(3 Hours)   [Total Marks : 100

N.B. :(1) Q. No. **1** is **compulsory**.

(2) Attempt any **four** questions out of **remaining six** questions.

1. (a) What is object oriented programming ? List and explain the basic concepts of it.   8
   (b) Find the o/p of the following :—   12

   (i)   main ( )

```
{
        int i = 1, j = 1;
        for (; ;)
        {
                if (i > 5)
                        break;
                else j + = i;
                cout < < j;
                i + = j;
        }
}
```

   (ii)   main ( )

```
{
        int i = 5, j = 2;
        junk (& i, & j);
        printf (" \n % d % d ", i, j);
}
junk (int  * i, int * j)
{
        *i = *i  *  * i;
        *j = *j  *  * j;    }
```

   (iii)   // main ( )

```
{
        int c = - - 2;
        printf (" C = % d ", c);
}
```

   (iv)   # define square (x) x * x

```
main (  )
{
        int i;
        i = 64/square (4);
        printf (" % d ", i);
}
```

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2. (a) Explain the difference between constructor and destructor in C++.   5
   (b) Explain conditional operators ? and : with the help of example.   5
   (c) Write a program to print Floyd's triangle using control structures (Number of   **10**
       rows of Floyd's triangle to print is entered by the user).

```
        1
        2    3
        4    5    6
        7    8    9    10
```

3. (a) Explain bitwise operators in C++ with the help of example.   5
   (b) What is recursion ? Write a recursive program to find factorial of a given number.   5
   (c) Differentiate between structure and union.   5
   (d) How to declare one dimensional and two dimensional array in C++.   5

4. (a) Write a program to find largest of three numbers using conditional operator.   5
   (b) What is operator overloading ? Explain advantages of it.   5
   (c) Write a program to demonstrate inline function. Discuss its advantages and   **10**
       disadvantages.

5. (a) What is the scope and life of automatic storage class.   5
   (b) Write a program to display the transpose of a matrix.   5
   (c) Explain the concept of parameterized constructor.   5
   (d) Explain the concept of dynamic binding.   5

6. (a) Explain call by reference with one programming example.   5
   (b) Define a structure consisting of following elements :   5
       Student Roll No, Student Name, Student Age, Student date_of_admission.
       Write a program in C++ to read 5 records and display them.
   (c) Write a program to find area of square and circle using operator overloading.   5
   (d) Explain inheritance visibility.   5

7. (a) What is the difference between declaration and definition.   5
   (b) Write a C++ program to implement multilevel inheritance.   5
   (c) What is function overriding ? Explain with example.   5
   (d) Differentiate between static binding and dynamic binding.   5