

Q.1 Write a program to find Sum and average of three numbers.

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

```
int main()
```

```
int a, b, c, sum, average;  
float average;
```

```
printf ("Program for finding Sum and average of 3 no's");
```

```
printf ("Enter 1st no, 2nd no, 3rd no");
```

```
scanf ("%d %d %d", &a, &b, &c);
```

```
// for finding sum of 3 no
```

```
sum = a+b+c;
```

```
printf ("The sum of 3 no is %d\n", sum);
```

```
// for finding average of 3 no
```

```
Average = (a+b+c)/3;
```

```
printf ("The average of 3 no is %.2f\n", average);
```

```
return 0; }
```

2. Write a program to find the largest among three numbers using if else statement.

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

```
int main() {
```

```
    int a, b, c;
```

```
    printf("Program for finding largest of 3 using if else statement\n");
    printf("Enter the Value of 1st no, 2nd no, 3rd no/n");
```

```
    scanf("%d%d%d", &a, &b, &c);
```

```
    if (a > b && a > c) {
```

```
        printf("The no %d is greater than %d and %d/n", a, b, c);
```

```
    } else if (b > a && b > c) {
```

```
        printf("The no %d is greater than %d and %d/n", b, a, c);
```

```
    } else if ((c > a && c > b)) {
```

```
        printf("The no %d is greater than %d and %d/n", c, b, a);
```

```
    } else {
```

```
        printf("The no is equal or invalid");
```

```
    } return 0;
```

3. Write a program to check whether given no is Armstrong no or not

```
#include <stdio.h>
#include <math.h>
int main() {
    int num, originalno, rem, n = 0;
    float result = 0.0; printf("Program for finding nois Armstrong or not\n");
    printf("Enter an integer\n");
    scanf("%d", &num);
    originalno = num;
    for (originalno = num; originalno != 0; n++) {
        originalno /= 10;
        rem = originalno % 10;
        result += pow(rem, n);
    }
    if ((int)result == num) {
        printf("%d is an Armstrong no.", num);
    } else {
        printf("%d is not an Armstrong no.", num);
    }
    return 0;
}
```

4. Write a program to perform arithmetic operation Using Switch Statement.

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

```
int main() {
```

```
    int a, b, sum, sub, mul, div, choice;
```

Pointf ("Program for performing arithmetic operation using
Switch Statement\n1: Addition\n2: Subtraction
3: Multiplication\n4: divide\n");

Pointf ("Enter the value of first and second no\n");

```
Scarf ("%d %d", &a, &b);
```

Pointf ("Enter the operation you want to perform\n");

```
Scarf ("%d", &choice);
```

Switch(choice){

Case 1:

$$\text{Sum} = a + b;$$

Pointf ("The sum of %d and %d is %d", a, b, sum);

Break;

Case 2:

$$\text{Sub} = a - b;$$

Pointf ("The difference between %d and %d is %d", a, b, sub);

Break;

Case 3:

$$\text{mul} = a \times b;$$

Pointf ("The product of %d and %d is %d", a, b, mul);

Break;

Case 4:

Pointf("In Division of %.d and %.d is %.d", a, b, div);
Break;

default:

Pointf("Enter the correct choice ... In");
Break;

}
return 0; }

5. Develop a program to display the Fibonacci Series upto n terms.

#include < stdio.h >

#include < math.h >

int main()

int fib1 = 0, fib2 = 1, fib3, N, count = 0;

Pointf("Program for showing fibonacci series upto %d terms", n);

Pointf("Enter the value of no you want to show In");

Scanf("%d", &N);

Pointf("First %.d fibonacci no are ... In", N);

Pointf("%d", fib1);

Pointf("%d", fib2);

Count = 2;

while (Count < N) {

fib3 = fib1 + fib2;

Count++;

Pointf("%d", fib3);

Fib1 = fib2; Fib2 = fib3; }

return 0; }

6. Implement a program to find the factorial of a given no using while loop.

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

```
int main()
```

```
int n, i, f;
f = 1;
```

Pointf("Factorial using while loop in C to find factorial in");
scanf("%d", &n);

```
while (i <= n)
```

```
f = f * i;
```

```
i++;
```

Pointf("The factorial of %d is %d", n, f);
return 0;

7. Write a C program to find the roots of a quadratic equation

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

```
#include <math.h>
```

```
int main()
```

```
float A, B, C, root1, root2;
```

```
float disc;
```

Pointf("Program for finding roots of quad. equation in");

Pointf("Enter the values of A, B and C in");

```
scanf("%f %f %f", &A, &B, &C);
```

If (A == 0) || (B == 0) || (C == 0)

Pointf("Roots Cannot be determined in");

else

$$\text{disc} = \text{pow}(B, 2) - (4 \times A \times C);$$

if ($\text{disc} < 0$)

Printf ("Imaginary roots in");

$$\text{root1} = (-B + \text{Sqr}(\text{disc})) / (2 \times A);$$

$$\text{root2} = (-B - \text{Sqr}(\text{disc})) / (2 \times A);$$

Printf ("Root1 = %.f ln", root1);

Printf ("Root2 = %.f ln", root2);

else if ($\text{disc} == 0$)

Printf ("Roots are real and equal ln");

$$\text{root1} = (-B + \text{Sqr}(\text{disc})) / (2 \times A);$$

$$\text{root1} = \text{root2};$$

Printf ("Root1 = %.f ln", root1);

Printf ("Root2 = %.f ln", root2);

else if ($\text{disc} > 0$)

Printf ("Roots are real and distinct ln");

$$\text{root1} = (-B + \text{Sqr}(\text{disc})) / (2 \times A);$$

$$\text{root2} = (-B - \text{Sqr}(\text{disc})) / (2 \times A);$$

Printf ("Root1 = %.f ln", root1);

Printf ("Root2 = %.f ln", root2);

return 0;

8. Create a program to calculate the distance between two lines using user defined functions

```
#include<stdio.h>
#include<math.h>
Void Distance (int, int, int, int);
int main()
{
    int x1, y1, x2, y2;
    Pointf ("Program for finding distance between two parallel lines");
    Pointf ("Enter the value of a, b, c and d");
    Scanf ("%d %d %d %d", &x1, &y1, &x2, &y2);
    Distance (x1, y1, x2, y2);
}

Void Distance (int a, int b, int c, int d)
{
    float d, c1, d1;
    c1 = sqrt (a * a + b * b);
    d1 = abs (c - d) / c1;
    Pointf ("Distance between two parallel lines = %.2f", d1);
}
```

- g. Write a C program to find factorial of a given integer using recursive functions.

```
#include <stdio.h>
#include <math.h>
void factorial(int);
int main()
{
    int n;
    printf("Program for calculating recursive function\n");
    printf("Enter n to find the factorial(n)\n");
    scanf("%d", &n);
    factorial(n);
    return 0;
}
void factorial(int)
{
    if (n == 0)
        return;
    else
        factorial(n - 1);
    printf("%d * ", n);
    fact = fact * n;
}
fact = 1;
for (i = 1; i <= n; i++)
    fact = fact * i;
printf("\nFactorial of %d is %d", n, fact);
```

10. Write a program to generate fibonacci series using recursions.

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

```
Void fibonachi (int);
```

```
int main()
{
    int n, i;
    printf("Program for generating fibonachi\n");
    printf("Enter n to generate fibonachi\n");
    scanf("%d", &n);
    fibonachi(n);
    return 0;
}

Void fibonachi (int n)
{
    int f1=0, f2=1, f3=0, count;
    Pointf(f1, f2);
    Pointf(f2, f3);
    Pointf(f1+f2, f3);
    count=2;
    for (count = count+1; count <= n; count++)
    {
        f3=f1+f2;
        Pointf(f1, f2);
        f1=f2;
        f2=f3;
    }
}
```

11. Create a program to swap two numbers using Call by Value
And call by references.

3.

```
// Call by Value
#include <stdio.h>
#include <math.h>

Void swap (int);
```

```
int main() {
    int a, b;
    Pointf ("Program for swapping by call by value\n");
    Pointf ("Enter the value of a and b\n");
    Scanf ("%d %d", &a, &b);
    Pointf ("The value of a=%d and b=%d Before\n", a, b);
    Swap(a, b);
    Pointf ("After\n");
    void swap (int c, int d);
    int e, f;
    c = a;
    d = b;
    Pointf ("Value after swap a=%d, b=%d, e=%d, f=%d\n");
```

```
// Call by Reference
#include <stdio.h>
#include <math.h>
```

```
Void swap (int*, int**);
int main() {
    int a, b;
```

Printf("Program of swapping values by call by reference\nIn ");
Pointf ("Enter the value of A and B in m");
Scanf ("%d,%d", &a, &b);
Pointf ("Before swapping the values a=%d, b=%d", a, b);
Swap (&a, &b);

Pointf ("After swapping the values a=%d, b=%d", a, b);
return 0;

```
Void swap(int *c, int *d) {  
    int e;  
    e = *c;  
    *c = *d;  
    *d = e;  
}
```

Pointf ("After swapping value in function a=%d, b=%d", a, b);
Pointf ("");

12. Create a program to calculate slope of two lines Using
User defined functions.

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

```
#include <math.h>
```

```
Void slope (int, int, int, int);
```

```
int main ()
```

```
int x1, x2, y1, y2;
```

```
Pointf ("Program for finding slope using function");
```

```
Pointf ("Enter Value of x1, y1, x2, y2");
```

```
Scanf ("%d.%d,%d.%d,%d.%d,%d.%d",
```

```
&x1, &y1, &x2, &y2);
```

```
Slope (x1, x2, y1, y2);
```

```
return 0; }
```

```
Void slope (int x, int y, int z, int w)
```

```
float s;
```

```
float s = ((y - z) / (x - w));
```

```
Pointf ("The value of slope is %f", s);
```

```
y
```

14. Write a C program that uses function to perform multiplication of matrices.

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

void multiply(int x11, int x12, int c11, int c12);
int main()
{
    int x1, x2, d1, d2;
    Pointf("Program for multiplication of matrix[n]\n");
    Pointf("Enter dimension of matrix A\n");
    Scanf("%d %d", &x1, &x2);
    Pointf("Enter the no of column in matrix A[n]\n");
    Scanf("%d", &d1);
    Pointf("Enter dimension of matrix B\n");
    Scanf("%d %d", &x1, &x2);
    Pointf("Enter dimension of matrix B[n]\n");
    Scanf("%d %d", &d2);
    Pointf("Enter the no of column in matrix B[n]\n");
    Scanf("%d", &d2);
    If ((x1 == x2) && (c1 == d2))
        multiply(x1, x2, c1, d2);
    else
        Pointf("This matrix cannot be added\n");
        return 0;
}
```

```
void multiply(int A[111][111], int B[111][111], int C[111][111])
{
    int i=0, j=0, k=0;
```

```
Point F ("In Enter the element of matrix A Row wise");
for (i=0; i<111; i++)
{
    for (j=0; j<111; j++)
        Scanf("%d", &A[i][j]);
}

Point G ("In Enter the element of matrix B Row wise");
for (i=0; i<111; i++)
{
    for (j=0; j<111; j++)
        Scanf("%d", &B[i][j]);
}
```

```
Point H ("In Enter the element of matrix C Row wise");
for (i=0; i<111; i++)
{
    for (j=0; j<111; j++)
        Scanf("%d", &C[i][j]);
}

Point I ("In Enter the element of matrix D Row wise");
for (i=0; i<111; i++)
{
    for (j=0; j<111; j++)
        Scanf("%d", &D[i][j]);
}
```

```
11 operation for multiplication of matrix
for (i=0; i<111; i++)
{
    for (j=0; j<111; j++)
        C[i][j] = 0;
    for (k=0; k<111; k++)
        C[i][j] += A[i][k] * B[k][j];
}
```

Point F ("The element of matrix C is In");
15.10.15

```
for i=0, i<8, i++ do  
    Pointf(y | n);  
  
    for j=0, j<(i+1), j++ do  
        Pointf(" ", C[i][j]);  
        Pointf(" ", j);  
    y
```

15. Write a C program to concatenate two strings without using library function

```
#include<stdio.h>  
#include<string.h>  
void Concat(char s1[], char s2[]);  
int main()  
{  
    char s1[10], s2[5];  
    Pointf("Enter String 1: ");  
    gets(s1);  
    Pointf("Enter String 2: ");  
    gets(s2);  
    Concat(s1, s2);  
    Pointf("Concatenated string is : %s", s1);  
    return 0;
```

Void Contact (char S1[], char S2[]){

int i, j;

i = strlen(S1);

for (j = 0; S2[j] != '\0'; j++) i++;

S1[i] = S2[j];

y

S1[i] = '\0';

y

16. Write a program to store and display the details of a Student Using Structures.

#include < stdio.h >

#include < string.h >

Struct Student

char fname[50];

int roll;

float marks; float s57;

int main()

int i;

PointF("Program for storing and displaying detail of student using structure in ");

PointF ("Enter the info of student (%n),

for (i = 0; i < 5; i++)

SCI %d = %f;

PointF ("Enter the name of student (%s),

```
Pointf Scanf("u.i.s", sc[i]).Firstname );  
Pointf ("Enter marks");  
Scanf("%f", &sc[i].marks);
```

Pointf ("The detail of student are\n");
Pointf ("

```
for(i=0; i<5; i++){  
    Pointf ("In Roll no : %d\n", sc[i].Rollno);  
    Putc('S');  
    Pointf ("Firstname");  
    Pointf (" marks: %f\n", sc[i].marks);  
    Pointf ("In ");  
    sc[i].marks;  
    Putc('Y');
```

Q.13 Write a C program to perform addition of two
matrix.

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

int main()

```
int A[10][10];
```

```
int B[10][10];
```

```
int C[10][10];
```

```
int i, j, k, s1, s2, c1, c2;
```

Pointf ("Program for add of two matrix In n");

Pointf ("Enter the order of matrix A[m]");

Pointf ("Enter the no of rows and column in matrix A[m]");

Scanf ("%d.%d", &s1, &s2);

Pointf ("Enter the no of rows and column in matrix B[n]");

Scanf ("%d.%d", &s2, &c2);

If (s1 == s2, c1 == c2) {

Pointf ("Extract the element of matrix A Rows wise");

```
for (i = 0; i < s1; i++) {
```

```
for (j = 0; j < c1; j++) {
```

```
Scarf (&a[i][j], &A[i][j]);
```

Pointf ("Extract the element of matrix B Rows wise In n");

```
for (i = 0; i < s2; i++) {
```

```
for (j = 0; j < c2; j++) {
```

```
Scarf (&b[i][j], &B[i][j]);
```

11. The addition of two matrix A & B:

```
for(i=0; i<n; i++)  
for(j=0; j<i; j++)  
    cout<<0;  
for(k=0; k<j; k++)  
    cout<<k;  
cout<<endl = Acii[0]+B[1][0]; YY
```

Printf("The element of matrix is %n");

```
for(i=0; i<n; i++)  
for(j=0; Pointf("%n");  
for(j=0; j<(i+1))  
    Pointf("%d", C[i][j]);  
Pointf("%n", C[i][n]);  
    YY
```

Y
else if
 Pointf("%n" matrix cannot be added");
Y
return 0; Y