**Assignment - 10**

**Functions in C Language**

1. **Write a function to calculate the area of a circle. (TSRS)**

**Code**

#include<stdio.h>

#include <math.h>

float area (int);

int main() {

    float r=0,a;

    printf("Enter radius of circle:");

    scanf("%f",&r);

    a= area(r);

    printf("Area of circle is %.2f having the radius %.2f", a,r);

 return 0;

}

float area (int r) {

  return 3.14\*r\*r;

}

**Output**

**Enter radius of circle:7**

**Area of circle is 153.86 having the radius 7.00**

1. **Write a function to calculate simple interest. (TSRS)**

**Code**

#include<stdio.h>

#include <math.h>

float intrest (int,int,int);

int main() {

    float p,r,t,i;

    printf("Enter Principle :");

    scanf("%f",&p);

    printf("Enter Rate:");

    scanf("%f",&r);

    printf("Enter Time:");

    scanf("%f",&t);

    i= intrest(p,r,t);

    printf("the Intrest is %.2f", i);

 return 0;

}

float intrest (int p ,int r, int t) {

  return (p\*r\*t)/100.00;

}

**Output**

**Enter Principle :6**

**Enter Rate:7**

**Enter Time:8**

**the Intrest is 3.36**

1. **Write a function to check whether a given number is even or odd. Return 1 if the number is even, otherwise return 0. (TSRS)**

**Code**

#include<stdio.h>

int check\_even\_odd (int);

int main() {

    int n;

    printf("Enter a Number :");

    scanf("%d",&n );

    if(check\_even\_odd (n))

    printf("Number is even");

    else

    printf("Number is odd");

    return 0;

}

    int check\_even\_odd (int a)

    {

        if((a%2)==0)

           return 1;

      return 0;

    }

**Output**

**Enter a Number :5**

**Number is odd**

**Enter a Number :6**

**Number is even**

1. **Write a function to print first N natural numbers (TSRN)**

**Code**

#include<stdio.h>

void print\_num (int);

int main() {

    int n;

    printf("Enter last number had to print Natural number :");

    scanf("%d",&n);

    print\_num(n);

   return 0;

}

void print\_num (int n)

{

    int i;

    for ( i = 1; i <=n; i++)

   {

    printf("%d\n",i);

   }

}

**Output**

**Enter last number had to print Natural number :5**

**1**

**2**

**3**

**4**

**5**

1. **Write a function to print first N odd natural numbers. (TSRN)**

**Code**

#include <stdio.h>

 void print\_odd\_num(int);

int main()

{

   int n;

   printf("Enter number of terms : ");

   scanf("%d",&n);

   print\_odd\_num(n);

      return 0;

}

void print\_odd\_num(int n)

{

    int i;

   printf("The Odd numbers are : \n");

   for(i=1;i<=n;i++)

   {

     printf("%d\n",2\*i - 1);

   }

}

**Output**

**Enter number of terms : 5**

**The Odd numbers are :**

**1**

**3**

**5**

**7**

**9**

1. **Write a function to calculate the factorial of a number. (TSRS)**

**Code**

#include <stdio.h>

int factorial(int);

int main()

{

    int n,f;

printf("Enter a number For factorial:");

scanf("%d",&n);

 f= factorial(n);

 printf("Factorial of a number:%d",f);

return 0;

}

int factorial(int n)

 {

    int s=1;

     for(int i=n ; i>=1 ; i--)

     {

       s= s\*i;

     }

    return s;

 }

**Output**

**Enter a number For factorial:6**

**Factorial of a number:720**

1. **Write a function to calculate the number of combinations one can make from n items and r selected at a time. (TSRS)**

**Code**

#include <stdio.h>

int factorial(int);

int main()

{

    int n,c,r;

printf("Enter a number For items:");

scanf("%d",&n);

printf("Selected items:");

scanf("%d",&r);

 c= ( factorial(n) / ( factorial(n-r)\*factorial(r) ) );

 printf("Combination of (%d,%d):%d",n,r,c);

return 0;

}

int factorial(int n)

 {

    int s=1;

     for(int i=n ; i>=1 ; i--)

     {

       s= s\*i;

     }

    return s;

 }

**Output**

**Enter a number For items:5**

**Selected items items:4**

**Combination of (5,4):5**

1. **Write a function to calculate the number of arrangements one can make from n items and r selected at a time. (TSRS)**

**Code**

#include <stdio.h>

int factorial(int);

int main()

{

    int n,c,r;

printf("Enter a number For items:");

scanf("%d",&n);

printf("Selected items:");

scanf("%d",&r);

 c= ( factorial(n) / ( factorial(n-r) ) );

 printf("Permutation of (%d,%d):%d",n,r,c);

return 0;

}

int factorial(int n)

 {

    int s=1;

     for(int i=n ; i>=1 ; i--)

     {

       s= s\*i;

     }

    return s;

 }

**Output**

**Enter a number For items:5**

**Selected items:4**

**Combination of (5,4):5**

1. **Write a function to check whether a given number contains a given digit or not. (TSRS)**

**Code**

#include <stdio.h>

int check\_digit\_presnt\_in\_num (int n, int d);

int main()

{

   int n,d;

   printf("Enter number : ");

   scanf("%d",&n);

   printf("Enter digit to ckeck in number : ");

   scanf("%d",&d);

  if(check\_digit\_presnt\_in\_num(n,d))

   printf("Yes!! digit is present in given number");

  else

    printf("No!! digit is present in given number");

  return 0;

}

int check\_digit\_presnt\_in\_num (int n, int d)

{

    int a=0,i ;

     for(i=1;i<=1000000;i++)

   {

      a=n%10;

        if(a==d)

          return 1;

      n=n/10;

         if(n==0)

         {

            return 0;

            break;

         }

   }

}

**Output**

**Enter number : 23324**

**Enter digit to ckeck in number : 3**

**Yes!! digit is present in given number**

1. **Write a function to print all prime factors of a given number. For example, if the number is 36 then your result should be 2, 2, 3, 3. (TSRN)**

**Code**

#include <stdio.h>

void primefactor(int);

int main()

{

    int n;

printf("Enter a number For factorial:");

scanf("%d",&n);

 printf("Prime factors of %d : \n",n);

 primefactor(n);

return 0;

}

void primefactor(int n)

 {

     for(int i=2 ; i<=1000 ; i++)

     {

           if(n%i==0)

               {

                printf("%d, ",i);

                n=n/i;

                i=1;

               }

     }

 }

**Output**

**Enter a number For factorial:36**

**Prime factors of 36 :**

**2, 2, 3, 3,**