

Examination (January - 2024)
Master of Computer Science (M.Sc)
Semester - III
Web Programming

Time Allowed: 3 Hours**Max. Marks: 70****Instructions for the Students**

1. Attempt any 2 questions out of 4 from Section – A (Each question carries 10 marks)
2. Attempt any 2 questions out of 4 from Section – B (Each question carries 10 marks)
3. Attempt any 10 questions out of 15 from Section – C (Each question carries 03 marks)

Section - A**2*10=20**

- Q1.** What do you mean by Inheritance? Explain the different types of Inheritance with examples.
- Q2.** Explain the different control structures available in Java with suitable examples.
- Q3.** What are classes and objects? Explain the concepts of class definition, object creation, accessing class members and constructor in Java.
- Q4.** How does Java handle method invocation in a multilevel hierarchy? Discuss the rules and considerations related to method overriding.

Section - B**2*10=20**

- Q5.** Describe the Java thread life cycle. What are the various states that a thread may be in, and how does it change between them?
- Q6.** What are Exceptions? Explain various techniques to handle Exceptions in Java with examples.
- Q7.** Describe in detail how to use the HTML applet tag to embed a Java applet into a web page.
- Q8.** Explain the concept of packages in Java, including their purpose, benefits, and how they contribute to a well-organized and modular code structure with examples.

Section - C**10*3=30****Q9. Short Answer Questions (Attempt any 10 questions)**

- a) Compare and contrast the role of Java Development Kit (JDK) and Java Runtime Environment (JRE) in Java application development.
- b) Explain key characteristics of the Java programming language.
- c) Describe the different datatypes available in Java.
- d) Outline the steps involved in defining a class in Java. Provide an example of a simple class definition.
- e) Discuss the concept of method overloading in Java. Provide an example illustrating the use of method overloading.
- f) How is the super keyword used to call super class constructors in Java? Provide an example of its usage in a subclass constructor.
- g) What is Multithreading? Explain with an example.
- h) How are abstract classes used in Java? Provide an example of an abstract class
- i) Explain the significance of the final keyword in Java. Discuss its application in variables, methods, and classes.
- j) Explain what a "package" means in relation to Java programming. Give an explanation of the procedures needed to define and create a user-defined package.
- k) Explain the role of the import statement in Java with example.

- l)** Explain the significance of access modifiers (e.g., public, private, protected) in controlling access to class members.
- m)** What is an interface in Java, and how does it differ from a class?
- n)** Differentiate between the two main types of Java applets: "Standalone Applets" and "Web-based Applets."
- o)** Demonstrate how to use the `drawLine`, `drawRect`, and `drawOval` methods of the `Graphics` class to create basic shapes in a Java applet.