

**CDAC Mumbai**  
**PG-DAC Aug24 Batch (Juhu& Kharghar)**  
**Lab Exam**

**Module 4: Object Oriented Programming in Java**

**Time : 2hrs**

**Marks: 40**

---

Book Store

Question:

Develop a Book Store Application where customers can browse and purchase books online. Your design should demonstrate core Java principles including OOP, Constructor Chaining, Inheritance, Polymorphism, Exception Handling, and Collections.

Requirements:

1. Class Design and Inheritance:

- Create a `Book` class with attributes like `bookId`, `title`, `author`, `price`, and `stock`.
- Extend `Book` into `FictionBook`, `NonFictionBook`, and `Comics`.
- Create a `Customer` class to handle purchases.

2. Constructor Chaining:

- Use constructor chaining to initialize book attributes.

3. Polymorphism:

- Override `purchaseBook()` for different book categories.

4. Collections and Functionalities:

- Use `List<Book>` to store available books and `Map<Customer, List<Book>>` to track purchases.

5. Exception Handling:

- Implement custom exceptions like `OutOfStockException` and `InvalidPurchaseException`.
-