

SRI SAIRAM ENGINEERING COLLEGE

CS2203 – OBJECT ORIENTED PROGRAMMING

2 MARK QUESTIONS

UNIT - I

1. DEFINE ENCAPSULATION

Encapsulation is the process of combining data and functions into a single unit called class. Using the method of encapsulation, the programmer cannot directly access the data. Data is only accessible through the functions present inside the class. Data encapsulation led to the important concept of data hiding.

2. DEFINE DATA-HIDING

Data members (attributes) in a class are declared as private and private members can be accessed only by functions within the same class. This hides the data from being accessed by other functions outside the class.

3. DEFINE ABSTRACTION

Abstraction is the process of hiding the inner working details. Classes provide the abstraction by hiding the complex workings from the user and providing only the essential details.

4. WHAT IS INHERITANCE

Inheritance is the process by which new classes called *derived* classes are created from existing classes called *base* classes. The derived classes have all the features of the base class and the programmer can choose to add new features specific to the newly created derived class.

5. WHAT IS POLYMORPHISM

Polymorphism is the ability to use an operator or function in different ways. Polymorphism gives different meanings or functions to the operators or functions. Poly, referring to many, signifies the many uses of these operators and functions. A single function usage or an operator functioning in many ways can be called polymorphism. Polymorphism refers to codes, operations or objects that behave differently in different contexts.

6. WHAT IS FUNCTION OVERLOADING?

A function with the same name performing different operations is called function overloading. To achieve function overloading, functions should be declared with the same name but different number and type of arguments. This comes under compile time polymorphism.

7. WHAT IS OPERATOR OVERLOADING? GIVE EXAMPLES

The same operator performing different operations is called operator overloading.

E.g. Two matrices cannot be directly overloaded. But the + operator can be overloaded to perform addition of two matrices or other user defined data types.

8. DEFINE A CLASS

Classes are data types based on which objects are created. Objects with similar properties and methods are grouped together to form a Class. Thus a Class represent a set of individual objects. Characteristics of an object are represented in a class as **Properties**. The actions that can be performed by objects becomes functions of the class and is referred to as **Methods**.

9. WHAT IS AN OBJECT?

Any real world entity such as pen, book, bird, student etc., can be termed as an object. In programming, an object is an instance of a class.

10. WHAT ARE THE DIFFERENCES BETWEEN STRUCTURAL AND OBJECT ORIENTED PROGRAMMING?

STRUCTURAL PROGRAMMING	OBJECT ORIENTED PROGRAMMING
<ol style="list-style-type: none">1. Importance is given to functions2. Reusability of code is not possible3. Does not provide abstraction	<ol style="list-style-type: none">1. Importance is given to data2. Reusability is possible through inheritance3. Provides class level and object level abstraction

11. WHAT IS THE USE OF THE SPECIFIER 'CONST'?

The "const" specifier before a variable makes it a constant whose value cannot be changed during the program. Similarly if it is specified before a pointer, the address contained in the pointer cannot be modified.

12. WHAT DOES THE "VOLATILE" QUALIFIER SPECIFY?

A variable or object declared with the **volatile** keyword may be modified externally from the declaring object. Variables declared to be volatile will not be optimized by the compiler because the compiler must assume that their values can change at any time. Note that operations on a volatile variable in C and C++ are not guaranteed to be atomic.

13. WHAT ARE STATIC MEMBERS?

Static members are not part of any object and they belong to the entire class. Static functions cannot be referenced by objects. Static members cannot use the “**this**” pointer. Static data members remember their value between function calls.

14. WHAT ARE FRIEND FUNCTIONS?

A friend function is used for accessing the non-public members of a class. A class can allow non-member functions and other classes to access its own private data, by making them friends. Thus, a friend function is an ordinary function or a member of another class.

15. WHAT ARE THE VARIOUS ACCESS SPECIFIERS AVAILABLE IN C++?

The various access specifiers available in C++ are **private, public and protected**.

16. WHAT ARE METHODS?

Methods are functions or procedures that can operate upon the data members of a class

17. WHAT IS A POINTER?

A pointer is defined as the variable containing the address of another variable.

18. WHAT ARE THE ADVANTAGES OF OBJECT ORIENTED PROGRAMMING?

- a. It is a natural way of programming.
- b. It allows reusability of code through inheritance.
- c. Writing even large programs is easy.
- d. Testing and managing code are also made easy.

19. WHAT ARE ABSTRACT CLASSES?

Classes containing at least one pure virtual function become abstract classes. Classes inheriting abstract classes must redefine the pure virtual functions; otherwise the derived classes also will become abstract. Abstract classes cannot be instantiated.

20. WHAT IS THE USE OF DEFAULT ARGUMENTS?

Default arguments are used when a default value is to be supplied when the user does not provide any values. The default values can be overridden by the values supplied by the user.