**Assignment - 10 A Job Ready Bootcamp in C++, DSA and IOT MySirG**

**Functions in C Language**

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

Sol – 1.

#include<stdio.h>

#include<conio.h>

float area(float);

int main()

{

float rad;

printf("Enter the radius of circle : ");

scanf("%f",&rad);

printf("Area : %f",area(rad));

getch();

return 0;

}

float area(float r)

{

return 3.14\*r\*r;

}

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

Sol – 2.

#include<stdio.h>

#include<conio.h>

float si(float,float,float);

int main()

{

float pr,rt,tm;

printf("Enter Principal, Rate(%%), Time(years) : ");

scanf("%f%f%f",&pr,&rt,&tm);

printf("Simple Interest : %f",si(pr,rt,tm));

getch();

return 0;

}

float si(float p, float r, float t)

{

return p\*r/100\*t;

}

3. Write a function to check whether a given number is even or odd. Return 1 if the

number is even, otherwise return 0. (TSRS)

Sol – 3.

#include<stdio.h>

#include<conio.h>

int even(int);

int main()

{

int x;

printf("Enter a number : ");

scanf("%d",&x);

printf("%d",even(x));

getch();

return 0;

}

int even(int n)

{

if(n%2==0)

return 1;

else

return 0;

}

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

Sol – 4.

#include<stdio.h>

#include<conio.h>

void natural\_number(int);

int main()

{

int x;

printf("Enter a number : ");

scanf("%d",&x);

natural\_number(x);

getch();

return 0;

}

void natural\_number(int n)

{

printf("First %d natural numbers are\n",n);

for(int i=1;i<=n;i++)

{

printf("%d\n",i);

}

}

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

Sol – 5.

#include<stdio.h>

#include<conio.h>

void odd\_number(int);

int main()

{

int x;

printf("Enter a number : ");

scanf("%d",&x);

odd\_number(x);

getch();

return 0;

}

void odd\_number(int n)

{

printf("First %d odd numbers are\n",n);

for(int i=1;i<=2\*n-1;i+=2)

{

printf("%d\n",i);

}

}

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

Sol – 6.

#include<stdio.h>

#include<conio.h>

int fact(int);

int main()

{

int x;

printf("Enter a number : ");

scanf("%d",&x);

printf("Factorial of %d is %d",x,fact(x));

getch();

return 0;

}

int fact(int n)

{

int fact=1;

for(int i=1;i<=n;i++)

{

fact\*=i;

}

return fact;

}

7. Write a function to calculate the number of combinations one can make from n items

and r selected at a time. (TSRS)

Sol – 7.

#include<stdio.h>

#include<conio.h>

int combination(int,int);

int main()

{

int x,y;

printf("Enter number of items and number of items being choosen at a time : ");

scanf("%d%d",&x,&y);

printf("Number of combinations are : %d",combination(x,y));

getch();

return 0;

}

int combination(int n, int r)

{

int fact\_n=1,fact\_r=1,fact\_nr=1,comb,i;

if(n-r>=r)

{

for(i=n;i>=n-r;i--)

{

fact\_n\*=i;

}

for(i=1;i<=r;i++)

{

fact\_r\*=i;

}

comb=fact\_n/(n-r)/fact\_r;

return comb;

}

else

{

for(i=n;i>=r;i--)

{

fact\_n\*=i;

}

for(i=1;i<=n-r;i++)

{

fact\_nr\*=i;

}

comb=fact\_n/r/(fact\_nr);

return comb;

}

}

8. Write a function to calculate the number of arrangements one can make from n items

and r selected at a time. (TSRS)

Sol – 8.

#include<stdio.h>

#include<conio.h>

int arrangement(int,int);

int main()

{

int x,y;

printf("Enter number of items and number of items being choosen at a time : ");

scanf("%d%d",&x,&y);

printf("Number of arrangements are : %d",arrangement(x,y));

getch();

return 0;

}

int arrangement(int n, int r)

{

int fact\_n=1,fact\_nr=1,arrang,i;

if(n>r)

{

for(i=1;i<=n;i++)

{

fact\_n\*=i;

}

for(i=1;i<=n-r;i++)

{

fact\_nr\*=i;

}

arrang=fact\_n/fact\_nr;

return arrang;

}

return 0;

}

9. Write a function to check whether a given number contains a given digit or not.

(TSRS)

Sol – 9.

#include<stdio.h>

#include<conio.h>

int numdig(int,int);

int main()

{

int x,y,z;

printf("Enter number and digit : ");

scanf("%d%d",&x,&y);

z=numdig(x,y);

if(z==1)

printf("Yes, number contains digit");

if(z==0)

printf("No, number does not contains digit");

getch();

return 0;

}

int numdig(int n, int d)

{

int a;

while(n)

{

a=n%10;

if(a==d)

{

return 1;

}

else

n/=10;

}

return 0;

}

10. 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)

Sol – 10.

#include<stdio.h>

#include<conio.h>

void primefac(int);

int main()

{

int x;

printf("Enter a number : ");

scanf("%d",&x);

primefac(x);

getch();

return 0;

}

void primefac(int n)

{

int i=2;

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

printf("No prime factor");

else

{

printf("Prime factors are\n");

while(n!=1)

{

if(n%i==0)

{

n/=i;

printf("%d\n",i);

continue;

}

else

i++;

}

}

}