PRACTICAL - 05

Q1.

While loop

```
int i;
   while (i<=100){
      printf("%d",i);
      i++;
   }
```

do While loop

```
int i;
   do {
      printf("%d",i);
      i++;
   }while (i<=100);
```

for loop

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

Q2.

```
int i,marks,tot,avg;
for(i=1;i<=10;i++){
   printf("enter %d mark",i);
   scanf("%d",&marks);
   tot=tot+marks;
}
avg=tot/10;
if(avg>=50)
   printf("Pass");
else
   printf("Fail");
```

Q3.

```
 int num,result=1;
printf("enter a number:");
scanf("%d",&num);

if(num<0)
   printf("Error: Factorial of a negative number is undefined.");
else if(num==0)
   printf("Error: Factorial of a negative number is undefined.");
else
   for(int i=1;i<=num;i++)
   {
      result*=i;
   }
   printf("%d",result)}
```

Q4.

```
   int num,result=0;
   printf("enter a number:");
   scanf("%d",&num);

   if(num<0)
      printf("Error: Factorial of a negative number is undefined.");
   else if(num==0)
      printf("Error: Factorial of a negative number is undefined.");
   else
      for(int i=1;i<=num;i++)
      {
         result+=i;
      }
   printf("%d",result);
}
```

Q5.

```
   int num,rem,rev=0;
   printf("Enter a number: ");
   scanf("%d", &num);

   do{
      rem=num%10;
      rev=rem+(rev*10);
      num/=10;
   } while (num!=0);
   printf("%d",rev);
```

```
}
```

Q6.

```
   int base,exp,res=1,i=1;
   printf("enter number:");
   scanf("%d",&base);
   printf("enter power for number:");
   scanf("%d",&exp);

   if(exp>=0){
      while(i<=exp){
         res=res*base;
         i++;
      }
      printf("%d",res);

   } else
      printf("invalid exp value");
```

Q7.

```
char x[]="Fibonacci Sequence";
   for(int i=0;i<=10;i++){
      printf("%c",x[i]);
   }
```

Q8.

Q9.

```
int main() {
   char letter;
   printf("ASCII values for letters A to Z:\n");
   for (letter = 'A'; letter <= 'Z'; ++letter) {
      printf("%c: %d\n", letter, letter);
   }
}
```

Q10.

```
int x=5;
   for (int i = 1; i<=x ; ++i) {
      for(int a=1; a<=i; ++a){
         printf("*");
      }
      printf("\n");
   }
```

Q11.

```
int number, is_prime = 1;

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

   if (number < 2) {
      is_prime = 0;
   } else {
      for (int i = 2; i * i <= number; i++) {
         if (number % i == 0) {
```

```
            is_prime = 0;
            break;
        }
    }
}

if (is_prime) {
    printf("%d is a prime number.\n", number);
} else {
    printf("%d is not a prime number.\n", number);
}
```

Q12.

```
int number;

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

printf("Factors of %d: ", number);

for (int i = 1; i <= number; i++) {
    if (number % i == 0) {
        printf("%d ", i);
    }
}

printf("\n");
```

Q13.

```
    int num, sum = 0;
    printf("Enter numbers to add (enter -1 to stop):\n");
    while (1) {
        scanf("%d", &num);
        if (num == -1) {
            break;
        }
        sum += num;
    }
    printf("Sum: %d\n", sum);
}
```

Q14.

```
    int x[10];
    for (int i = 1; i <=10; ++i) {
        printf("enter %d ",i);
        scanf("%d",&x[i]);
    }
    for (int i = 1; i <=10; ++i) {
        printf("%d ",x[i]);
    }
```

Q15.

```
    int x[10],count,new[10];
    for (int i = 1; i <=10; ++i) {
        printf("enter %d ",i);
        scanf("%d",&x[i]);

        if(x[i]%2==0){
```

```
        count++;
      }
   }

printf("%d \n",count);
```

Section B

Q1.

```
  int numbers[10];
      int positiveCount = 0, negativeCount = 0, zeroCount = 0;

      printf("Enter 10 numbers:\n");

      for (int i = 0; i < 10; i++) {
         scanf("%d", &numbers[i]);

         if (numbers[i] > 0) {
            positiveCount++;
         } else if (numbers[i] < 0) {
            negativeCount++;
         } else {
            zeroCount++;
         }
      }

      printf("Number of positive numbers: %d\n", positiveCount);
      printf("Number of negative numbers: %d\n", negativeCount);
      printf("Number of zeros: %d\n", zeroCount);
```

Q2.

```
    int marks[10];
    int i, sum = 0;
    int max_mark = 0, min_mark = 100;

    printf("Enter the marks of 10 students:\n");
    for (i = 0; i < 10; i++) {
        printf("Student %d: ", i + 1);
        scanf("%d", &marks[i]);

        if (marks[i] > max_mark)
            max_mark = marks[i];
        if (marks[i] < min_mark)
            min_mark = marks[i];

        sum += marks[i];
    }


    float average = (float)sum / 10;

    printf("Maximum Marks: %d\n", max_mark);
    printf("Minimum Marks: %d\n", min_mark);
    printf("Average Marks: %.2f\n", average);


}
```

Q3.

```
int price[10];
 int i, sum = 0;
 int greater = 200, count = 0;

 printf("Enter the price of 10 idems:\n");
 for (i = 0; i < 10; i++) {
    printf("price %d: ", i + 1);
    scanf("%d", &price[i]);

    if (price[i] > greater)
       count+=1;

    sum += price[i];
 }
 float average = (float)sum / 10;

 printf("number of items which the price is greater than 200: %d\n", count);
 printf("Average price: %.2f\n", average);
```

Q4.

```
            int employee_no;
 float basic_salary;
 int count = 0;

 printf("Enter the Employee no and Basic Salary (Enter -999 to exit):\n");
 while (1) {
    printf("Employee no: ");
```

```
        scanf("%d", &employee_no);

        if (employee_no == -999)
            break;

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

        if (basic_salary >= 5000)
            count++;
    }

    printf("Number of Employees with Basic Salary >= 5000: %d\n", count);
}
```

Q5.

```
int employee_no;
    float hours_worked;
    float overtime_payment;
    int count = 0;
    int total_employees = 0;

    printf("Enter the Employee number and Hours Worked (Enter -999 to exit):\n");
    while (1) {
        printf("Employee number: ");
        scanf("%d", &employee_no);

        if (employee_no == -999)
            break;
```

```
    printf("Hours Worked: ");
    scanf("%f", &hours_worked);

    // Calculate overtime payment
    if (hours_worked <= 40)
        overtime_payment = 0;
    else if (hours_worked > 40 && hours_worked <= 50)
        overtime_payment = (hours_worked - 40) * 150;
    else
        overtime_payment = 10 * 150 + (hours_worked - 50) * 200;

    printf("Employee number: %d\n", employee_no);
    printf("Overtime Payment: %.2f\n", overtime_payment);

    if (overtime_payment > 4000)
        count++;

    total_employees++;
}

float percentage = (float)count / total_employees * 100;

printf("Percentage of employees whose overtime payment exceeds Rs. 4000: %.2f%%\n", percentage);
```