



22. a) (i) Distinguish between pass by value and pass by reference. Explain how parameters are passed by the above methods in C++ (7)
- (ii) Write a C++ program to print the sum of all squares between 1 and N, where N is a number accepted from the keyboard (ie)  $1+4+\dots+(N*N)$  (7)
- (OR)**
- b) What are the rules to be followed in function overloading? Write a C++ program that can take either two integers or two floating point numbers and outputs the smallest number using class and function overloading?
23. a) (i) Give access rules for accessing static data members (4)
- (ii) Explain C++ string class and its member function with example. (10)
- (OR)**
- b) (i) What are the copy constructors and explain their need? (7)
- (ii) Write short note on Array of objects. (7)
24. a) Justify the need for using friend functions in overloading with an example
- (OR)**
- b) (i) Give the detailed discussion of various types of inheritances with appropriate example. (7)
- (ii) Consider a Fruit Basket class with no. of Apples and no. of Mangoes as data members. Overload the "+" operator to add two objects of this class. (7)
25. a) Explain the following concepts with example
- i) Assignment and copy initialization
- ii) this pointer
- iii) Memory management operator
- (OR)**
- b) Write a C++ program to create a base class called house. There are two classes called door and window available. The house class has members which provide information related to the area of construction, doors and windows details. It delegates responsibility of computing the cost of doors and window construction to door and window classes respectively. Write a C++ program to model the above relationship and find the cost of constructing the house.

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