Class 9 Chapter 1

Principles of object oriented programming

A. Tick (✓) the Correct Answer

1. **Which of the following is a pillar of Object-Oriented Programming?**
   - **c. Polymorphism (✓)**
2. **_____ allows multiple objects of different subclasses to be treated as objects of a single superclass.**
   - **d. Super class (✓)**
3. **Abstraction and Data hiding maintain the _____ of data as only necessary data is provided.**
   - **c. Security (✓)**
4. **Which of the following language is known as a user-friendly computer language?**
   - **c. High-Level Language (✓)**
5. **The wrapping up of data members and member methods into a single unit is called Encapsulation.**
   - **d. together (✓)**

B. Fill in the Blanks

1. **Procedure-Oriented Programming (POP)** has global data sharing of functions.
2. **Compiler/interpreter** converts source code into object code.
3. **Object-Oriented Programming (OOP)** divides the whole problem into smaller programs known as functions or methods.
4. Methods and **data members/variable** are enclosed within a unit called class.
5. C++ is an example of **Object-Oriented Programming Language (OOPL).**

C. Short Answer Type Questions

1. **Write the difference between POP and OOP.**

Feature	POP (Procedure-Oriented Programming)	OOP (Object-Oriented Programming)
Approach	Focuses on procedures (functions)	Focuses on objects
Data Handling	Uses global data sharing	Uses encapsulation (data hiding)
Security	Less secure	More secure due to abstraction
Example	C	C++, Java, Python

2. **Define Polymorphism with a real-life example.**
    - **Polymorphism** means "many forms." It allows the same function or operator to behave differently based on the context.
    - **Example:** A **person** can act as a **teacher** in school, a **parent** at home, and a **customer** in a shop.

3. **Write any 2 disadvantages of Object-Oriented Programming.**
    - **Higher memory usage** due to object creation.
    - **More complex** compared to procedural programming.

4. **Write the difference between Polymorphism and Encapsulation.**

Feature	Polymorphism	Encapsulation
Definition	Ability of a function or object to take multiple forms	Wrapping data and methods into a single unit
Purpose	Reduces code duplication	Provides data security
Example	Function overloading, method overriding	Private variables in a class

5. **Give a real-life example of a situation where polymorphism is used.**
    - A **car** has a method called `move()`, but different types of vehicles (bike, truck, plane) override it with their own implementation.

---

6. **Write the difference between Assembly language and Machine level.**

Feature	Assembly Language	Machine Level Language
Language Type	Low-level	Binary code (0s and 1s)
Readability	Uses mnemonics (MOV, ADD)	Not human-readable
Speed	Slower than machine code	Fastest execution
Example	`MOV A, B`	`10101100 00001101`

7. **Write down two advantages of Polymorphism.**
    - **Code reusability**: Reduces redundancy by allowing the same function to behave differently.
    - **Scalability**: Makes code more adaptable to future changes.

8. **Write down any two disadvantages of Machine Level Language.**
    - **Difficult to understand and write** since it consists of binary numbers (0s and 1s).
    - **Not portable**, as machine code is specific to a particular processor.

****