



Seat No. : _____

DP-102

December-2025

5 Year Integrated M.Sc. (CS), Sem.-V (Computer Science) Java Programming

Time : 2:30 Hours]

[Max. Marks : 50

Instructions : (1) Draw diagrams wherever necessary.
(2) Make assumptions wherever necessary.

1. (A) Explain the difference between primitive and non-primitive (reference) data types with suitable Java examples. **6**
- (B) What do you mean by exception handling ? Explain it with an example. **4**
- OR**
1. (A) What are Mathematical and String functions ? Explain any four functions with an example. **6**
- (B) Explain exception hierarchy in Java with an example of any two built-in exceptions. **4**
2. (A) Why do we say Java is an object-oriented language ? Explain using any two pillars with an example. **6**
- (B) What are the advantages of using inheritance ? Explain. **4**
- OR**
2. (A) Discuss compile-time and runtime polymorphism with definitions, differences, and Java examples. **6**
- (B) What is method overriding and method overloading ? Explain it with example. **4**
3. (A) Discuss the role of wrapper classes in Java Collections Framework. Describe autoboxing and unboxing with a complete Java program. **5**
- (B) Explain File handling in Java using the File class. Discuss the methods used for file creation, deletion, renaming, checking permissions and listing directories with suitable examples. **5**
- OR**
3. (A) Describe String, StringBuffer, and StringBuilder in detail. Compare them based on mutability, performance, memory usage, and thread-safety. Provide suitable examples. **5**
- (B) Explain the difference between FileInputStream, FileOutputStream, FileReader, and File Writer. Write a program demonstrating reading and writing using character streams. **5**

4. (A) Explain the hierarchy of Collection Framework with a neat diagram. **5**
(B) Explain multithreading in Java. Discuss thread creation, lifecycle, priority, synchronization, and inter-thread communication with proper examples. **5**

OR

4. (A) What is synchronization ? Explain its need with an example. **5**
(B) Write a Java program to add, remove and search elements in an Array List. **5**

5. Answer the following questions : (Each question carries **1** mark.) **10**

- (1) What is a wrapper class in Java ?
 - (2) Write any two advantages of OOP.
 - (3) What is the difference between byte stream and character stream ?
 - (4) What does **createNewFile ()** method do ?
 - (5) What is the purpose of **sleep ()** method ?
 - (6) What is thread lifecycle ?
 - (7) What is a thread ?
 - (8) What is the difference between Array and ArrayList ?
 - (9) What is the purpose of **Collections** class ?
 - (10) What is List ?
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