CBCS SCHEME

USN

BCS613D

Sixth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Advanced Java

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Summarize the main advantages of using the Java collections Framwork.	5	L2	CO1
	b.	Explain the difference between a List and Set in the Java.	5	L2	CO1
	c.	Create a student class with fields name and roll number. Develop a Java code snippet to store multiple student objects in an ArrayList, use iterator to display details of each student.	10	L3	CO1
		OR			
Q.2	a.	Explain how does a comparator interface differ from a comparable interface.	5	L3	CO2
	b.	Explain the difference between an array and an ArrayList in Java.	5	L2	CO2
	c.	Develop a Java program that stores a list of integers in a LinkedList and applies reverse-order Comparator to sort it in descending order. Then, use appropriate methods from the collections class to reverse, shuffle and find the minimum and maximum values in the list.	10	L3	CO2
		Module – 2			
Q.3	a.	Explain why string is immutable in Java? What are the benefits of this behavior?	5	L2	CO2
	b.	Compare between the = = operator and equals( ) method when comparing string objects in Java. Support your explanation with a code example.	5	L2	CO2
	c.	Develop a Java program that applies the Bubble sort algorithm to sort an array of string objects in ascending order alphabetically using the compareTo( ) method.	10	L3	CO2
		OR			
Q.4	a.	Explain how the append( ) method in StringBuffer works and how it is different from using + with string?	5	L2	CO3
	b.	Explain the purpose of the insert( ) delete( ), replace( ), reverse( ) and substring( ) method in the StringBuffer class with suitable examples.	5	L2	CO3
	c.	Develop a Java program using suitable StringBuffer methods to transform the string "StringBuffer is powerful" in to "StringBuffer is versatile and widely used". Apply replace( ), insert( ), delete( ) and append( ) methods to achieve the desired output.	10	L3	CO3
		Module – 3			
Q.5	a.	Explain two key features of Java swing.	5	L2	CO2
	b.	What is the MVC architecture is Java swing? Explain the role of each component and identify which parts of the MVC pattern the following swing components represent : JTextfield, ActionListener, and the text content stored in the field.	5	L2	CO2
	c.	Develop a Java swing application using JFrame that displays a simple form with the following components : • A Label and text field for "Name" • A Label and text field for "Age" • A submit button • When the button is clicked, display the entered information using a message dialog.	10	L3	CO2

		OR			
Q.6	**a.**	Create a Java swing application using JApplet to design a simple calculator that adds two numbers entered by the user. Display the result when a button is clicked.	**10**	**L3**	**CO3**
	b.	Develop a Java swing JApplet that contains a menubar with a "color" menu. This menu should have three menu items : "Red", "Green" and "Blue". When a user selects one of the options, the background color of the applet should change according.	**10**	**L3**	**CO3**
		Module – 4			
Q.7	**a.**	What is a Java Servlet? Explain its role in web development.	**5**	**L2**	**CO4**
	b.	Explain the life cycle of a servlet and how can form data be retrieved in Java Servlet.	**5**	**L2**	**CO4**
	c.	Develop a Java servlet program that accepts a username and passward from an HTML form and displays a welcome message if the credentials match predefined values.	**10**	**L3**	**CO4**
		OR			
Q.8	**a.**	Explain different types of JSP tags with examples.	**5**	**L2**	**CO4**
	b.	Show a JSP code to read a request parameter "name" from an HTML form and display a greeting message.	**5**	**L2**	**CO4**
	c.	Construct a JSP page that accepts a user's name and age, stores them in session attributes and display a personalized message using those attributes.	**10**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	What is JDBC? Explain its significance in Java applications.	**5**	**L2**	**CO5**
	b.	Name and explain the four types of JDBC drivers.	**5**	**L2**	**CO5**
	c.	Develop a Java program to connect to a database, insert a new student record into a table, and display a confirmation message.	**10**	**L3**	**CO5**
		OR			
Q.10	**a.**	Explain the steps in the JDBC process to connect to a database.	**5**	**L2**	**CO5**
	b.	Compare statement and ResultSet objects in JDBC.	**5**	**L2**	**CO5**
	c.	Develop a Java program to retrieve and display all records from an employees table using ResultSet.	**10**	**L3**	**CO5**

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