

**VIT**Vellore Institute of Technology
Approved by the University under section 3 of UGC Act, 1956
CHENNAIReg. Number: **Continuous Assessment Test (CAT) – I AUGUST 2025**

Programme	B.Tech (all specializations)	Semester	Fall Semester 2025-26
Course Code & Course Title	BCSE 301L Software Engineering	Class Number	CH2025260101331 CH2025260101457 CH2025260101458 CH2025260101608 CH2025260101612 CH2025260101616 CH2025260102105 CH2025260102106 CH2025260102107 CH2025260102108 CH2025260102109
Faculty	Dr. SRISAKTHI SARAVANAN Dr. ILAVARASI A K Dr. SOFTYA SEBASTIAN Dr. PRAVEEN JOE I R Dr. SMRITHY G S Dr. DHAVAKUMAR P Dr. KAVITHA D Dr. SHERLY A Dr. BRINDHA S Dr. RAMA PRABHA K P Dr. KUMARAN K	Slot	F2+TF2
Duration	1 hour and 30 minutes	Max. Mark	50

General Instructions:

- Write only your registration number on the question paper in the box provided and do not write other information

Answer all questions

Q. No	Sub Sec. c.	Description	Marks	CO	BT Level
1		A multinational hospital chain is creating an AI-enabled Healthcare Information System (HIS) that expands its capabilities over time, ensuring early usability, seamless integration of new features, strict regulatory compliance and adaptability to emerging healthcare technologies without disrupting ongoing operations. i. Analyse the given product requirements and recommend a suitable software process model with appropriate justifications for the HIS (3 Marks) ii. Illustrate the working of the chosen model and evaluate it by outlining its advantages and limitations. (7 Marks)	10	CO1	Apply
2		Finovate Solutions, a fintech startup, wants to develop a mobile banking app that supports instant payments,			

	account tracking, and AI-powered expense analysis. The project requires rapid adaptation to customer feedback and frequent integration of new features without compromising security. The company opts to implement the Agile approach for managing the project's development. - Describe the different phases of XP for this fintech system with design. (5 marks) - Develop a Sprint Plan and outline the factors affecting the sprint plan for the fintech with a diagram. (5 marks)	10	CO1	Apply												
3	a A software company is building a Library Management System (LMS) for VIT and has identified the following components: <table border="1"> <thead> <tr> <th>Component</th><th>Weight (Avg)</th></tr> </thead> <tbody> <tr> <td>External Input (adding books, registering members, issuing books, returning books, updating book info)</td><td>4</td></tr> <tr> <td>External Inquiry (book search, member lookup, loan history)</td><td>5</td></tr> <tr> <td>External Interface File (university directory, city library network)</td><td>7</td></tr> <tr> <td>Internal Logical File (books, members, transactions, fines, staff, suppliers)</td><td>4</td></tr> <tr> <td>External Outputs (current inventory report, overdue items, daily transactions, member status)</td><td>10</td></tr> </tbody> </table> The complexity adjustment factor (Fi) is given as 30. Calculate the Adjusted Function Points (AFP) for this highly complex product. (5 marks) b A Project size of 800 KLOC is to be developed. The company has an average experienced team, and the project scope is not clear. The Project schedule is not very tight. Calculate the Effort, development time, average staff size, and productivity of the project. (5 marks)	Component	Weight (Avg)	External Input (adding books, registering members, issuing books, returning books, updating book info)	4	External Inquiry (book search, member lookup, loan history)	5	External Interface File (university directory, city library network)	7	Internal Logical File (books, members, transactions, fines, staff, suppliers)	4	External Outputs (current inventory report, overdue items, daily transactions, member status)	10	10	CO2	Apply
Component	Weight (Avg)															
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4	A metropolitan transport authority has decided to develop a fully automated Smart Public Transportation Management System to streamline city bus operations and improve passenger convenience. Basic details of bus routes, drivers, and schedules can be fetched from the existing transport database. The proposed software must authenticate users (passengers and staff), enable passengers to book tickets online, track buses in real time, provide options for passengers to report issues, allow drivers to receive updated route instructions, integrate a payment gateway for fare collection, and provide control to administrators to override bus schedules in case of emergencies. It must also generate analytical reports on passenger flow, route efficiency, and ticket sales for management review. - Give a product-based work breakdown structure (WBS) for the above scenario. (5 Marks) - Draw a project plan with milestones and deliverables based on the WBS made in section (i). (5 Marks)	10	CO2	Analyze												

5	You are tasked with developing a Learning Management System (LMS) for a private training institute. The client needs features such as course creation and scheduling, student registration and enrolment, online assessment and grading, progress tracking, and integration with video conferencing tools for live classes. i. List all commonly used requirements elicitation techniques for LMS. (5 Marks) ii. Identify and describe three key techniques for eliciting requirements from a client who needs these LMS features. (5 Marks)	10	CO3	Apply
*****All the best*****				

R. Jayanthi (150926)
18/8/25

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