        printf("%d",i);
        return;
    }
    else{
        printf("%d ",n);
    return evennumber(n-2,i);


    }

}

int main(){

    int x ,num;
    printf("eneter 2 number");
    scanf("%d%d",&x,&num);
     evennumber(x,num);
      return 0;

}
```

Que : 7 Write a recursive function to print squares of first N natural numbers

```c
#include<stdio.h>

void square(int i , int n){
    if( n == i){
        printf("%d",i*i);
        return;
    }
    else{
        printf("%d ",i*i);
        return square(i+1,n);
```

```c
        }

}

int main(){

    int x,num;
    printf("enter numbers ");
    scanf("%d%d",&x,&num);

    square(x,num);
    return 0;



}
```

Que :8 Write a recursive function to print binary of a given decimal number

```c
#include<stdio.h>

int decitobin(int n){

    if(n==0){
        //printf("%d",n);
        return 0 ;
    }
    else{

        return (n%2+10 * decitobin(n/2));

    }

}

int main(){

    int num;
    printf("enter numbers ");
    scanf("%d",&num);

    printf("%d", decitobin(num));
    return 0;
    }
```

Que : 9 Write a recursive function to print octal of a given decimal number.

```c
#include<stdio.h>
#include<math.h>
int OctalToDecimal(int n)
{
    static int decimal = 0, sem = 0;
    if(n!=0)
    {
    decimal=decimal+(n%10)*pow(8,sem);
    sem++;
    OctalToDecimal(n/10);
    }
   return decimal;
}
int main()
{
    int n;
    printf("Enter the Octal Value:");
    scanf("%d",&n);
    printf("Decimal Value of Octal number is: %d",OctalToDecimal(n));
}
```

Que : 10. Write a recursive function to print reverse of a given number.

```c
#include <stdio.h>
//#include <math.h>
 int rem ;
int sum  =0;


int reverse(int num){
  if(num){
    rem=num%10;
    sum=sum*10+rem;
    reverse(num/10);
  }
```

```c
    else
        return sum;
    return sum;
}

int main()
{
    int n;
    printf("enter a number : ");
    scanf("%d",&n);
    int result = reverse(n);
    printf("reverse of a number is :%d",result);

    return 0;
}
```