VIT
Vellore Institute of Technology
CHENNAI

Reg. Number:	

Continuous Assessment Test (CAT) – II - OCTOBER 2025

Programme	:	B.Tech Computer Science and Engineering	Semester	:	Fall 2025-26
Course Code & Course Title	:	BCSE301L – Software Engineering	Class Number	:	CH2025260100696 CH2025260100697 CH2025260100693 CH2025260102455 CH2025260102456 CH2025260102457 CH2025260100694
Faculty	:	Dr. ALOK CHAUHAN Dr. LAKSHMI HARIKA PALIVELA Dr. JAYANTHI R Dr. K PARKAVI Dr. R ELAKYA Dr. K KUMARAN Dr. N GANESH	Slot	:	E2 + TE2
Duration	:	1 Hour 30 Minutes	Max. Mark		50

General Instructions: < Use this space to provide additional information such as graph sheet, data book

- Write only your registration number on the question paper in the box provided and do not writ information
- Only non-programmable calculator without storage is permitted

Answer all questions

Q. No	Sub Sec.	Description	Marks	Module No.	Level	HoT?	CO
1.		Developing a ride-sharing app like Uber, UML models are needed for user-driver matching, route optimization, and payment processing. A new feature for shared rides introduces complexities in sequence interactions and state changes for multiple passengers.	10	3	Hard	Yes	3
	A	Create a UML sequence diagram to model the interactions during a shared ride booking. (5 marks)					
	B	Analyze potential synchronization issues in the sequence diagram, and synthesize improvements using activity diagram to ensure fault tolerance in cases of network disruptions. (5 marks)					
2		A team is tasked with designing an AI-powered online learning platform that provides personalized course recommendations, adaptive quizzes, automated grading, and real-time feedback to students. The system must be intelligent, user-friendly, and scalable.	10	4	Easy	Yes	
	A	Explain how abstraction and modularity can be applied in the system architecture to divide the platform into manageable components, ensuring high cohesion within modules and low coupling between them. (5 marks)					
	B	Identify and discuss the key software design objectives for this platform. Explain how architectural decisions (nonfunctional)					

		and design decisions (functional) influence the system's maintainability, scalability, and usability. (5 marks)						
3		Consider an Online Food Ordering System (OFOS) that enables customers to place meal orders. The system performs the following functions: • Accepts customer login. • Displays restaurant menu with items and prices. • Allows customers to select items and add them to the cart. • Processes online payment. • Sends order confirmation and tracks delivery status.	10	4	Medium	Yes	2	Analyze
	A	Draw the Level 0 DFD for the Online Food Ordering System. (2 Marks)						
	B	Perform transaction mapping for the ordering process, showing the interaction between the customer and the system. (8 Marks)						
4		A company is launching an Online Food Delivery App where users can: • Register/Login • Search restaurants and browse menus • Add items to the cart • Apply discount coupons • Make payments via Wallet, UPI, or Card • Track order status in real time Assume that, you are the Test Lead for this project. Prepare the following:	10	5	Easy	Yes	4	Ur rst
	A	Define objectives, scope (in-scope & out-of-scope features), test strategy, entry/exit criteria, roles & responsibilities, schedule, risks, and tools you would use. (5 marks)						
	B	Identify test conditions for two modules: a) Login & Registration b) Order Placement & Payment (3 marks)						
	C	Write at least 5 detailed test cases for the "Apply Discount Coupon" feature. (2 marks)						
5		Indian Airlines is developing a Ticketing and Reservation System that allows passengers to: • Book tickets, cancel reservations, reschedule journeys, and request class changes. • Check flight schedules, fares, and seat availability through a query feature. • Use cargo services for transporting goods. All these operations are managed by a Reservation Clerk to ensure smooth service delivery. In the software development process, testing plays a crucial role in validating and maintaining the system's functionality.	10	5	Medium	Yes	5	
	A	Explain in detail the concept of Regression Testing and its different types in the context of the Indian Airlines Ticketing and Reservation System, with suitable examples. Further, design a regression testing strategy for the newly added features of the system. (7 Marks)						
	B	Differentiate Regression Testing from Re-testing by highlighting their purpose, scope, and application in this system. (3 Marks)						

**********All the best **********

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