**Object Oriented Programming Fundamentals**

1. What is the main difference between a class and an object?

# Class: A class is a blueprint to create the object.

Class is used to bind data and methods together.

Classes have logical existence.

Declaration can be done only once in Class.

When a programmer creates a class it does not take any memory space.

Object: An object is an instance of the class, which helps to use variables and methods from inside the class.

Object acts as a variable to the class.

Objects have physical existence.

When object is created it takes memory.

Object can be declared multiple times.

.

1. What is Encapsulation? Explain with a used case

# Encapsulation is the process of wrapping or bundling of code and data into one unit. A phone is an abstract and the subsystems in phone, screen, speaker keypad are encapsulated.

1. What is Polymorphism? Explain with a used case

# Ability of a variable, function, data type, class to have multiple forms is called polymorphism.

Single person having the ability to play different sports.

1. Explain Overriding & Overloading and its advantages

# when a method in subclass and superclass has same name, same parameters and same return type is called overriding.

Helps in writing generic code for parent and sub class.

Multiple implementations can be done on same method.

Overloading is having two or more methods with same name but different parameters.

You can call similar method for different types of data.

Increase in reliability of the program.

Code will clear and precise.

1. What is Inheritance and different types of inheritance? Explain with a used case

# inheritance is the process of developing features and behaviours of a class by other class

Single inheritance, multiple inheritance, multilevel inheritance, hybrid inheritance and hierarchical inheritance.

1. What is an abstract class?

# It is the template definition of methods and variables of a class that has one or more abstract method.

1. What is an interface and how multiple inheritance is achieved with this

# It is an abstract type that is used to specify the behavior of the class must implement.

Multiple inheritance is achieved with inheritance by interface occurs if a class implements multiple interfaces.

1. What are the access modifiers?
2. What are the various types of constructors?

# Default constructor, parameterized constructor and copy constructor.

1. What is ‘this’ pointer?

# It is current object in a referred variable.

1. What is static and dynamic Binding?

# Static time is the compile time and dynamic binding is the run time.

1. How many instances can be created for an abstract class and why?

# 0, it is not possible to create abstract class.

1. Which OOPS concept is used as a reuse mechanism and explain with a use case

# Inheritance is the reuse mechanism in OOPS,

1. Please identify one practical scenario for each pillar of OOPs.

# Inheritance: A child inheriting the features of a parent.

Polymorphism: Phone can do multiple thing like calls, messages and photos.

Abstraction: Sending an email.

Encapsulation: A Capsule.