2025

COMPUTER SCIENCE — HONOURS

Paper : DSCC-8

(Object Oriented Programming)

Full Marks : 75

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer ***any five*** questions : 2×5

(a) What is the difference between '==' and 'equals()' in Java?

(b) Describe method overloading with a simple example.

(c) List any four differences between C++ and Java.

(d) What is the purpose of the 'final' keyword in Java?

(e) What do you understand by string immutability in Java?

(f) Write the difference between a constructor and a method.

(g) What is an abstract class? Give an example.

(h) What is bytecode?

Section - A

Answer ***any three*** questions.

2. What are Java packages? Differentiate between user-defined packages and built-in packages. 1+4

3. Illustrate with code how multiple catch blocks work. What is the order of catch block execution, and why is it important? 3+2

4. List and briefly explain the four main principles of Object-Oriented Programming (OOP). How do these OOP concepts contribute to code reusability? 3+2

5. Explain autoboxing and unboxing with suitable examples. 5

6. Explain life cycle of an applet with an appropriate diagram. 5

Section - B

Answer ***any five*** questions.

7. (a) What is an exception?

(b) What is the difference between checked and unchecked exceptions?

(c) Write a Java program that throws a user-defined exception if you enter a negative number. 2+3+5

8. Define the role of access modifiers in inheritance. Why is multiple inheritance forbidden in Java? Discuss the role of super keyword in initializing the inherited data members using the base class constructors with an example. 4+2+4

9. How does an interface differ from an abstract class? Can interfaces extend other interfaces? Can they implement or extend classes? How does static methods in interfaces differ from default methods? 2½+2½+2½+2½

10. (a) State the differences between the string and stringbuffer classes in Java.

(b) Write a Java program to check whether a string is palindrome using command line argument. 5+5

11. (a) Explain static polymorphism with an example.

(b) Explain dynamic method dispatch with an example. 5+5

12. (a) Differentiate between servlet and swing in Java.

(b) What is the difference between throw and throws? 5+5

13. Compare and contrast implementing Runnable and extending the Thread class for creating a thread. Which approach is more useful and why? Explain how multiple threads can be started using a single class. 4+2+4

14. Write short notes on (***any two***) : 5×2

(a) JDBC

(b) Thread prioritization

(c) Wrapper class

(d) Garbage collection.
