

No. of Printed Pages : 5

MCS-206

**POST GRADUATE DIPLOMA
IN COMPUTER
APPLICATIONS
(PGDCA-NEW)**

Term-End Examination

June, 2026

**MCS-206 : OBJECT ORIENTED
PROGRAMMING USING JAVA**

Time : 3 Hours

Maximum Marks : 100

Weightage : 70%

Note : *Question No. 1 is compulsory and carries
40 marks. Attempt any **three** questions
from the rest.*

1. (a) Discuss the significance of Java Virtual Machine (JVM) in the Java ecosystem. Explain how JVM facilitates platform independence. 5
- (b) Describe the role of constructors in Java classes. Explain the concept of constructor overloading with example. 5
- (c) Explain the use of the final keyword in Java. Discuss its significance in variable declaration and method definition. 5
- (d) Explain encapsulation in Java. Discuss the benefits of encapsulation and explain how access modifiers are used to achieve encapsulation. 5
- (e) What is I/O streams in Java. Explain the differences between byte stream and character stream classes. 5

- (f) What are assertions in Java ? Discuss their use and importance in code development. Provide example of using assertions to validate program assumptions. 5
- (g) Describe the features and advantages of Java FX for building graphical user interfaces (GUIs). Explain the components and layout options available in JavaFX. 5
- (h) Explain the role of static methods in an interface in Java. Discuss the issues associated with multiple interfaces and how they can be addressed. 5
2. (a) Write a Java program to demonstrate the use of synchronization in multithreading. Use synchronized methods or blocks to coordinate access to share resources. 10

- (b) Explain the potential issues that may arise in multithreaded programs and strategies to avoid or mitigate them. 10
- 3. (a) Explain the role of exceptions in Java and hierarchy of exception classes. Explain how custom exception classes can be created and used in Java programs. 10
- (b) Write a Java program to demonstrate exception handling for database connection failures. 10
- 4. (a) Explain the concept of serialization in Java and its importance in data storage and transfer. Discuss the steps involved in serializing and deserializing objects in Java. 10
- (b) Write a Java program to demonstrate methods overloading and methods overriding. 10

5. Write short notes on the following : 5×4=20

- (a) Polymorphism
- (b) JDBC
- (c) Flushable interfaces
- (d) Thread Life Cycle
- (e) Dynamic binding

× × × × ×