Daffodil International University **Missed Quiz Num:**
Department of Software Engineering
Faculty of Science & Information Technology
Makeup Quiz : Fall 2024
Course Code: SE211, Course Title: Object-Oriented Concept
Level: 2; Term: 1; Section: All
Time: Marks:

Name: **ID:** **Sec:**

1. Which of the following best describes Abstraction in Java?

A. Creating multiple methods with the same name but different parameters
B. Providing implementation for all methods in a class
C. Hiding implementation details while showing only essential features
D. Hiding data using private access modifiers

2. In Java, what allows Encapsulation to work effectively?

A. Overriding methods to change behavior
B. Access modifiers such as `private`, `protected`, and `public`
C. Using inheritance to extend functionality
D. Interfaces to define multiple behaviors

3. Which of these demonstrates Polymorphism?

A. A subclass overriding a method from its parent class
B. A method in a class calling another method within the same class
C. Two classes implementing the same interface with different method behavior
D. Both A and C

4. Identify the incorrect statement about Inheritance in Java:

A. It allows code reuse by extending existing classes
B. A class can implement multiple interfaces
C. A class can extend multiple parent classes directly
D. It provides a hierarchical relationship among classes

5. Which of the following is an example of Abstraction?

A. Defining a class as `abstract` with at least one abstract method
B. Using `private` fields and `public` getters/setters
C. Overloading constructors for different initialization needs
D. Using `this` keyword to refer to the current instance

6. Encapsulation protects data in a class. Which combination achieves this?

A. Marking fields `private` and using `final`
B. Marking fields `private` and using public getters/setters
C. Using `static` fields and providing static methods
D. Marking fields `protected` and using `abstract` methods

7. What will happen if two classes have a method with the same name, but no inheritance relationship exists between them?

A. Polymorphism is achieved
B. Overloading occurs
C. Overriding occurs
D. There is no relationship; no OOP concept applies here

8. Polymorphism in Java can be achieved through:

A. Method Overloading only
B. Method Overriding only
C. Both Method Overloading and Overriding
D. Interfaces only

9. Which of the following cannot be directly associated with Inheritance in Java?

A. Superclass providing default behavior to subclasses
B. Subclass overriding methods in its superclass
C. Declaring a method `static` in the superclass
D. Using `super` to call a constructor from the parent class

10. What is the key difference between Abstraction and Encapsulation?

A. Abstraction is hiding "how" things work, while Encapsulation is hiding "what" works
B. Abstraction is achieved using access modifiers, while Encapsulation uses interfaces
C. Abstraction is focused on behavior, while Encapsulation is focused on data
D. Abstraction and Encapsulation are identical in Java

Question 2 :

You are tasked with designing a **Student Management System** for a university. The system should adhere to the principles of **Encapsulation** and **Abstraction**. The requirements are as follows:

1. **Encapsulation**:
    - Create a class `Student` with private fields: `studentId`, `name`, and `grade`.
    - Provide getter and setter methods to access and modify these fields, but ensure that:
        - `studentId` can only be set once during object creation (immutable after that).
        - The `grade` must be between 0 and 100; otherwise, throw an exception.
2. **Abstraction**:
    - Create an abstract class `Course` with the following:
        - A property `courseName` (protected).
        - A concrete method `displayCourseDetails()` to display the course name.
        - An abstract method `calculateFinalGrade()` to be implemented by subclasses.
3. Implement a concrete subclass `UndergraduateCourse` that extends the `Course` class:
    - Implement `calculateFinalGrade()` to return the average of three assignment grades.
    - Use encapsulation to store the grades privately.

Task: Write a Java program to implement the above requirements.