What is OOPS?

OOP(Object Oriented Programming) is a programming approach that are based on classes and objects, which can contain data and code that manipulate that data.

Features of OOPS:-

- **Class**
- **Object**
- **Inheritance**
- **Polymorphism**
- **Encapsulation**
- **Abstraction**

What is class?

It is a user-defined datatype or blueprint that wrapped data and functions into a single unit.

Syntax:-

```
class class_name {
    data;
    functions;
}
```

Types of class

- **Local**
- **Global**
- **Nested**

What is local class?

A class which is declared inside a function or block is called local class.

Syntax:-

```
return type function_name() {
    class class_name {
       //block of code
    };
}
main() {
   fuction_name();
}
```

What is global class?

A class which is declared outside of all functions or blocks is called global class.

Syntax:-

```
class class_one {
            protected:
                  //data;
                  public:
                  //function_name()
};
class class_two:public class_one {
          public:
          //function_name
};
main() {
          class_one obj;
            //function call
          class_two obj;
            //function call
}
```

What is nested class?

A class which is declared or contain inside another class called nested class.

Syntax:-

```
class class_one {
        public:
            class class_two
            //data
            public:
            //function_name()
};
```

What is object?

It is a concrete representation of the blueprint that is defined by the class. When a class is defined, only the specification for the object is defined; no memory or storage is allocated. To use the data and access functions defined in the class, you need to create objects. The data members and member functions of the class can be accessed using the dot('.') operator with the object.

Syntax:-

```
class class_name {
  public:
    //data members
};
main() {
   class_name obj;
   obj.data_members
}
```

What is Constructor?

It is a special member function of class which is used to create and initialize the objects.

- **A constructor can only have public access modifier.**
- **A constructor is never inherited and overridden.**
- **Every c++ class has a default constructor.**

Types of constructor:-

- **Default**
- **Parameterized**
- **Copy**

What is default constructor?

A constructor that accepts no parameters is called default constructor.

What is parameterized constructor?

A constructor that accepts parameters is known as parameterized constructor.

What is copy constructor?

Whenever we pass object reference to the constructor then it is called copy constructor. It actually copies another constructor's data/content by help of object reference variable.

Difference between constructor and destructor

No.	Constructor	Destructor
1.	Constructor is a special type of function which has the same name as the class name	Destructor is a special member function that is executed automatically when an object is destroyed.
2.	Constructor is being automatically called at the time of object declaration	Destructor has been created by the constructor and it is used to de-allocate the memory that has been allocated for the object by the constructor.
3.	The return type of the constructor is the class type	Destructors don't have a return type, not even void Their purpose is to clean up resources and perform necessary actions before an object is destroyed.
4.		A destructor declaration should always begin with the tilde(~) symbol.