Assignment 6

1. **Do all type 3 (with parameter, w/o return type) function programs using pointer.**

A1

1. Finding F from C (temp).

```
#include <stdio.h>

void fahrenheit(float* celsius) {
   float fahrenheit_v;
   fahrenheit_v = (*celsius * 9 / 5) + 32;
   printf("Temperature in Fahrenheit: %.2f\n", fahrenheit_v);
}

void main() {
   float celsius;

   printf("Enter the temperature in Celsius: ");
   scanf("%f", &celsius);

   fahrenheit(&celsius);

}
```

Q2. Finding area and perimeter of rectangle or circle.

```
#include <stdio.h>
#define PI 3.14159


int main() {
   int ch;
   float l, w, r;

   printf("1. Rectangle\n2. Circle\nEnter choice: ");
   scanf("%d", &ch);

   if (ch == 1) {
      printf("Enter length and width: ");
      scanf("%f %f", &l, &w);
      rectangle(&l, &w);
   }
   else if (ch == 2) {
      printf("Enter radius: ");
      scanf("%f", &r);
      circle(&r);
   }

}

void rectangle(float* length, float* width) {
   float area = *length *  *width;
   float perimeter = 2 * (*length + *width);
```

```
    printf("Area: %.2f, Perimeter: %.2f\n", area, perimeter);
}


void circle(float* radius) {
    float area = PI * *radius * *radius;
    float circumference = 2 * PI * *radius;
    printf("Area: %.2f, Circumference: %.2f\n", area, circumference);
}
```

3.Accept a 3digit number from user and find the sum of the digits and also reverse the number.

```
#include<stdio.h>

void rev_sum(int*num);

void main(){

        int num;

        printf("Enter a 3 digit number:");
        scanf("%d",& num);


        rev_sum(&num);

}
```

```
void rev_sum(int* num){

        int  sum,rev, n1 ,n2 , n3;

        n1 = *num/100;
        n2 = (*num /10)%10;
        n3 = *num %10;

        sum = n1 + n2+ n3;
        rev = (n3*100)+(n2*10)+n1;

        printf("Sum of the digits in the number is:%d\n",sum);
        printf("Reverse number: %d\n",rev);

}
```

4. Check if the given number is even or odd.

```
void main(){

        int num;

        printf("Enter the number:");
        scanf("%d",& num);

    evenodd(&num);
```

```
}

void evenodd(int* num){

        if (*num %2 == 0){

                printf("Number is even.");

        }
        else
        printf("Number is odd.");

}
```

5. Calculating total salary based on basic. If basic <=5000 da, ta and hra will be 10%,20% and 25% respectively otherwise da, ta and hra will be 15%,25% and 30% respectively.

```
void main(){

        int salary;
        printf("Enter the salary:");
        scanf("%d",&salary);


    calculate_salary(&salary);
}
```

```
void calculate_salary(int* s){

        int total_salary,ta,da,hra;
       if(*s<=5000){

      da = ((*s)*10/100);
      ta = ((*s)*20/100);
      hra = ((*s)*25/100);

      }

      else{

            da = ((*s)*15/100);
            ta = ((*s)*25/100);
            hra = ((*s)*30/100);
      }


      total_salary = *s+da+ta+hra;
      printf("Total Salary: %d\n",total_salary);
      return 0;

}
```

Q6 Write a program to check if person is eligible to marry or not (male age >=21 and female age>=18).

```
void main(){

        int age;
        char gender;

        printf("Enter the  gender(M/F) and age:");
        scanf("%c%d",&gender,&age);


    eligibility(&age,&gender);

}


void eligibility(int* age , char* gender){


        if  ((*gender == 'M' && *age >=21) || (*gender == 'F' && *age>=18))
        {
                printf("You are eligible for marraige");
        }
        else
    printf("You are not elgibile for marraige");


}
```

A2

Q.1 Find the price of item when discount is given (specify different discount based on price)

```
void main(){

        int price;

        printf("Enter the price:");
        scanf("%d",&price);


        finalPrice(&price);

}


void finalPrice(int* price){


    float finalprice;
    float discount;

    if(price <= 500){

        discount = *price * 0.10;
    }
    else if(*price>500 && *price<=1000){

        discount = *price * 0.20;
```

```
        }

        else if(*price>1000 && *price<2000){

                discount = *price * 0.25;
        }

        finalprice = *price - discount;
        printf("FinalPrice=%.2f",finalprice);
}
```

2. Write a program to find greatest of three numbers using nested if-else

```
void main(){

        int a , b, c;

        printf("Enter the number 1:");
        scanf("%d",&a);

         printf("Enter the number 2:");
        scanf("%d",&b);

         printf("Enter the number 3:");
        scanf("%d",&c);

        greatest(&a,&b,&c);
}
```

```
void greatest(int* a,int* b,int* c){



        if(*a>*b){

                if(*a>*c){
                        printf(" %d is greater",*a);

                }
                else{

                        printf(" %d is greater",*c);

                }
        }
        else
        {
                if(*b>*c)
                {
                        printf("%d is greater",*b);
                }

                else{
                         printf(" %d is  greater",*c);
                }
        }
}
```

3. Accept two numbers from user and an operator (+,-,/,*,%) based on that perform the desired operations.

```
 void operators(int* a, int* b,char* sy){

        int result;

        if(*sy == '+'){

                result = *a + *b;
                printf("result =%d",result);
        }
        else if(*sy == '-'){

                result = *a-*b;
                printf("result =%d",result);
        }

        else if (*sy == '*'){

                result = *a * *b;
                printf("result = %d", result);
        }

        else if(*sy == '/'){
                 result = *a/ *b;
                 printf("result =%d",result);

        }
        else if( *sy =='%'){
```

```
                result = *a% *b;
                printf("result = %d",result);
        }

}


void main(){

                int a , b;
            char sy;

        printf("Enter two numbers:");
        scanf("%d%d",&a,&b);



        printf("Enter the operator:");
        scanf(" %c",&sy);

        operators(&a,&b,&sy);

}
```

4. Display a menu to the user (like 1.Even Odd 2. Basic salary etc), ask the user to enter his choice,then based on that perform the desired operations.

```
void main(){

        int ch;
    int  a;
    int basicSalary;

    printf("Menu:\n1 Even Odd\n 2.Basic Salary:");

    printf("Enter the choice:");
    scanf("%d",&ch);

    if(ch==1){

      printf("Enter the number to check if even or odd: ");
      scanf("%d",&a);

      Evenodd(&a);
    }
    else{

        printf("Enter the Basic Salary:");
        scanf("%d",&basicSalary);

        bSalary(&basicSalary);
    }
```

```
}

void Evenodd(int* a){

		if(*a%2==0){
			printf("%d is even number.",*a);
		}
		else{

			printf("%d is odd number.",*a);
		}
	}


void bSalary(int* basicSalary){


	float ta,hra,ba;
	float totalSalary;

	    if(*basicSalary<=5000){

		ba = *basicSalary*0.10;
		ta = *basicSalary*0.15;
		hra = *basicSalary*0.20;
		 }

		 else {
```

```
            ba = *basicSalary*0.30;
        ta = *basicSalary*0.35;
        hra = *basicSalary*0.40;
         }

         totalSalary = *basicSalary+ ba+ ta+hra;
         printf("Total Salary=%.2f",totalSalary);
    }
```

5. Accept the price from user. Ask the user if he is a student (user may say yes or no). If he is a student and he has purchased more than 500 than discount is 20% otherwise discount is 10%.But if he is not a student then if he has purchased more than 600 discount is 15% otherwise there is not discount.

```
void final_Price(float* price,char* isStudent){
    float discount;
    float finalprice;
    if(*isStudent=='Y'){
        if(*price>500){
            discount = *price*0.20;
        }
        else {

            discount = *price *0.10;
        }
  }
  else{
```

```
        if (*price>600){

                discount = *price*0.15;

                }
                else{

                        discount= 0;
                }
        }

        finalprice = *price - discount;
        printf("Final price =%.2f",finalprice);


}

void main(){

                float price;
                char isStudent = 'N';

        printf("Enter the price:");
        scanf("%f",&price);



         final_Price(&price,&isStudent);


}
```

Q2. Print table for the given number.

```
#include<stdio.h>

void table(int* no){

        int a=1,b;
        while(a<=10){

                b = *no*a;
                printf("%d\n",b);

                a++;
        }

}
void main(){

        int num;
        printf("Enter the number :");
        scanf("%d",&num);
          table(&num);
}
```

3. Calculate sum of numbers in the given range.

```
#include<stdio.h>

void main(){

        int num ;

    printf("Enter the number:");
    scanf("%d",&num);

    sum(&num);

}

void sum(int* num){

    int  rem,sum=0;

    int temp=*num;
    while(temp>0){        //first when temp was not used num was reinitialised as 0 therefore temp was used where the num can chnage and we can print the nuumber as well

        rem=temp%10;
        sum=sum+rem;
        temp=temp/10;
    }

    printf("Sum=%d",sum);
    printf("Num=%d",*num);
}
```

4. Check number is prime or not

```
#include<stdio.h>

void main(){
        int num;


        printf("Enter the number:");
        scanf("%d",&num);

        prime(&num);

}

void prime(int* num){

        int i=2,flag=0;

        while(i<*num/2){

          if(*num%i==0){

                flag =1;
                break;
          }

            i++;

        }
```

```
        if(flag==0){

                printf("The number is a prime number ");
        }

        else{

                printf("The number is not a prime number");
        }
}


//5. Check number is armstrong or not?

#include<stdio.h>
void main(){

                int num;

    printf("Enter the number:");
        scanf("%d",&num);

        armstrong(&num);

}

void armstrong(int* num){

        int rem , sum=0 , m=1;

        int count=0;
```

```
int tempcount;

int temp =*num;

while(temp>0){

        count++;
        temp=temp/10;
}

temp = *num;

while(temp>0){

        rem = temp%10;
        tempcount=count;

        m=1;
        while(tempcount>0){

                m = m*rem;
                tempcount--;
        }

        sum = sum+m;
        temp=temp/10;
}

if(sum==*num){

        printf("the number is a Armstrong no.");
```

```
        }

        else {

                printf("The no. is not Armstrong");
        }

}
```

Q6.Check number is perfect or not.

```
#include<stdio.h>

void main(){

                int num;

        printf("Enter the number:");
        scanf("%d",&num);

         perfect(&num);

}

void perfect(int* num){

        int sum=0, i;
```

```
        i=1;
        while(i<*num){


                if(*num%i==0){

                        sum = sum +i;


                }
                        i++;

}

if(sum==*num){

        printf("The number is a perfect number.");
}
else {

   printf("The number is not a perfect number.");


}
}
```

Q7.Find factorial of number.

```
#include<stdio.h>

void main(){

        int num;

        printf("Enter the number:");
        scanf("%d",&num);

        factorial(&num);



}

void factorial(int* num){

        int  fact=1 , i;

        i=*num;

        while(i>0){

                fact=fact*i;

                i--;
        }
        printf("Factorial of the %d is:%d",*num,fact);
}
```

8. Check number is strong or not

```
#include<stdio.h>


void main(){


	int num;
		printf("Enter the number:");
	scanf("%d",&num);


	strong(&num);


}

void strong(int* num){

	int  rem, i , fact ,temp;


	int sum = 0;


	temp = *num;


	while(temp>0){


		rem = temp%10;


		fact=1;


		for(i=1;i<=rem;i++){
```

```
                fact= fact*i;
            }

            sum = sum+fact;
            temp = temp/10;

        }

        if(sum==*num){

            printf("The number is a strong number.");

        }

        else{

            printf("The  number is not a strong number.");




        }

}
```

Q9 Check the given number is palindrome or not?

```
#include<stdio.h>

void main(){

        int num;
        printf("Enter the number:");
        scanf("%d",&num);

        palindrome(&num);



}

void palindrome(int* num){

        int rem;

        int temp=*num;
        int sum =0;
        while(temp>0){

                rem = temp%10;
           printf("%d",rem);
                temp = temp/10;
        }

}

//Q10.Add the (first and last) digit of a given number?
```

```
#include<stdio.h>

void main(){

        int num;

        printf("Enter the number:");
        scanf("%d",&num);

         addition(&num);

}

void addition(int* num){

        int a , b,sum;

        a = *num%10;

        b=*num;
        while(b>=10){

                b = b/10;
        }

        sum = a+b;

        printf("Sum of first and last digit is:%d",sum);
}
```