



VIT
Vellore Institute of Technology
(Affiliated to the University under section 3 of the UGC Act, 1956)

Final Assessment Test – November 2025

Course: CSI2008 - Programming in Java

Class NBR(s): 2497/2500/2508/2510

Time: Three Hours

Slot: D1+TD1

Max. Marks: 100

- KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
- DON'T WRITE ANYTHING ON THE QUESTION PAPER

COs	CO Statements
CO1	Analyze the programs involving the fundamental program constructs.
CO2	Choose the appropriate OOP technique for solving the real world problem.
CO3	Demonstrate exception handling and use of threads in Java.
CO4	Propose the use of Generic programming and file handling for different scenarios.
CO5	Explore various methods for manipulating strings and several collections.
CO6	Choose appropriate elements to facilitate event handling and GUI programming.
CO7	Design and develop web applications using Servlets with JDBC.

BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

Answer ALL Questions

(10 X 10 = 100 Marks)

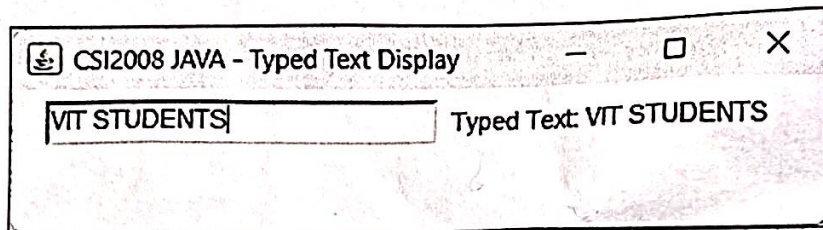
1. Create a retail store weekly purchase and sales records for 7 days in an array and calculate the total purchase and average sales. Write a Java code to the above scenario and display. CO1 BL3
2. Create an Online Course System where different types of courses calculate duration differently. Design an abstract class Course with data members course_name, instructor_name and duration in package coursepkg. Overload the constructors and include methods displayCourse() and abstract method computeDuration() that returns duration of the course in hours. Design a class ProgrammingCourse which inherits from the Course class and includes additional information about the numberOfModules and hoursPerModule. Implement the method computeDuration() [numberOfModules * hoursPerModule] and displayCourse(). Design another class DesignCourse which inherits from the Course class and includes additional information about the numberOfWorkshops and hoursPerWorkshop. Implement the method computeDuration() [numberOfWorkshops * hoursPerWorkshop] and displayCourse(). Write driver class to test the methods. [Note: Test for both ProgrammingCourse and DesignCourse]. CO2 BL3
3. Design a Smart Fitness Calculator System where different fitness calculators implement a common interface. Create an interface FitnessCalculator with following methods: void calculateBMI() and void displayValues(). Design the class BMICalculator with data members bmi, weight and height that implements the interface. Overload the constructors to initialize the data members and implement the methods calculateBMI() which computes the bmi value ($bmi = weight / (height * height)$) and displayValues(). Implement a driver class to demonstrate and test all methods. CO2 BL3

- ④ Write a java code using block lambda expression to find out ^{whole} fibonacci series for any given input of a number.
- ⑤ Write java code for performing different String manipulation operations using StringBuilder methods such as appending, inserting, replacing, deleting, reversing and accessing characters for employee data.
- ⑥ You are a student developer creating a desktop application using Java GUI programming. You've been asked to implement a simple interface that displays the characters a user types in real time. To achieve this, you decide to use the Key Listener interface and implement all the methods.

CO5 BL3

CO5 BL4

CO6 BL4



7. Write short notes on the following

CO6 BL2

- a) Java Event Delegation model.
b) JavaFX Architecture and Application structure.

[5]

[5]

8. Write a Java program using JDBC to connect to a MySQL database named VIT, retrieve data from a table named VITEmployees, and display the fields ID, Name, and Age.

CO7 BL3

- 9.a) Explain the role of try and catch in Java exception handling. How do they work together to handle runtime errors? Provide an example program where a try block contains code that may throw an exception and a catch block handles it.

CO3 BL4

OR

- 9.b) Explain inter-thread communication in Java. Describe the roles of wait(), notify(), and notifyAll(). Give an example scenario where these methods are used effectively.

CO3 BL4

- 10.a) Write a Java program that:

CO4 BL3

- i. Reads a file data.txt line by line using character stream.
ii. Reverses the content of each line.
iii. Writes the reversed lines back to the file out.txt.
iv. Handle Exceptions appropriately.

OR

- 10.b) Design a generic interface TemperatureCalculator<T extends Number> to perform the following financial calculations:

CO4 BL3

- i. double toCelsius(T fvalue) [Hint: $C = (F - 32) \times (5/9)$]
ii. double toFahrenheit(T cvalue) [Hint: $F = C \times (9/5) + 32$]
iii. double toKelvin(T fvalue) [Hint: $K = (F - 32) \times (5/9) + 273.15$]
Implement integer and double version of the generic interface.

⇔⇔⇔ Y/K/TY ⇔⇔⇔