



## DESD – Object Oriented Programming

1. What are object oriented concepts? What is difference between object-based, object-oriented and fully object-oriented language?
2. What are advantages of Object Oriented Programming?
3. What is class and object? Give real-life example.
4. What are characteristics of object? Explain them.
5. What is the need of getter and setter functions in class?
6. What is abstraction and encapsulation. Give real-life example.
7. What is polymorphism? What are its types? Explain them with examples.
8. What is function overloading? Which are the rules of function overloading? Why return type is not considered in function overloading?
9. What are different types of hierarchy? When to use which one?
10. What is the difference between function overloading and function overriding?
11. Why constructor is considered special member function of the class?
12. What is object slicing? Explain object slicing in context of upcasting?
13. What is down-casting and when it is required?
14. What do you know about association, composition and aggregation. Explain with the help of example.
15. What are different types of inheritance? Explain with the help of example. What are problems with multiple inheritance?
16. Which are the different types of design pattern? Explain singleton design pattern.



## DESD – C++ Programming

1. What is the difference between malloc() and new? What is difference between free() and delete?
2. Write a code to allocate and deallocate memory for multidimensional array using new and delete?
3. What is "this" pointer? Is it available for static, virtual, const and friend functions?
4. Why we can not declare static member function constant or virtual?
5. What is the need to write user defined destructor? When it should be declared as "virtual"?
6. Why constructor cannot be declared as virtual?
7. Explain dynamic\_cast operator. When it is required? Explain with example.
8. How virtual function affects on size of object? How it is affected in single and multiple inheritance?
9. What is the need to overload index operator? Explain with example?
10. What is the difference between pointer and reference?
11. What is diamond problem? How to solve it?
12. What is shallow copy and deep copy? How it is implemented in C++? Explain with example.
13. What is conversion function? Which are conversion functions in C++?
14. What is smart pointer? Which are smart pointers in C++?
15. What is STL? Explain different components in STL with examples?
16. What is difference between set, vector and map? How to traverse them? Explain with code.