Practical 3

1.

```
#include<stdio.h>
scanf("%d",&numb1);
printf("enter the number2\n");
scanf("%d",&numb2);
if (numb1>numb2)
printf("numb1 is the highest number");
else
printf("numb2 is the highest number");
int main()
{
int numb1,numb2;
printf("enter the number1\n");
}
```

2.

```
 #include <stdio.h>
#include <stdlib.h>
int main()
{
int num1,num2,num3,max,min;
printf("ENTER THE FIRST NUMBER:");
scanf("%d",&num1);
printf("ENTER THE SECOND NUMBER:");
scanf("%d",&num2);
printf("ENTER THE THIRD NUMBER:");
scanf("%d",&num3);
if(num1>num2 && num1>num3)
```

```
max=num1;
else if (num2>num1 && num2>num3)
max=num2;
else
max=num3;
printf("the largest number is %d\n",max);
if (num1<num2 && num1<num3)
min=num1;
else if (num2<num1 && num2<num3)
min=num2;
else
min=num3;
printf("the smallest number is %d",min);
}
```

3.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
char name[40];
int ns,bs,incr;
printf("ENTER THE EMPLOYEE NAME:");
scanf("%s",&name);
printf("ENTER THE BASIC SALLERY:");
scanf("%d",&bs);
if (bs<5000)
incr=bs*0.05;
else if (5000<=bs && bs<10000)
```

```
incr=bs*0.1;
else
incr=bs*0.15;
ns=bs+incr;
printf("NAME = %s\n",name);
printf("NEW SALLERY = %d",ns);
}
```

4.

```
 #include <stdio.h>
#include <stdlib.h>
int main()
{
int radius;
float diameter,circumference,area;
printf("ENTER THE RADIUS OF THE CIRCLE in centimeters:");
scanf("%d",&radius);
diameter=radius*2;
circumference=2*3.14159*radius;
area=3.14159*(radius*radius);
printf("DIAMETER IS %f cm\n",diameter);
printf("CIRCUMFERENCE IS %f cm\n",circumference);
printf("AREA IS %f squre cm\n",area);
}
```

5.

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

```
int num1,num2;
printf("ENTER NUMBER ONE:");
scanf("%d",&num1);
printf("ENTER NUMBER TWO:");
scanf("%d",&num2);
if (num1%num2==0)
printf("%d is a multiple of %d",num1,num2);
else
printf("%d is not a multiple of %d",num1,num2);
}
```

6.

```
 #include <stdio.h>
#include <stdlib.h>
int main()
{
printf("Integer Equivalents:\n");
printf("Uppercase Letters:\n");
for (char ch = 'A'; ch <= 'Z'; ch++) {
printf("%c: %d\n", ch, (int)ch);
}
printf("Lowercase Letters:\n");
for (char ch = 'a'; ch <= 'z'; ch++) {
printf("%c: %d\n", ch, (int)ch);
}
printf("Digits:\n");
for (char ch = '0'; ch <= '9'; ch++) {
printf("%c: %d\n", ch, (int)ch);
}
```

```
printf("Special Symbols:\n");
printf("$: %d\n", (int)'$');
printf("*: %d\n", (int)'*');
printf("+: %d\n", (int)'+');
printf("/: %d\n", (int)'/');
printf("Blank Character: %d\n", (int)' ');
}
```

7.

```
 #include <stdio.h>
#include <stdlib.h>
int main()
{
float basicSalary, monthlySales, grossRemuneration;
char city;
printf("Enter the basic salary: ");
scanf("%f", &basicSalary);
printf("Enter the monthly sales: ");
scanf("%f", &monthlySales);
printf("Enter the city (C for Colombo): ");
scanf(" %c", &city);
float additionalAllowance = 0;
if (monthlySales >= 25000 && monthlySales < 50000) {
additionalAllowance = basicSalary * 0.1;
} else if (monthlySales >= 50000) {
additionalAllowance = basicSalary * 0.1 + 2500;
}
float bonusPercentage = 0;
if (monthlySales >= 0 && monthlySales <= 25000) {
```

```
bonusPercentage = 10;
} else if (monthlySales > 25000 && monthlySales <= 50000) {
bonusPercentage = 12;
} else if (monthlySales > 50000) {
bonusPercentage = 15;
}
grossRemuneration = basicSalary + additionalAllowance + (monthlySales * bonusPercentage / 100);
if (city == 'C') {
grossRemuneration += 2500;
}
printf("Gross Monthly Remuneration: Rs. %.2f\n", grossRemuneration);
}
```

Practical 4

1.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
int num1,answer;
printf("ENTER THE FIRST NUMBER:");
scanf("%d",&num1);
answer=num1%2;
if (answer==1)
printf("number is odd");
else printf("THE NUMBER IS EVEN");
}
```

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
int num1;
printf("ENTER A NUMBER:");
scanf("%d",&num1);
switch (num1 % 2) {
case 0:
printf("The number is even.\n");
break;
case 1:
printf("The number is odd.\n");
break;
}
}
```

2.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
char operater;
printf("enter an operater:");
scanf("%c",&operater);
double num1,num2;
printf("enter first number:");
scanf("%lf",&num1);
printf("enter second number:");
```

```
scanf("%lf",&num2);
double result;
switch (operater){
case '+':
result=num1+num2;
printf("%f",result);
break;
case '-':
result=num1-num2;
printf("%f",result);
break;
case'*':
result=num1*num2;
printf("%f",result);
break;
case'/':
result=num1/num2;
printf("%f",result);
}
}
```

3.

```
#include <stdio.h>
#define PI 3.14159
float calculateCircumference(float radius) {
return 2 * PI * radius;
}
float calculateArea(float radius) {
return PI * radius * radius;
```

```
}
float calculateVolume(float radius) {
return (4.0 / 3.0) * PI * radius * radius * radius;
}
int main() {
int choice;
float radius;
printf("Menu:\n");
printf("1. Calculate the circumference of a circle\n");
printf("2. Calculate the area of a circle\n");
printf("3. Calculate the volume of a sphere\n");
printf("Enter your choice (1-3): ");
scanf("%d", &choice);
printf("Enter the radius: ");
scanf("%f", &radius);
switch (choice) {
case 1:
printf("Circumference: %.2f\n", calculateCircumference(radius));
break;
case 2:
printf("Area: %.2f\n", calculateArea(radius));
break;
case 3:
printf("Volume: %.2f\n", calculateVolume(radius));
break;
default:
printf("Invalid choice.\n");
}
```

```
}
```

4.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
char ch;
printf("ENTER A CHARACTER:");
scanf("%c",&ch);
switch(ch)
{
case 'A':printf("A is a vowel");break;
case 'a':printf("a is a vowel");break;
case 'E':printf("E is a vowel");break;
case 'e':printf("e is a vowel");break;
case 'I':printf("I is a vowel");break;
case 'i':printf("i is a vowel");break;
case 'O':printf("O is a vowel");break;
case 'o':printf("o is a vowel");break;
case 'U':printf("U is a vowel");break;
case 'u':printf("u is a vowel");break;
default :printf("%c is not a vowel",ch);
}
}
```

5.

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

```
{
int monthnumber;
printf("ENTER THE MONTH NUMBER:");
scanf("%d",&monthnumber);
switch(monthnumber)
{
case 1:
printf("NUMBER OF DAYS-31");
break;
case 2:
printf("NUMBER OF DAYS-28");
break;
case 3:
printf("NUMBER OF DAYS-31");
break;
case 4:
printf("NUMBER OF DAYS-30");
break;
case 5:
printf("NUMBER OF DAYS-31");
break;
case 6:
printf("NUMBER OF DAYS-30");
break;
case 7:
printf("NUMBER OF DAYS-31");
break;
case 8:
```

```
printf("NUMBER OF DAYS-31");
break;
case 9:
printf("NUMBER OF DAYS-30");
break;
case 10:
printf("NUMBER OF DAYS-31");
break;
case 11:
printf("NUMBER OF DAYS-30");
break;
case 12:
printf("NUMBER OF DAYS-31");
break;
default:
printf("INVALID NUMBER");
break;
}
}
```

PRACTICAL 5

Section A

1.

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

```
int x=0;
while (x<=100){
printf("%d\n",x);
x++;
}
}
#include <stdio.h>
#include <stdlib.h>
int main()
{
int i=0;
do
{
printf("%d ",i);
i++;
}
while (i<=100);
}
#include <stdio.h>
#include <stdlib.h>
int main()
{
int y=0;
for(int y=1;y<=100;y++){
printf("%d\n",y);}
}
```

2.

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

```
#include <stdlib.h>
int main()
{
int i=1,num,avg,total=0;
while (i<=10 && 0<=num<=100)
{
printf("enter the marks:");
scanf("%d",&num);
if (num < 0 || num > 100)
{
printf("Invalid mark value!\n");
exit(1);
}
total=total+num;
i++;
}
avg=total/10;
if (avg<50)
printf("fail");
else
printf("pass");
}
```

3.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
int i=0,num;
```

```
printf("ENTER A NUMBER:");
scanf("%d",&num);
while (i<=num)
printf("");
i++;
}
```

4.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
int remainder,num,sum=0;
printf("ENTER A NUMBER:");
scanf("%d",&num);
while (num!=0)
{
remainder=num%10;
sum+=remainder;
num/=10;
printf("%d+",sum);
}
printf("\nsum=%d",sum);
}
```

5.

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

```
int num,reversenum=0,remainder;
printf("ENTER A NUMBER:");
scanf("%d",&num);
do {
remainder=num%10;
reversenum=reversenum*10+remainder;
num/=10;}
while (num!=0);
printf("reversed number is %d",reversenum);
}
```

6.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
#include <stdio.h>
int main() {
int base, exponent, result = 1;
printf("Enter the base: ");
scanf("%d", &base);
printf("Enter the exponent: ");
scanf("%d", &exponent);
for (int i = 0; i < exponent; i++) {
result *= base;
}
printf("%d raised to the power of %d is: %d\n", base, exponent, result);
}
}
```

7.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
#include <stdio.h>
int main() {
int n = 10;
int first = 0, second = 1;
int next;
printf("The Fibonacci sequence for the first 10 numbers:\n");
printf("%d\n%d\n", first, second);
for (int i = 3; i <= n; i++) {
next = first + second;
printf("%d\n", next);
first = second;
second = next;
}
return 0;
}
}
```

8.

```
#include <stdio.h>
#include <math.h>
int main() {
int number, originalNumber, remainder, result = 0, n = 0;
printf("Enter a number: ");
```

```
scanf("%d", &number);
originalNumber = number;
while (originalNumber != 0) {
originalNumber /= 10;
n++;
}
originalNumber = number;
while (originalNumber != 0) {
remainder = originalNumber % 10;
result += pow(remainder, n);
originalNumber /= 10;
}
if (result == number)
printf("%d is an Armstrong number.\n", number);
else
printf("%d is not an Armstrong number.\n", number);
return 0;
}
}
```

9.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
#include <stdio.h>
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);
}
return 0;
}
}
```

10.

```
 #include <stdio.h>
#include <stdlib.h>
int main()
{
printf("*\n");
printf("**\n");
printf("***\n");
printf("****\n");
printf("*****\n");
}
```

11.

```
 #include <stdio.h>
int main() {
int number, i, isPrime = 1;
printf("Enter a positive integer: ");
scanf("%d", &number);
if (number < 2) {
isPrime = 0;
}
for (i = 2; i * i <= number; i++) {
if (number % i == 0) {
```

```
isPrime = 0; // Not prime
break;
}
}
if (isPrime) {
printf("%d is a prime number.\n", number);
} else {
printf("%d is not a prime number.\n", number);
}
return 0;
}
```

12.

```
#include <stdio.h>
int main() {
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);
return 0;
}
```

13.

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

```
int arr[10];
int i;
printf("Enter 10 integers:\n");
for (i = 0; i < 10; i++) {
scanf("%d", &arr[i]);
}
printf("The array is: ");
for (i = 0; i < 10; i++) {
printf("%d ", arr[i]);
}
printf("\n");
return 0;
}
```

14.

```
#include <stdio.h>
int main() {
int arr[10];
int i, count = 0;
printf("Enter 10 integers:\n");
for (i = 0; i < 10; i++) {
scanf("%d", &arr[i]);
}
for (i = 0; i < 10; i++) {
if (arr[i] % 2 == 0) {
count++;
}
}
printf("The count of even numbers: %d\n", count);
```

```
return 0;
}
```

Section B

1.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
int num,count=1,pos=0,neg=0,zer=0;
while(count<=10)
{
printf("ENTER A NUMBER:");
scanf("%d",&num);
if (num>0)
pos=pos+1;
else if (num<0)
neg=neg+1;
else
zer=zer+1;
count++;
}
printf("positives=%d\nnegatives=%d\nzeros=%d",pos,neg,zer);
}
```

2.

```
#include <stdio.h>
int main() {
int marks[10];
int i;
```

```
int max, min;
float sum = 0, average;
printf("Enter the marks of 10 students:\n");
for (i = 0; i < 10; i++) {
printf("Student %d: ", i + 1);
scanf("%d", &marks[i]);
sum += marks[i];
if (i == 0) {
max = marks[i];
min = marks[i];
} else {
if (marks[i] > max) {
max = marks[i];
}
if (marks[i] < min) {
min = marks[i];
}
}
}
average = sum / 10;
printf("\nMaximum marks: %d\n", max);
printf("Minimum marks: %d\n", min);
printf("Average marks: %.2f\n", average);
return 0;
}
```

3.

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

```
float prices[10];
int i;
float sum = 0, average;
int count = 0;
printf("Enter the price of 10 items:\n");
for (i = 0; i < 10; i++) {
printf("Item %d: $", i + 1);
scanf("%f", &prices[i]);
sum += prices[i];
if (prices[i] > 200) {
count++;
}
}
average = sum / 10;
printf("\nAverage 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>
int main() {
int employeeNo;
float basicSalary;
int count = 0;
printf("Enter the Employee No and Basic Salary (Enter -999 to stop):\n");
while (1) {
printf("Employee No: ");
scanf("%d", &employeeNo);
```

```
if (employeeNo == -999) {
break;
}
printf("Basic Salary: ");
scanf("%f", &basicSalary);
if (basicSalary >= 5000) {
count++;
}
}
printf("Number of Employees with Basic Salary >= 5000: %d\n", count);
return 0;
}
```

5.

```
#include <stdio.h>
int main() {
int employeeNo;
float hoursWorked;
float overtimePayment;
int count = 0;
int totalEmployees = 0;
printf("Enter the Employee No and Hours Worked (Enter -999 to stop):\n");
while (1) {
printf("Employee No: ");
scanf("%d", &employeeNo);
if (employeeNo == -999) {
break;
}
printf("Hours Worked: ");
```

```
scanf("%f", &hoursWorked);
if (hoursWorked > 40) {
overtimePayment = (hoursWorked - 40) * 200 + 40 * 150;
} else {
overtimePayment = hoursWorked * 150;
}
printf("Employee No: %d\n", employeeNo);
printf("Overtime Payment: Rs. %.2f\n", overtimePayment);
if (overtimePayment > 4000) {
count++;
}
totalEmployees++;
}
printf("Percentage of Employees with Overtime Payment > Rs. 4000: %.2f%%\n", (float)count /
totalEmployees * 100);
return 0;
}
```