1.1 What Do you think are major issues facing the software industry today?

ANSWER:

→One characteristics that is constant in the software industry today is "Change". Change is one of the most critical aspects of software development and management . New tools and New approaches are announced almost everyday .the impact of these developments is often very extensive and raises a number of issues that must be addressed by the software engineers . Most important among them are maintainability , reusability , security , integrity and user friendliness of software products. T build today's complex software We need to use sound construction techniques and program structure that are easy to comprehend , implementing and modify in wide variety of situation .

1.2 Briefly discuss the software evolution during the period form 1950 to 1995.

ANSWER:

→From 1950 to 1995, software evolution saw the transition from early assembly languages to high-level languages, the advent of structured programming in the 1960s, the development of database management systems in the 1970s, the rise of personal computing and object-oriented programming in the 1980s, and the emergence of the internet and the beginning of agile methodologies in the 1990s.

1.3 What is object-oriented Programming ? How is it Different from the procedure-oriented Programming?

ANSWER:

→Object-oriented programming (OOP) is a paradigm based on the concept of 'objects' which can contain data in the form of fields, and code in the form of procedures.

→ It differs from procedure-oriented programming which is based on the concept of procedures or routines. OOP organizes software design around data, or objects, rather than functions and logic.

1.4 How are the data and methods organized in an object-oriented programming?

ANSWER:

→ In OOP, data and methods are organized into classes and objects. A class defines a type with properties and methods, while an object is an instance of a class. Methods operate on data attributes within the objects they belong to.

1.5 What are the unique advantage of an object-oriented programming?
ANSWER:

→ The unique advantages of OOP include modularity, reusability, scalability, and ease of maintenance. It allows for the creation of flexible and extensible programs that can be easily updated and modified.

1.6 Distinguish between the following terms.
a) *Object & classes*
b) *Data abstraction and data encapsulation*
c) *Inheritance and polymorphism*
d) *Dynamic binding and messaging passing*

ANSWER:

a) **Objects & classes**: An object is an instance of a class, whereas a class is a blueprint for objects.
b) **Data abstraction and data encapsulation**: Data abstraction is the concept of hiding the complex implementation details and showing only the essential features, while data encapsulation is the bundling of data with the methods that operate on the data.
c) **Inheritance and polymorphism**: Inheritance is the mechanism of basing a class on another class, retaining similar implementation, while polymorphism is the ability of different classes to be treated as instances of the same class through a common interface.
d) **Dynamic binding and messaging passing**: Dynamic binding is the code execution method that resolves method calls at runtime, while message passing is the process by which an object sends data to another object or asks the other object to invoke a method.

1.7 What kinds of things can become objects in OOP?
ANSWER:

→ n OOP, objects can be anything that has properties and behaviour , including real-world entities like a person or a car, as well as conceptual entities like a bank account or a data structure.

1.8 Describe inheritance as applied to OOP.
ANSWER:

→ Inheritance in OOP is a mechanism wherein a new class is derived from an existing class. The new class inherits the properties and behaviours of the existing class, allowing for code reusability and the creation of hierarchical relationships between classes.

1.9 List a few areas of application of OOP technology.
ANSWER:

→ Applications of OOP technology include software development for

- graphical user interfaces (GUIs)
- real-time systems
- simulation and modelling
- artificial intelligence
- web development.

1.10 State whether the following statement are TURE and FALSE.
a) *In Conventional , procedure-oriented programming, all data are shared by all functions.* ***T***
b) *The main emphasis of procedure-oriented programming is on algorithms rather than on data.* ***T***
c) *One of the striking features of OOP is the division of program into objects that represent real-world entities.* ***T***
d) *Wrapping up of data of different types into a single unit is known as encapsulation.* ***T***
e) *One problem with OOP is that once a class is created . it can never ne changed.* ***F***
f) *Inheritance means the ability to reuse the data values of one object by other objects.* ***T***
g) *Polymorphism is extensively used in implementing inheritance.* ***F***
h) *OOP are executed much faster than conventional programs.* ***F***
i) *OO approach cannot be used to create databases.* ***F***