

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
CS6301 - PROGRAMMING AND DATA STRUCTURES**

QUESTION BANK

UNIT I

1. Define object oriented programming.

Object oriented programming is an approach that provides a way of modularizing programs by creating partitioned memory area for both data and functions that can be used as templates for creating such modules on demand.

2. List out the features of OOPS .

- Classes
- Objects
- Data abstraction
- Data encapsulation
- Inheritance
- Polymorphism
- Message passing
- Extensibility
- Persistence
- Delegation
- Genericity
- Dynamic binding.

3. What is an object ?

Objects are the basic run time entities in an object oriented system. They may represent a person , a place or any data item. Objects contain data and code to manipulate data.

4. What is a class?

The entire set of data and code of an object that can be made a user defined data type with the help of a class. A class is a collection of objects of type class.

5. What is data abstraction?

The technique of creating new data types that are well suited to an application to be programmed is known as data abstraction.

6. What is data encapsulation?

The wrapping up of data and functions into a single unit called class is known as data encapsulation.

7. What is data hiding?

The insulation of the data from direct access by the program is called data hiding or information hiding

8. What are inheritance / reusability / derivation?

Inheritance is the process by which objects of one class acquire the properties of objects of another class.

The concept of inheritance provides the idea of reusability. This means that we can add additional features to an existing class without modifying it .

Derivation involves the creation of new classes (derived class) from the existing ones (base class).

9. What is polymorphism?

Polymorphism means the ability to take more than one form.

10. What is the use of a break statement?

A break construct terminates the execution of loop and the control is transferred to the statement immediately following the loop. The term break refers to the act of breaking out of a block of code.

11. What is the use of a continue statement?

The continue statement skips the remainder of the current iteration initiates the execution of the next iteration.

12. Define function.

The process of splitting a large program into small manageable tasks and designing them independently is popularly called modular programming or divide and conquer technique. A repeated group of instructions in a program can be organized as a function. A function is a set of program statements that can be processed independently.

13. What is a pointer? What are the uses of a pointer?

Pointer is defined as a variable used to store memory addresses.

Uses :

- Accessing array elements .
- Passing arguments to a function when the function needs to modify the original. • Passing arrays and strings to functions.
- Creating data structures such as linked lists, binary tree etc . • Obtaining memory from the system dynamically.

14. What is a friend function?

Friend function is a special type of function which is used to access all the private and protected members of a class. The functions that are declared with the keyword friend are called friend functions. A function can be a friend to multiple classes.

15. What are the properties of a friend function?

- A friend function is not in the scope of the class to which it has been declared as friend.
- It can be invoked like a normal function without the help of any object.
- Unlike member functions it cannot access the member names directly and has to use an object name and dot membership with each member name.

16. What is the difference between friend function and member function?

The only difference between a friend function and member function is that, the friend function requires the argument to be explicitly passed to the function and processes them explicitly, whereas, the member function considers the first argument implicitly.

17. What is an inline function?

Inline functions are those whose function body is inserted in place of the function call statement during the compilation process. With the inline code the program will not

18 .What is a recursive function?

A function that contains a function call to itself or a function call to a second function which eventually calls the first function is known as recursive functions.

19. What is data conversion?

When we use the assignment operator we assign a value on the right hand side to a variable on the left side & if it is of a different data type then we have to perform data conversion or type conversion.

20. What are the methods of data conversion?

There are two methods for data conversion:

- (i) implicit data conversion (ii) explicit data conversion

21. Give the structure of a C++ program.

Include files
Class definition
Member function definitions
Main function

22. What is function prototype?

Function prototype is otherwise known as function declaration. The prototype describes the function interface to the compiler by giving details such as the number and type of arguments and the type of return values.

23. What is a class ? How will you define a class?

A class is a way to bind the data and its associated functions together. A class specification has two parts :

- Class declaration
- Class function definition

24. What are the characteristics of a static data member?

- Static data member is initialized to zero when the first object of its class is created. No other initialization is permitted.
- Only one copy of that member is created for the entire class and is shared by all the objects of that class, no matter how many objects are created.
- It is visible only within the class, but its life time is the entire program.

25. What are the properties of a static member function?

- A static function can have access to only other static members, declared in the same class.
- A static member function can be called using the class name as follows

Classname :: function-name;

26. In what way is a private member function different from public member function.

A private member function can only be called by another function that is a member of its class. Even an object cannot invoke a private function using the dot operator.