

Important Short Questions

Q2. Give short answers of the following questions

Q1. What are control structures?

Ans. Control structures are a very important concept in computer programming. Control structures allow programmers to control the flow of program execution

Q2. Name the type of control structures

Ans. Following are the types of control structures

1. Sequential structure
2. Conditional structure
3. Repetition structures

Q3. Define sequential structure

Ans. Sequential structure refers to execution of instruction one by one in the sequence in which they appear in the program from top to bottom till the last instruction.

Q4. Define conditional structure

Ans. Conditional structure refers to execution of instruction based on a condition. If a condition is met a specific set of instructions are executed otherwise control is transferred to some other part of the program.

Q5. What is meant by repetition structure?

Ans. Repetition structure refers to execution of same set of instructions several times until a condition is met.

Q6. What are the purposes of decision making structure?

Ans. Decision making structure are control structures that are used in programming to make decisions. They allow programs to execute a specific statements or a set of statements based on one or more conditions.

Q7. Name the types of decision making statements

Ans. Following are the types of decision making statements

1. If statement
2. If else statement
3. Else if statement
4. Switch statement

Q8. Why IF statement is used in programming?

Ans. The IF statement is used to execute a block of statements based on a condition.

Q9. State the general form IF statement

Ans. The following is the general form of IF statement

If (condition)

{

Block of statements

}

Q10. Define IF ELSE statement

Ans. The IF ELSE statement allows making decision between two courses of action based on a condition.

Q11. State the general form of IF ELSE statement

Ans. The following is the general form of IF ELSE statement

If (condition)

{

Block of statements -1 // if the condition is true

}

Else

{

Block of statements-2 // if the condition is false

}

Q12. Define ELSE IF statement

Ans. The ELSE IF statement is used in situation where a decision is to be made from several alternatives based on various conditions.

Q13. State the general form of ELSE IF statement

Ans. The following is the general form of ELSE IF statement

If (condition-1)

{

```
Else if (condition-2)
{
    Block of statements-2
}

.

Else
{
    Block of statements-n
}
```

Q14. Define SWITCH statement.

Ans the SWITCH statement is a control statement that is used in programming when a single block of statements is to be selected among many choices. It is very similar to ELSE IF statement.

Q15. State the general form of SWITCH statement

Ans the following is the general form of SWITCH statement

```
Switch (expression/variable)
{
    Case constant-1    block of statement
                    Break;
    Case constant-2:  block of statements
```

Break;

Case constant-3: block of statements

Break;

Default: block of statements

Break;

)

Q16. Define nested IF statement

Ans. An IF statement inside another IF statement is known as nested if statement

Q17. Define loop

Ans. A loop is a control structure that repeatedly executes a sequence of statements until condition is true. Loops are also called repetition control structure in C++

Q18. Name the types of loops in C++

Ans. There are three types of loops in C++ which are as follows

1. For loop
2. While loop
3. Do while loop

Q19. Define FOR loop

Ans. A FOR loop is used to execute one or more statements for a specific number of times. It is also known as counter loop.

Q20. State the general form of FOR loop

Ans. The following is the general form of FOR loop

```
For (initialization; condition; increment/decrement)
{
    Block of statements
}
```

Q21. Define WHILE loop

Ans. A WHILE loop is a sentinel loop statement. In this loop, the condition is checked at the beginning of the loop. The body of the loop executes as long as the condition remains true. The control can exit a loop in two ways when the condition becomes false or using break statement.

Q22. State the general form of WHILE loop

Ans. The following is the general form of WHILE loop

```
While (condition)
{
    Block of statements
}
```

Q23. Define DO WHILE loop

Ans. A DO WHILE loop is very similar to while loop, except that the loop condition is checked at the end of the loop. Therefore, the body of the loop is executed at least once.

Q24. State the general form of DO WHILE loop

Ans. The following is the general form of DO WHILE loop

Do

{

Block of statements

}

While (condition) :

Q25. Why continue statement is used in C++?

Ans. The continue statement is used inside a loop. When it is encountered, it transfers control to the beginning of the loop, skipping the remaining statements.

Q26. Why exit () function is used in C++?

Ans. The exit() function is used to terminate a C++ program before its normal termination and exit to the operating system. It requires the standard library header file stdlib.h

Q27. State the general form of exit function

Ans. The following is the general form of exit function exit(value):

Q28. Define nested loop

Ans. A loop inside another loop is known as nested loop.

Q29. Which loops are allowed to be nest in C++?

Ans. The C++ language allows to nest a for, while or do while loop inside another for, while or do while loop.

Q30. Write a C++ program to print positive number entered by the user. If users enters negative number, it is skipped

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Int number;
```

```
Cout<<"Enter an integer";
```

```
Cin>> number;
```

```
If (number > 0)
```

```
{          cout << "You entered a positive integer: " << number << endl;
```

```
}
```

```
Cout<< "this statement is always executed";
```

```
Return 0;
```

```
}
```

Q31. Write a program in C++ to check whether a number is positive, negative or zero

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()

{

Signed long num1 = 0;

    Cout<<"Input a number ";

Cin>>num1;

If (num1 > 0)

    {

        Cout<< "The entered number is positive.\n\n";

    }

Else if (num 1 < 0)

    {

        Cout<< "The entered number is negative.\n\n";

    }

Else

    {

        Std :: cout << "The number is zero.\n\n";

    }

Return 0;
```

```
)
```

Q32. Write a program in C++ to print a mystery series from 1 to 50

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Cout<< "The series are: \n";
```

```
Int nm1 = 1;
```

```
While (true)
```

```
{
```

```
    ++nm1;
```

```
    If ((nm1 % 3) == 0)
```

```
        Continue;
```

```
    If (nm1 == 50)
```

```
        Break;
```

```
    If ((nm1 % 2) == 0)
```

```
    {
```

```
        Nm1 +=3;
```

```
    }
```

```
    Else
```

```
    {
```

```
        Nm1 = 3;
    }
    Cout << nm1 << " ";
}
Cout<<endl;
Return 0;
}
```

Q33. Write a program in C++ that takes a number as input and prints its multiplication table up to 10

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()
{
Int a, i=0;

    Cout<< "Input a number";

    Cin>> a;

        For (i=1;i<=10;i++)

            Cout<< a << "x" << i << "=" <<a*i<<"\n";

}
```

Q34. Write a C++ program that accepts sales unit price and sales quantity of various items and compute total sales amount and the average sales quantity. All input values must greater than or equal to 0 and less than or equal to 1000 and the number of pairs of sales unit and sales quantity does not exceed 100. If a fraction occurs in the average of the sales quantity, round the first decimal place.

Ans. Program

```
#include <iostream>

Using namespace std;

Int main ()
{
Int sale price, qty, ctr = 0, sum 1= 0, sum2 = 0;
Cout << "Input Sales Price and Sales Quantity";
While (cin >> sale_price >> qty)
{
Sum 1 += sale_price * qty;
Sum 2 += qty;
Ctr ++;
}
Cout << sum 1 << endl << static_cast<int>(static_cast<double>(sum 2) / ctr +
0.5
    <<endl;

Return 0;
}
```

Q35. Write a C++ program to check whether number is even or odd using if else statement

Ans. Program

```
#include <iostream>

Using namespace std;

Int main()

{

Int n;

Cout << "Enter an integer:

Cin>>n;

If (n % 2 == 0)

        Cout << n << "is even";

Else

        Cout << n <<"is odd";

Return 0;

}
```

Q36. Write a C++ program to check whether number is even or odd using ternary operator

Ans. Program

```
#include<iostream>

Using namespace std;
```

```
Int main()
{
Int n;
Cout<<"Enter an integer: ";
Cin>>n;
(n%2 == 0)? Cout << n << "is even" cout << n << "is odd";
Return 0;
}
```

Q37. Write a C++ program to find largest number using IF statement

Ans. Program

```
#include <iostream>
Using namespace std;
Int main()
{
Float n1, n2, n3;
Cout << "Enter three numbers:";
Cin>> n1 >> n2 >> n3;
If (n1 >= n2 && n1 >= n3)
{
Cout << "Largest number: " << n1;
}
If (n2 >= n1 && n2 >= n3)
```

```

    {
    Cout << "Largest number:" << n2;
    }
If (n3 >= n1 && n3 >= n2)
{
    Cout << "Largest number : " << n3;
}
Return 0;
}

```

Q39. Write a C++ program to find largest number using IF ELSE statement

Ans. Program

```

#include<iostream>

Using namespace std;

{

Float n1, n2, n3;

Cout<< "Enter three numbers";

Cin >> n1 >> n2 >> n3;

If (n1 >= n2) && (n1 >= n3))

    Cout << "Largest number: " << n1;

Else if ((n2 >= n1) && (n2 >= n3)) * << n2;

    Cout<< "Largest number : << n2;

Else

```

```
Cout << "Largest number: " << n3
```

```
Return 0;
```

```
)
```

Q40. Write a C++ program to find largest number using nested if else statement

Ans. Program:

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Float n1, n2, n3;
```

```
Cout << "Enter three numbers: ";
```

```
Cin >> n1 >> n2 >> n3;
```

```
If (n1 >= n2)
```

```
{
```

```
If (n1 >= n3)
```

```
    Cout << "Largest number: " << n1;
```

```
Else
```

```
    Cout << "Largest number: " << n3;
```

```
}
```

```
Else
```

```
{
```

```
    If (n2 >= n3)
```

```
    Cout << "Largest number " << n2:  
Else  
    Cout<< "Largest number" << n3:  
}  
Return 0:  
}
```

Q41. Write a C++ program to check if a year is a leap year or not by using nested IF ELSE statement

Ans. Program:

```
#include<iostream>  
  
#include<conio.h>  
  
Using namespace std;  
  
Int main()  
  
Int year;  
  
Cout<<"Enter a year:";  
  
Cin>>year;  
  
If (year % 4 == 0)  
{  
    If (year % 100 == 0)  
    {  
        If (year % 400 == 0)  
            Cout << year << "is a leap year";  
    }  
}
```

```
    Else
        Cout<< year << "is not a leap year";
    }
    Else
        Cout << year << "Is a leap year";
    }
Else
    Cout<< year << is not a leap year";
Return 0;
}
```

Q42. Write a C++ program to display multiplication table up to 10 by using FOR loop

Ans. Program

```
#include <iostream>
Using namespace std;
Int main()
{
Int n;
Cout << "Enter a positive integer: ";
Cin>>n;
For (int i =1 ; i<=10; i++)
{
```

```
        Cout<< N << "*" << i << "=" << n*i << endl;  
    }  
    Return 0;  
}
```

Q43. Write a C++ program to display multiplication table up to given range by using FOR loop

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
  
Int n, range;  
  
Cout << "Enter an integer:";  
  
Cin >> n;  
  
Cout<< "Enter range";  
  
Cin>>range;  
  
For (int i = 1; i<=&range; ++i)  
{  
  
        Cout<< n << "*" << i << "=" << n * i << endl;  
  
    }  
  
Return 0;  
}
```

Q44. Write a C++ program to display Fibonacci series up to 'n' number of terms.

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()

{

Int n, t1=0, t2=1, NextTerm=0;

Cout<<"Enter the number of terms";

Cin>>n;

Cout<<"Fibonacci series":

For (int i=1; i<=n; ++i)

{

If(i==1)

{

Cout<<"<<t1;

Continue;

}

If(i==2)

{

Cout<<t2<<" ";

Continue;

}

NextTerm=t1+t2;
```

```
T1=t2:  
T2=nextTerm;  
Cout<<NextTerm<<"":  
}  
Return0:  
}
```

Q45. Write a C++ program to generate Fibonacci sequence up to a certain numbers

Ans. Program

```
#include <iostream>  
  
Using namespace std;  
  
Int main()  
{  
  
In t1 = 0, t2 = 1, next Term = 0, n;  
  
Cout << "Enter a positive number";  
  
Cin >> n;  
  
// displays the first two terms which is always 0 and 1  
  
Cout << "Fibonacci Series " << t1 << ", " << t2 << ", "  
  
NextTerm = t2 + t2;  
  
While (NextTerm <=n)  
{  
  
Cout << NextTerm << ", ";
```

```
T1=t2;
T2=NextTerm;
nextTerm = t1 + t2;
} return 0;
}
```

Q46. Write a C++ program to find HCF using while loop

Ans. Program

```
#include<iostream>
Using namespace std;
Int main()
{
Int n1, n2;
Cout << "Enter two numbers" *;
While (n1 != n2)
{
If (n1 > n2)
N1 = n2;
Else
N2=n1;
}
Cout << "HCF = " << n1;
Return 0;
```

```
)
```

Q47. Write a C+ program to find HCF using FOR loop

Ans. Program

```
#include <iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Int n1, n2, hcf;
```

```
Cout<<"Enter two numbers";
```

```
Cin>>n1>>n2;
```

```
// Swapping variables n1 and n2 is greater than n1
```

```
If (n2> n1)
```

```
{
```

```
    Int temp= n2;
```

```
    N2 = n1;
```

```
    N1= temp;
```

```
}
```

```
For (in i=1; i<= n2; ++i)
```

```
{
```

```
    If (n1 % i == 0 && n2 % i == 0)
```

```
        Hcf = i;
```

```
    }  
}  
Cout << "HCF = " << hcf;  
Return 0;  
}
```

Q48. Write a C++ program to find LCM of two numbers by using DO-INHILE loop

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
  
Int n1, n2, max;  
  
Cout<<"Enter two numbers";  
  
Cin >> n1 >> n2;  
  
// maximum value between n1 and n2 is stored in max  
  
Max= (n1 > n2) ? n1: n2;  
  
Do  
{  
  
    If (max % 1 == 0 && max % n2 == 0)  
    {  
  
Cout << LCM << max;  
  
Break;
```

```
)  
Else  
++max;  
}  
While (true):  
Return 0;  
}
```

Q49. Write a C++ program to reverse an integer by using WHILE loop

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
  
Int n, reversedNumber = 0, remainder;  
  
Cout << "Enter an integer":  
  
Cin>>n;  
  
While (n !=0)  
{  
  
Remainder = n%10;  
  
reversedNumber = reversedNumber*10 + remainder;  
  
n /=10;  
  
}
```

```
Cout << "Reversed Number = " << reversedNumber;
```

```
Return 0;
```

```
}
```

Q50. Write a C++ program to compute power of a number manually by using WHILE loop

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Int exponent;
```

```
Float base, result =1;
```

```
Cout<< "Enter base and exponent respectively: ";
```

```
Cin>> base>> exponent;
```

```
Cout<< base >> exponent ;
```

```
While (exponent != 0)
```

```
{
```

```
Result *= base;
```

```
--exponent;
```

```
}
```

```
Cout << result;
```

```
Return 0;
```

```
)
```

Q51. Write a C++ program to check a number is prime or not

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Int n, i;
```

```
Bool isPrime = true;
```

```
Cout<<"Enter a positive integer:";
```

```
Cin >> n;
```

```
For (i=2; i<=n/2; i++)
```

```
{
```

```
    If(n%i==0)
```

```
    {
```

```
        isPrime = false;
```

```
        break;
```

```
    }
```

```
}
```

```
    If (isPrime)
```

```
        Cout<<"This is a prime number";
```

```
    Else
```

```
    Cout<<"This is not a prime number":
```

```
Return 0;
```

```
}
```

Q52. Write a C++ program to display prime numbers between two intervals

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Int low, high, l, flag;
```

```
Cout<<"Enter two numbers(intervals):";
```

```
Cin >> low >> high;
```

```
Cout << "Prime numbers between " << low << "and" << high << "are" << " ";
```

```
While (low < high) {
```

```
    Flag= 0;
```

```
    For (i=2; i<=low/2; ++i)
```

```
    {
```

```
        If (low%i == 0)
```

```
        {
```

```
            Flag=1;
```

```
            Break;
```

```
        }
```

```
    }  
    If (flag == 0)  
    Cout << low << *"  
    ++low;  
    }  
    Return 0;  
    }
```

Q53. Write a C++ program to display when larger number is entered first

Ans. Program

```
#include <iostream>  
Using namespace std;  
Int main ()  
{  
Int low, high, flag, temp;  
Cout << "Enter two numbers (intervals);  
Cin >> low >> high;  
// swapping numbers if low is greater than high  
    If (low > high)  
    {  
    Temp = low';  
    Low = high;  
    High = temp;
```

```
    }  
    Cout<<"Prime numbers between " << low << "and" << high << "are: ";  
    While (low < high)  
    {  
        Flag = 0;  
        For (int i=2; i<=low/2; i++)  
        {  
            If (low % i == 0)  
            {  
                Flag = 1;  
                Break ;  
            }  
        }  
    }  
    If (flag == 0)  
    Cout << low << " ";  
    ++low;  
}  
Return 0;  
}
```

Q54. Write a C++ program to display all factors of a number

Ans. Program:

```
#include<iostream>
```

```
Using namespace std;

Int main()

Int n, l;

Cout << "Enter a positive integer: ";

Cin >> n;

Cout << "Factors of " << n << " are: " << endl;

For (i=1; i <=n; i++)

{

    If (n% i == 0)

        Cout << i << endl;

}

Return 0;

}
```

Q55. Write a C++ program to make a simple calculator to add, subtract, multiplu or divide using SWITCH CASE statement

Ans. Program

```
#include <iostream>

Using namespace std;

Int main()

{

Char op;

Float num1, num2 ;
```

```
Cout<< "Enter operator either + or - or * or /:";

Cin >> op;

Cout << "Enter two operands:";

Cin >> num1 >> num2;

Switch(op)

{

Case '+':

Cout << num1+num2;

Break;

Case '-':

Cout << num1-num2;

Break;

Case '*':

Cout << num1*num2;

Break;

Case '/':

Cout << num1/num2;

Break;

Default:

// if the operator is other than +, -, * or /, error message is shown

Cout << "Error! Operator is not correct";

Break;

}
```

```
Return 0;
```

```
}
```

Q56. Write a C++ program to print the given patterns by using NESTED FOR loop

1

12

123

1234

12345

Ans. Program

```
#include <iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    For (i=1; i<=5; j++)
```

```
    {
```

```
        For(j=1; j<=i; j++)
```

```
        {
```

```
            Cout<<j;
```

```
        }
```

```
        Cout<<endl;
```

```
    }
```

```
Return 0;  
}
```

Q57. Write a C++ program to print the given pattern by using nested FOR loop

```
5  
45  
345  
2345  
12345
```

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
    Int i, j;  
    For (i=5; i>=1; i--)  
    {  
        For(j=i; j<=5; j++)  
        {  
            Cout<<j;  
        }  
        Cout<<Endl;  
    }  
}
```

```
    Return 0;  
}
```

Q58. Write a C++ program to print the given pattern by using nested FOR loop

12345

1234

123

12

1

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
    For I, j;  
    For (i=5; i>=1; i--)  
    {  
        For (j=1; j<=i; j++)  
        {  
            Cout<<j;  
        }  
        Cout<<endl;  
    }  
}
```

```
    Return 0:  
}
```

Q59. Write a C++ program to print the given pattern by using nested FOR loop

12345

2345

345

45

5

Ans. Program:

```
#include <iostream>  
  
Using namespace std;  
  
Int main()  
{  
    Int i, j;  
    For(i=1; i<=5; i++)  
    {  
        For (j=i; j<=5; j++)  
        {  
            cout<<j;  
        }  
        Cout<<endl;  
    }  
}
```

```
Return 0;
```

```
}
```

Q60. Write a C++ program to print the given pattern by using nested FOR loop.

54321

4321

321

21

1

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    For (i=5; i>=1; i--)
```

```
    {
```

```
        For(j=i; j>=1; j--)
```

```
        {
```

```
            Cout<<j;
```

```
        }
```

```
        Cout<< endl;
```

```
    }
```

```
    Return 0;  
}
```

Q61. Write a C++ program to print the given pattern by using nested FOR loop

54321

5432

543

54

5

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
    Int i, j;  
    For (i=1; i<=5; i++)  
    {  
        For (j=5; j>=i, j--)  
        {  
            Cout<<j;  
        }  
        Cout<<Endl;  
    }  
}
```

```
    Return0;  
}
```

Q62. Write a C++ program to print the given pattern by using nested FOR loop

```
1  
21  
321  
4321  
54321
```

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
    Int i, j;  
    For(i=1; i<=5; i++)  
    {  
        For(j=1; k>=1; j--)  
        {  
            Cout<<j;  
        }  
        Cout<<endl;  
    }  
}
```

```
    Return 0;  
}
```

Q63. Write a C++ program to print the given pattern by using nested FOR loop

```
5  
54  
543  
5432  
54321
```

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
    Int i, j;  
    For(i=5; i>=1; i--)  
    {  
        For(j=5; j>=i; j--)  
        {  
            Cout<<j;  
        }  
        Cout<<endl;  
    }  
}
```

```
    Return 0;  
}
```

Q64. Write a C++ program to print the given pattern by using Nested FOR loop.

```
1  
22  
333  
4444  
55555
```

Ans . Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
    Int i, j;  
    For (i=1; i<=5; i++)  
    {  
        For(j=1; j<=i; j++)  
        {  
            Cout<<Endl;  
        }  
    }  
    Return 0;  
}
```

Q65. Write a C++ program to print the given pattern by using nested FOR loop

5

44

333

2222

11111

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    For (i=5; i>=1; i--)
```

```
    {
```

```
        For(j=5; j>=i; j--)
```

```
        {
```

```
            Cout<<i;
```

```
        }
```

```
        Cout<<Endl;
```

```
    }
```

```
    Return 0;
```

```
}
```

Q66. Write a C++ program to print the given pattern by using Nested FOR loop

123456

12345

123

1

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    For(i=7; i>=1; i=2)
```

```
    {
```

```
        For (j=1; j<=i; j++)
```

```
        {
```

```
            Cout<<j;
```

```
        }
```

```
        Cout<<endl;
```

```
    }
```

```
    Return 0;
```

```
}
```

Q67. Write a C++ program to print the given pattern by using nested FOR loop

12345

4321

123

21

1

Ans. Program

```
#include<iostream>
```

```
Using namespace
```

```
Int main()
```

```
{
```

```
    Int i, j, k;
```

```
    For (i=5; i>=1; i--)
```

```
    {
```

```
        If(i%2==1) k=1;
```

```
        Else k=i;
```

```
        For (j=1; j<=i; j++)
```

```
        {
```

```
            Cout<<k;
```

```
            If(i%2==1) k++;
```

```
            Else k--;
```

```
        }
```

```
        Cout<<endl;
```

```
    }
```

```
    Return 0;  
}
```

Q68. Write a C++ program to print the given pattern by using nested FOR loop

55555

4444

333

22

1

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
    Int i, j;  
    For(i=5; i>=1, i--)  
    {  
        For(j=1, k<=i, j++)  
        {  
            Cout<<i;  
        }  
        Cout<<endl;  
    }  
}
```

```
    Return 0:  
}
```

Q69. Write a C++ program to print the given pattern by using nested FOR loop

11111

2222

333

44

5

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    For (i=1; i<=5; i++)
```

```
    {
```

```
        For(j=5; j>=i; j--)
```

```
        {
```

```
            Cout<<i;
```

```
        }
```

```
        Cout<<Endl;
```

```
    }
```

```
    Return 0;
```

```
}
```

Q70. Write a C++ program to print the given pattern

1

01

101

0101

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    For(i=1; i<=4; i++)
```

```
    {
```

```
        For(j=i; j>=1; j--)
```

```
        {
```

```
            Cout<< j%2;
```

```
        }
```

```
        Cout<<endl;
```

```
    }
```

```
    Return 0;
```

```
)
```

Q71. Write a C++ program to print the given pattern

13579

3579

579

79

9

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    For(i=1; i<=9, i+=2)
```

```
    {
```

```
        For(j=i; j<=9, j+=2)
```

```
        {
```

```
            Cout<<j;
```

```
        }
```

```
        Cout<<endl;
```

```
    }
```

```
    Return 0;
```

```
}
```

Q72. Write a C++ program to print the given pattern

A

BB

CCC

DDDD

EEEE

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    Int n=5;
```

```
    For (i=1; i<=n; i++)
```

```
    {
```

```
        For(j=1; j<=i; j++)
```

```
        {
```

```
            Cout<<((char)(i+64));
```

```
        }
```

```
Return 0;
```

```
}
```

Q73. Write a C++ program to print the given pattern.

AAAAA

BBBB

CCC

DD

E

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    Int n=5;
```

```
    For(i=1;i<=n;i++)
```

```
    {
```

```
        For(j=i;j<=n;j++)
```

```
        {
```

```
            Cout<<((char)(i+64));
```

```
        }
```

```
        Cout<<Endl;
```

```
    }
```

```
    Return 0;
```

```
}
```

Q74. Write a C++ program to print the given pattern.

A

AB ABC

ABCD

ABCDE

Ans Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
    Int i, j;
```

```
    Int n=5;
```

```
    For(i=1; i<=n; i++)
```

```
        {
```

```
            For(j=1; j<=i; j++)
```

```
                {
```

```
                    Cout<<((char)(j+64));
```

```
                }
```

```
            Cout<<Endl;
```

```
        }
```

```
    Return 0;
```

```
}
```

Q75. Write a C++ program to print the given pattern.

E

DD

CCC

BBBB

AAAAA

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Int i,j;
```

```
Int n=5;
```

```
For (i=1; i<=n; i++)
```

```
{
```

```
For (j=1; j<=i; j++)
```

```
{
```

```
Cout<<((char)(n-i+1+64));
```

```
}
```

```
Cout<<endl;
```

```
}
```

```
Return 0;
```

```
}
```

Q76. Write a C++ program to print the given pattern

EEEE

DDDD

CCC

BB

A

Ans. Program

```
#include<iostream.h>
Using namespace std;
Int main()
{
Int i, j;
Int n=5;
For (i=n; i>=1; i--)
{
        For (j=1; j<=li; j++)
        {
Cout<<((char)(i+64));
        }
Cout<<endl;
}
Return 0;
}
```

Q77. Write a C++ program to print the given pattern.

```
A
ABA
ABCBA
ABCDCBA
ABCDEDCBA
```

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()
{
Int i, j;
Int n=5;
For (i=1; i<=n; i++)
{
    For(j=1; j<=n-i; j++)
    {
Cout<<" ";
    }
    For(j=1; j<=i; j++)
    {
Cout<<(char)(j+64);
    }
}
```

```
    For(j=i-1; j>=1; j--)  
    {  
        Cout<<(char)(j+64);  
    }  
    Cout<<End1;  
}  
Return 0;  
}
```

Q78. Write a C++ program to print the given pattern

ABCDE

FGHI

JKL

MN

O

ANS. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Int i, j, k;
```

```
Char c=A;
```

```

Int n=5;
For(i=0: i<=n: i++)
{
    For(j=0:j<=i:j++)
    {
        Cout<< " ";
    }
    For (k=n i-1: k<=0: k--)
    {
        Cout<<C;
        C++;
    }
    Cout<<Endl;
}
Return 0;
}

```

Q79. Write a C++ program to print the given pattern.

A

A B C

A B C D E

A B C D E F G

A B C D E F G H I

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()

Int i, j;

Int n=5;

For (i=1; i<=n; i++)

{

    For(j=1;j<=(i*2-1);j++)

    {

        Cout<<((char)(J+64));

    }

    Cout<<endl;

}

Return 0;

}
```

Q80. Write a C++ program to print the given pattern.

```
*

**

***

****

*****
```

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()

{

Int i, j;

For (i=1; i<=5; i++)

{

    For(j=1; j<=1; j++)

    {

        Cout<<"*";

    }

Cout<<Endl;

}

Return 0;

}
```

Q81. Write a C++ program to print the given pattern

```
*

* *

* * *

* * * *

* * * * *
```

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()

Int l, j, k;

For (i=5; i>=1;i)

{

    For(j=1;j<l;j++)

    {

        Cout<<

    }

    For(k=5;k>=i;k--)

    {

        Cout<< "***";

    }

    Cout<< endl;

}

Return 0;

}
```

Q8. Write a C++ program to print the given pattern

**

*

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Int i, j;
```

```
For(i=5; i>=1; i--)
```

```
{
```

```
    For(j=1; j<=i; j++)
```

```
    {
```

```
        Cout<<"**";
```

```
    }
```

```
    Cout<<Endl;
```

```
}
```

```
Return 0;
```

```
}
```

Q83. Write a C++ program to print the given pattern.

```
***
```

```
**
```

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```
{
```

```
Int i, j, k;
```

```
For(i=5; i>=1; i--)
```

```
{
```

```
    For(j=5; j>i; j--)
```

```
    {
```

```
        Cout << *;
```

```
    }
```

```
    For (k=1; k<=i; k+=)
```

```
    {
```

```
        Cout << "***";
```

```
    }
```

```
Cout<<Endl;
```

```
}
```

```
Return 0;
```

```
}
```

Q84. Write a C++ program to determine a candidate's age is eligible for casting the vote or not.

Ans. Program

```
#include <iostream>
```

```
Using namespace std;
```

```
Int main ()
```

```
{
```

```
Int Candidateage;
```

```
Cout<<"Input the age of the candidate:"<<endl;
```

```
Cin>>Candidateage;
```

```
If (Candidateage<18)
```

```
{
```

```
Cout<<"Sorry, You are not eligible to caste your vote"<<endl;
```

```
Cout<<"You would be able to caste your vote after"<<18-
```

```
Candidateage<<"year"<<endl;
```

```
}
```

```
Else
```

```
{
```

```
Cout<<"Congratulation! You are eligible for casting your vote"<<endl;
```

```
}
```

```
Return0;
```

```
}
```

Q85. Write a C++ program to find the eligibility of admission for an engineering course based on the following criteria

Marks in maths ≥ 65

Marks in Phy ≥ 55

Marks in Chem ≥ 50

Total in all three subject ≥ 180

Or

Total in Math and Subject ≥ 140

Ans. Program

```
#include <iostream>
```

```
Using namespace std;
```

```
Int main ( )
```

```
{
```

```
Int p, c, m, t, mp;
```

```
Cout << "Eligibility Criteria for an engineering:" << end1;
```

```
Cou<< "Marks in mathematics  $\geq 65$ " << end1;
```

```
Cout<< "Marks in physics  $\geq 55$ " << end1;
```

```
Cout<< "Marks in chem  $\geq 50$ " << end1;
```

```
Cout<< "Total in all three subjects  $\geq 180$ " << end1;
```

```
Cout<< "or total in maths and physics  $\geq 140$ " << end1;
```

```
Cout<< "....." << end1;
```

```
Cout<< "Input the marks obtained in Physics:" << end1;
```

```
Cin>>p;
```

```
Cout<<"Input the marks obtained in Chemistry:"<<endl;
Cin>>c;
Cout<<"Input the marks obtained in Mathematics:"<<endl;
Cin>>m;
Cout<<"Total marks of Mathematics, Physics and Chemistry
<<m+p+c<<endl;
Cout<<"Total marks of Maths and Physics<<m+p;
If (m>=65)
    If(p>=55)
        If(c>=50)
            If((m+p+c)>=180 | | (m+p)>=140)
                Cout<<"The candidate is eligible for admission"<<endl;
            Else
                Cout<<"The candidate is not eligible"<<endl;
        Else
            Cout<<"The candidate is not eligible"<<endl;
        Else
            Cout<<"The candidate is not eligible"<<endl;
        Else
            Cout<<"The candidate is not eligible"<<endl;
    }
}
```

Q86. Write a C++ program to enter month number and print number of days in month.

Program

```
#include <iostream>

Using namespace std;

Int main ( )
{
Int month;

Cout<<"Enter month number (1-12):";

Cin>>month;

If (month==1)
{
Cout<<"Enter month January" <<end1;
Cout<<"No. of days 31 days" <<end1;
}

Else if (month==2)
{
Cout<<"Enter month February" <<end1;
Cout<<"No. of days 28 or 29 days" <<end1;
}

Else if (month==3)
{
Cout<<"Enter month March" <<end1;
```

```
Cout<<"No. of days 31 days"<<endl;
}
Else if (month==4)
{
Cout<<"Enter month April"<<endl;
Cout<<"No. of days 30 days"<<endl;
}
Else if (month==5)
{
Cout<<"Enter month May"<<endl;
Cout<<"No. of days 31 days"<<endl;
}
Else if (month==6)
{
Cout<<"Enter month June"<<endl;
Cout<<"No. of days 30 days"<<endl;
}
Else if (month==7)
{
Cout<<"Enter month July"<<endl;
Cout<<"No. of days 31 days"<<endl;
}
Else if (month==8)
```

```
{  
Cout<<"Enter month August"<<endl;  
Cout<<"No. of days 31 days"<<endl;  
}  
Else if (month==9)  
{  
Cout<<"Enter month September"<<endl;  
Cout<<"No. of days 30 days"<<endl;  
}  
Else if (month==10)  
{  
Cout<<"Enter month October"<<endl;  
Cout<<"No. of days 31 days"<<endl;  
}  
Else if (month==11)  
{  
Cout<<"Enter month November"<<endl;  
Cout<<"No. of days 30 days"<<endl;  
}  
Else if (month==12)  
{  
Cout<<"Enter month December"<<endl;  
Cout<<"No. of days 31 days"<<endl;
```

```
)  
Else  
{  
Cout<<"Invalid input Please enter month number between (1-12)";  
}  
Return 0;  
}
```

Q87. Write a C++ program to print alphabets from a to z

Ans. Program

```
#include<iostream>  
Using namespace std;  
Int main()  
{  
Int character=0;  
Char ch=A;  
Do  
{  
Character=int(ch);  
Cout<<ch<<" ";  
Character++;  
Ch=char(character);  
}
```

```
While(ch<='Z');  
}
```

Q88. Write a C++ program to check alphabets using conditional operator

Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
Char ch;  
Cout<<"Enter any character: ";  
Cin>> ch;  
Cout<< "It is "<<(((ch>='a' && ch<='z') || (ch>='A' && ch<='Z'))  
?"alphabet" not alphabet");  
Return 0;  
}
```

Q89. Write a C++ program to check whether a character is alphabet, digit or special character

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()
```

```
{  
Char ch;  
Cout<<"Enter any character":  
Cin>>ch;  
// Alphabet checking condition  
// Alphabet checking condition  
If ((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z'))  
{  
Cout << ch << " is an Alphabet":  
}  
Else if (ch >= '0' && ch <= '9')  
{  
Cout << ch << "is a Digit":  
}  
Else  
{  
Cout << ch << "is a special character":  
}  
Return 0;  
}
```

Q90. Write a C++ program to print day name of week.

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()

{

Int week;

Cout << "Enter week number (1-7)":

Cin>>week;

If(week==1)

{

Cout<<"Monday":

}

Else if (week == 2)

{

Cout << "Tuesday":

}

Else if (week == 3)

{

Cout << "Wednesday":

}

Else if (week == 4)

{

Cout <<"Thursday":

}

}
```

```
Else if (week == 5)
{
Cout << "Friday":
}
Else if (week == 6)
{
Cout << "Saturday":
}
Else if (week== 7)
{
Cout << "Sunday":
}
Else
{
Cout<< "Invalid Input! Please enter week in between 1-7":
}
Return 0:
}
```

Q91. Write a C++ program to accept two integers and check whether they are equal or not

Ans. Program

```
#include<iostream>
```

```
Using namespace std;

Int main()

{

Int num1, num2;

Cout << "Input the values for Number 1 and Number 2";

Cin >> num1 >> num2;

If (num1 == num2)

{

Cout << "Number 1 and number 2 are equal";

}

Else

{

Cout << "Number 1 and Number 2 are not equal";

}

}
```

Q92. Write a program in C++ to find the first 10 natural numbers

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()

{

Int i;

Cout<<"The natural numbers are: \n";
```

```
For (i=1; i<=10; i++)  
{  
    Cout << i <<  
}  
Cout << endl;  
}
```

Q93. Write a program in C++ to find the last prime number occur before the entered number

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
    Int num1, cr=0;  
  
    Cout < "Input a number to find the last prime number occurs before the  
    number: ";  
  
    Cin>> num1;  
  
    For (int n=num1; n>=1; n--)  
    {  
        For(int m=2; m<n; m++)  
        {  
            If(n % m == 0)
```

```

        Ctr++;
    }
    If (Ctr == 0)
    {
        If (n == 1)
        {
            Cout << "no prime number less than 2";
            Break;
        }
    }
    Cout << n << "is the last prime number before " << num1 << endl;
    Break;
}
Ctr=0;
}
Return 0;
}

```

Q94. Write a program in C++ to find the sum of the series:

$$1 + \frac{1}{2^2} + \frac{1}{3^3} + \dots + \frac{1}{n^n}$$

Ans. Program

```
#include<iostream>
```

```
Using namespace std;
```

```
Int main()
```

```

{
Double sum =0, a;

Int n, i;

Cout << "Input the value for nth term";

Cin >> n;

For (i=1; i<=n; ++i)
{
A = 1/ pow(i, i);

Cout << "1/" << i << "^" << i << "="<< a << endl;

Sum += a;

}

Cout << "The sum of the above series is: " << sum << endl;

}

```

Q95. Write a program in C++ to calculate sum of the series

$$(1*1) + (2*2) + (3*3) + (4*4) + (5*5) + \dots + (n*n).$$

Ans. Program

```

#include<iostream>

Using namespace std;

Int main()
{

Int i, n, sum= 0;

Cout << "Input the value for nth term: ";

```

```

Cin >> n;

For (i=1; i<=n; i++)
{
Sum += i * i;

Cout << i << " * " << i << " = " << i*i << endl;

}

Cout << "the sum of the above series is: " << sum << endl;

}

```

Q96. Write a program in C++ to calculate the series

$(1) + (1+2) + (1+2+3) + (1+2+3+4) + \dots + (1+2+3+4+\dots+n)$

ans. Program

```

#include <iostream>

Using namespace std;

Int main()
{

Int i, j, n, sum=0, tsum;

Cout << "Input the value for nth term: ";

Cin >> n;

For (i=1; i<=n; i++)
{

Tsum = 0;

        For (j=1; j<=i; j++)

```

```

        {
        Sum+= j;
        Tsum += j;
        Cout << j;
        If (j < 1 )
                {
        Cout << " + " ;
        }
        }
Cout << "=" << tsum << endl;
}
Cout << "the su of the above series is: " << sum << endl;
}

```

Q97. Write a program in C++ to find the sum of series

$$1 - X^2/2! + X^4/4! - \dots \text{ Up to nth term}$$

Ans. Program

```

#include<iostream>

#include <math.h>

Using namespace std;

Int main()

{

Float x, sum, term, fct, y, j, m;

```

```
int l, n;  
Y=2;  
cout<<"Input the value of x":  
cin>>x;  
cout<<"Input the value of nth term":  
cin>>n;  
sum=1;  
term=1;  
cout<<"term 1 value is: "<<term << endl;  
for (i=1; i<n; i++)  
{  
    fct=1;  
        for(j=1; j<=y; j++)  
            {  
                fct= fct * j;  
            }  
    term = term * (-1);  
    m= pow(x,y) / fct;  
    m= m * term  
    cout << "term" << i + 1 << "value is: " << m << endl;  
    sum=sum + m;  
    y += 2;  
}
```

```
Cout << "the sum of the series is: " << sum << endl;  
}
```

Q98. Write a program in C++ to print a square pattern with # character

Ans. Program

```
#include<iostream>  
  
Using namespace std;  
  
Int main()  
{  
  
Int size;  
  
Cout<< "Input the number of characters for a side: ";  
  
Cin>>size;  
  
For (int row =1; row <= size, ++row)  
{  
  
    For (int col = 1; col<=size; ++col)  
  
    {  
  
        Cout << "#"  
  
    }  
  
Cout<< endl;  
  
}  
  
Return 0;  
}
```

Q99. Write a program in C++ to display the cube of the number up to given an integer

Ans. Program

```
#include<iostream>

Using namespace std;

Int main()

{

Int i, ctr, cub;

Cout<< "Input the number of terms":

Cin >> ctr;

For (i1; i<=ctr; i++)

{

Cub = i * i * i;

Cout<<"Number is "<< i <<"and the cube of "<< i << " is: "<< cub << endl;

}

}
```

Q100. Write a program in C++ to display the n terms of odd natural number and their sum

Ans. Program

```
#include<iostream>

Using namespace std;

Int min()
```

```

{
Int i, n, sum =0;
Cout << "Input number of terms":
Cin>>n;
Cout<< "The odd numbers are: ";
For (i=1; <=n; i++)
{
Cout << 2 * i - 1 <<
Sum += 2 * i 1;
}
Cout << "\n The Sum of odd Natural Numbers upto * <<"n << " terms";
Cout << sum << endl;
}

```

Q101. Write a program in C++ to display the n terms of harmonic series and their sum

$$1 + 1/2 + 1/3 + 1/4 + 1/5 + \dots + 1/n \text{ terms}$$

Ans. Program

```

#include<iostream>
Using namespace std;
Int main()
{
Float i, n;

```

```
Float s= 0.0;

Cout<<"\n\n Display n terms of harmonic series and their sum:\n";

Cout <<"Input numbers of terms:";

Cin>>n;

For (i=1; i<=n; i++)

{

If (i < n)

{

    Cout<<"1/" << i << "+";

    S +=1 / (float)i;

}

If (i == n)

{

    Cout << "1/" << i;

    S +=1 / (float)i;

}

}

Cout << "\n The sum of series up to " <<n<< " terms: " <<s<< endl;

}
```

