



SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2025-2026

319-30

Programme Name & Branch : M. Tech. Integrated (CSE Core and Data Science)
Course Code and Course Name : CSI2008 & Programming in Java
Faculty Name(s) : Prof. V. Sivakumar, Prof. Bhuvaneshwari M S,
Prof. Debarati Dutta, Prof. Ramesh C
Class Number(s) : VL2025260102497, VL2025260102508,
VL2025260102510, VL2025260102500
Date of Examination : 08.10.2025
Exam Duration : 90 minutes **Maximum Marks: 50**

General instruction(s):

- 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.

Q. No	Question	Module	Marks	CO	BL
1.	Create a Java program where two threads generate OTPs for fund transfers. One thread generates a 4-digit numeric OTP, while another generates a 6-character alphanumeric OTP. Both must write their OTPs into a shared object OTPStore, and the main thread displays them.	3	10	3	3
2.	A toll booth needs a system to manage blacklisted vehicles. Each vehicle provides a Vehicle Number, Owner Name, Vehicle Type, and Reason for Blacklisting, and the data should be stored in a binary file using byte streams. The system should check for already existing Vehicle Numbers while adding new entries using a loop over the file contents and allow displaying all blacklisted vehicles. (a) Design a Java program with a Vehicle class to store vehicle details and a TollBooth class to handle adding, checking, and displaying vehicles. (7M) (b) Compare buffered byte streams with unbuffered byte streams in terms of efficiency when processing large vehicle records in a binary file. (3M)	4	10	4	2
3.	A food delivery system manages different types of food items such as FastFood, Beverage, and Dessert. Design a Java program using user-defined classes where each food type extends a common superclass Food. Create a generic interface with methods to deliver a single item	4	10	4	3



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	and to deliver multiple items. Implement the interface in a delivery service class and use a lower bounded wildcard to allow the service to process items of a certain type and all its superclasses.				
4.	Write a class MobilePhone with instance data for make, model, and year. i. Use the String constructor to initialize string data. ii. Add a toString method that uses a StringBuffer to build and return the phone's description. iii. Include a method isObsolete that returns true if the phone is more than 10 years old. Create a Main class MobilePhoneCheck to create and update two MobilePhone objects and display their details.	5	10	5	3
5.	In an online shopping system, a customer purchases items and can pay using different payment options. Write a Java program that uses a functional interface and lambda expressions to represent payment methods: Credit Card, PayPal, and UPI. Each payment method should implement the same interface method pay (double amount) using a lambda expression. Include the following minimum payment restrictions: i. Credit Card: minimum ₹100 ii. PayPal: minimum ₹200 iii. UPI: minimum ₹50 Write a program that allows a customer to make a payment for one object instance of each payment type and ensures that each payment respects the minimum limit.	5	10	5	2
