Practical 05

1)

Using while

```
#include <stdio.h>

#include <stdlib.h>


int main()

{


   int main()

   {

    int h=0;


    while(h<=100)

   {

      printf("%d ",h);

      h++;

   }

   return 0;

}
```

Using do while loop

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
   int h=0;
   do
   {
      printf("%d ",h);
      h++;
   } while (h<=100);
   return 0;
}
```

Using for loop

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
   int i;
```

```
    for (i = 0; i <= 100; i++)
   {
       printf("%d ", i);
    }
    return 0;
}
```

2)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int marks[10];
   int g=0,total=0;
   float average;

   printf("Enter 10 marks \n");
   while(g<10)
   {
    printf("Mark %d:",g+1);
    scanf("%d",&marks[g]);
```

```
    total+=marks[g];
    g++;
   }

   average=(float)total/10.0;
   printf("Total: %d \n",total);
   printf("Average: %.2f\n",average) ;

   if(average<50.0)
   printf("Fail!\n");

   else
   {
    printf("Pass! \n");
   }
   return 0;
}
```

3)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
  int number,h;
  unsigned long long factorial=1;

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

   // Calculate factorial
   for (h=number;h>=1;h--)
   {
      factorial*=h;
   }

   printf("Factorial of %d is %llu\n",number,factorial);
   return 0;
}
```

4)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
  int num,originalNumber,digit,sum=0;

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

  originalNumber=num;

  while(num!=0)
  {
   digit=num%10;
   sum+=digit;
   num/=10;
  }
  printf("Sum of digits of %d is: %d",originalNumber,sum);
  return 0;
}
```

5)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
  int number,reversedNumber=0,remainder;

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

  do
  {

   remainder=number%10;
   reversedNumber=reversedNumber*10+remainder;
   number/=10;

  } while(number!=0);
   printf("Reversed number: %d/n",reversedNumber);
   return 0;
}
```

6)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int base, exponent;
   int result = 1;

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

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

   for (int h = 0; h < exponent; h++) {
      result *= base;
   }

   printf("%d raised to the power of %d is: %d\n",base,exponent,result);
   return 0;
}
```

7)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int n1 = 0, n2 = 1, next, count;

   printf("First 10 numbers of the Fibonacci sequence:\n");
   printf("%d\n%d\n", n1, n2);

   for (count = 3; count <= 10; count++) {
      next = n1 + n2;
      printf("%d \n", next);
      n1 = n2;
      n2 = next;
   }
   return 0;
}
```

8)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int n,r,sum=0,temp;
   printf("enter the number=");
   scanf("%d",&n);
   temp=n;
   while(n>0)
   {
    r=n%10;
    sum=sum+(r*r*r);
    n=n/10;
   }
   if(temp==sum)
    printf("armstrong  number ");
   else
    printf("not armstrong number");
   return 0;
}
```

9)

```
#include <stdio.h>

#include <stdlib.h>


int main()

{

   char letter;

   int h;


   printf("ASCII values for letter A to Z: \n");


   for (h = 65, letter = 'A'; h <= 90; h++,letter++)

   {

   printf("%c: %d\n",letter,h);

   }

   return 0;

}
```

10)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int s,t,rows;

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

   for(s=1;s<=rows;s++)
   {
      for (t=1;t<=s;t++)
      {
      printf("*");

      }
      printf("\n");
   }
   return 0;
}
```

11)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int n,i,m=0,flag=0;
   printf("Enter the number to check prime:");
   scanf("%d",&n);
   m=n/2;
   for(i=2;i<=m;i++)
   {
    if(n%i==0)
   {
    printf("Number is not prime");
    flag=1;break;
   }
   }
    if(flag==0)
    printf("Number is prime");
    return 0;
}
```

12)

```
#include <stdio.h>
#include <stdlib.h>


int main()
{
   int num,h;
   printf("Enter a positive integer: ");
   scanf("%d",&num);
   printf("Factors of %d are: ",num);
   for (h=1;h<=num;++h)
    {
       if(num%h==0)
       {
          printf("%d ",h);
       }
    }
   return 0;
}
```

12)

```
#include <stdio.h>

#include <stdlib.h>


int main()

{

   int nu1,sum = 0;


   printf("Enter numbers to add (enter -1 to stop):\n");


   while (1) {

      scanf("%d",&nu1);

      if (nu1 == -1) {

         break;

      }

      sum += nu1;

}

   printf("The sum is: %d\n ",sum);

   return 0;

}
```

13)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int array[10];

   printf("Enter %d numbers:\n", 10);
   for (int s = 0; s < 10; s++) {
      scanf("%d", &array[s]);
   }

   printf("The array is: ");
   for (int s = 0; s < 10; s++) {
      printf("%d ", array[s]);
   }
   printf("\n");
   return 0;
}
```

14)

```
#include <stdio.h>
#include <stdlib.h>

int main()
{
   int array[10];
   int count = 0;

   printf("Enter %d numbers:\n", 10);
   for (int s = 0; s < 10; s++) {
      scanf("%d", &array[s]);
   }

   for (int s = 0; s < 10; s++) {
      if (array[s] % 2 == 0) {
         count++;
      }
   }
   printf("The count of even numbers is: %d\n", count);
   return 0;
}
```

Section B

1)

```
#include<stdio.h>
#include<conio.h>
int main()
{
   int countPositive=0, countNegative=0, countZero=0, arr[10], i;
   printf("Enter 10 Numbers: ");
   for(i=0; i<10; i++)
      scanf("%d", &arr[i]);
   for(i=0; i<10; i++)
   {
      if(arr[i]<0)
         countNegative++;
      else if(arr[i]>0)
         countPositive++;
      else
         countZero++;
   }
   printf("\nOccurrence of");
   printf("\nPositive Numbers = %d times", countPositive);
```

```
    printf("\nNegative Numbers = %d times", countNegative);
    printf("\nZero = %d times", countZero);
    getch();
    return 0;
}
```

2)

```
#include<stdio.h>
#include<conio.h>
int main()
{

    int marks[10];
    int i;
    int totalMarks = 0;
    int maxMarks = 0;
    int minMarks = 100;

    // Input marks
    printf("Enter the marks of 10 students:\n");
    for (i = 0; i < 10; i++) {
        printf("Student %d: ", i + 1);
```

```
        scanf("%d", &marks[i]);

        // Update maximum and minimum marks
        if (marks[i] > maxMarks) {
            maxMarks = marks[i];
        }
        if (marks[i] < minMarks) {
            minMarks = marks[i];
        }
        // Calculate total marks
        totalMarks += marks[i];
    }
     // Calculate average marks
    float averageMarks = (float)totalMarks / 10;

    // Display results
    printf("Maximum Marks: %d\n", maxMarks);
    printf("Minimum Marks: %d\n", minMarks);
    printf("Average Marks: %.2f\n", averageMarks);

return(0);
}
```

3)

```
#include<stdio.h>
#include<conio.h>
int main()
{

   int prices[10];
   int sum = 0;
   int count = 0;

   // Input prices
   printf("Enter the prices of 10 items:\n");
   for (int h = 0; h < 10; h++) {
      printf("Item %d: ", h + 1);
      scanf("%d", &prices[h]);
   }

   // Calculate average value and count items with price > 200
   for (int h = 0; h < 10; h++) {
      sum += prices[h];
      if (prices[h] > 200) {
         count++;
```

```
        }
    }

    // Calculate average
    float average = (float)sum/10;

    // Display results
    printf("Average value of an item: %.2f\n", average);
    printf("Number of items with price greater than 200: %d\n", count);
return(0);
}
```

4)

```
#include<stdio.h>
#include<conio.h>
int main()
{

    int employeeNo;
    float basicSalary;
    int count = 0;
```

```
    // Input employee number and basic salary
    printf("Enter the Employee No and Basic Salary:\n");
    while (1) {
        printf("Employee No (-999 to exit): ");
        scanf("%d", &employeeNo);

        if (employeeNo == -999) {
            break;  // Exit the loop if dummy value is entered
        }

        printf("Basic Salary: ");
        scanf("%f", &basicSalary);

        if (basicSalary >= 5000) {
            count++;
        }
    }

    // Display the count of employees
    printf("Number of Employees with Basic Salary >= 5000: %d\n", count);
   return(0);
}
```

5)

```
#include<stdio.h>
#include<conio.h>
int main()
{

   int employeeNo;
   int hoursWorked;
   float overtimePayment;
   int count = 0;
   int countOver4000 = 0;

   // Input employee number and hours worked
   printf("Enter the Employee No and Hours Worked:\n");
   while (1) {
      printf("Employee No (-999 to exit): ");
      scanf("%d", &employeeNo);

      if (employeeNo == -999) {
         break;  // Exit the loop if dummy value is entered
      }
```

```
    printf("Hours Worked: ");
    scanf("%d", &hoursWorked);

    // Calculate overtime payment
    if (hoursWorked <= 40) {
        overtimePayment = 0;
    } else {
        int overtimeHours = hoursWorked - 40;
        overtimePayment = (overtimeHours * 150) + (overtimeHours * 200);
    }

    // Display employee number and overtime payment
    printf("Employee No: %d\n", employeeNo);
    printf("Overtime Payment: %.2f\n", overtimePayment);

    // Check if overtime payment exceeds Rs. 4000/-
    if (overtimePayment > 4000) {
        countOver4000++;
    }

    count++;
}
```

```
    // Calculate the percentage of employees whose overtime payment exceeds Rs. 4000/-
    float percentageOver4000 = ((float)countOver4000 / count) * 100;


    // Display the percentage of employees
    printf("Percentage of Employees with Overtime Payment > Rs. 4000: %.2f%%\n", percentageOver4000);



return(0);
}
```