

Enroll No

K.E.Society's
Rajarambapu Institute of Technology, Rajaramnagar
 (An Empowered Autonomous Institute, Affiliated to SUK)
 End Semester Examination (Nov./Dec. 2025)
 S.Y.B.C.A. III

Q.P.Code
E 1137

Course Code: BC201

Course Name: Object Oriented Programming Using Java

Day & Date: Tuesday 04/11/2025

Time : 2:30 To 5:30

Max Marks: 100

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures in rounded() brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.
 - 3) CO is the index number of the Course Outcome statement.
 - 4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.
 - 5) Assume suitable data if necessary.
 - 6) Use of non-programmable calculators is allowed

Q.1		Marks	COs	BTLevel
(a)	Explain how Java achieves platform independence and security through JVM and bytecode. (7 Marks)	15 Marks	CO1	2
(b)	Discuss how variable scope, access modifiers, and memory management affect program behavior in Java with suitable examples. (8 Marks)			

Q.2

(a)	Write Java programs to demonstrate: (5 Marks each)	15	CO2	3
	i. Calculation of factorial using loop	Marks		
	ii. Use of nested if statement			
	iii. Demonstration of break and continue statements			

OR

Explain with examples: (5 Marks each)

- i. Structure of a Java program
- ii. Difference between primitive and reference data types
- iii. Use of comments and documentation in Java.

Q.3

(a)	Explain the concept of Object-Oriented Programming with examples of Encapsulation, Inheritance, and Polymorphism. (9 Marks)	15 Marks	CO3	4
(b)	Write a Java program to demonstrate overloading and overriding methods. (6 Marks)			

OR



- Q.3 (a) Discuss how constructors and constructor chaining are implemented in Java using this() and super(). (8 Marks)
- (b) Explain with examples the concept of inheritance hierarchy (7 Marks)
- Q.4 (a) Explain the concept of abstraction and interface in Java with suitable real-world examples. (8 Marks) 15 CO3 4 Marks
- (b) Write a Java program where an abstract class Shape has methods to compute area and perimeter, and subclasses Circle and Rectangle override them. (7 Marks)
- Q.5 (a) Explain with examples: (5 marks for each): 20 CO4 2 Marks
- Explain the importance of the HashMap class.
 - Write the syntax to create an object of ArrayList and HashMap.
 - What are the advantages of using the ArrayList class over arrays?
 - What is the purpose of the java.util package in Java?
- Q.6 (a) i. Explain the concept of Event Handling in Java. (5 Marks) 20 CO3 4 Marks
- Write a Java Applet program to draw a Pie Chart representing any four categories using the Graphics class methods. (7 Marks)
 - Explain the paint() method in Applet. (3 Marks)
 - Write Applet HTML Page with suitable example (5 Marks)

