



SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2025-2026

SLOT: A2 +TA2

Programme Name & Branch : B.Tech - CSE , E&CSE
Course Code and Course Name : BCSE301L - Software Engineering
Faculty Name(s) : Prof. MARGRET ANOUNCIA S, Prof. SHASHANK MOULI SATAPATHY, Prof. CHELLATAMILAN T, Prof. SHOBHA REKH, Prof. SENTHILNATHAN P, Prof. NAVEENKUMAR J, Prof. USHUS ELIZEBETH ZACHARIAH, Prof. ANAND BIHARI, Prof. PRABIN S M, Prof. SIVAPRAKASH S, Prof. KRISHNARAJ N, Prof. BASKARAN P, Prof. RANJITHKUMAR S, Prof. MISHA CHANDAR B, Prof. MANJULA R, Prof. EBENEZER JULIET S, Prof. SWARNALATHA P, Prof. AJITHA D.
Class Number : VL2025260501367, 1387, 1389, 1390, 1392, 1406, 1417, 1420, 1422, 1424, 1428, 1460, 1489, 1499, 2274, 3715, 3716, 4698.
Date of Examination : 27.01.2026 AN
Exam Duration : 90 minutes **Maximum Marks: 50**

General instruction(s):

- Answer All Questions
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply)

Course Outcomes

Co1: Apply and assess the principles of various process models for the software development.
Co2: Demonstrate various software project management activities that include planning, Estimations, Risk assessment and Configuration Management
Co3: Perform Requirements modelling and apply appropriate design and testing heuristics to produce quality software systems.

Q. No	Question	CO	BL	Marks
1.	A mid-sized hospital wants to develop a Patient Appointment and Billing System. The hospital management has the following requirements: The system must be developed within 3 months. Doctors and staff want to see early working versions of the system and give continuous feedback. Requirements may change frequently, especially in billing and appointment scheduling. The hospital already has experienced developers and reusable software components. The management is more concerned about speed and user satisfaction than extensive documentation. Question: Identify the most suitable model for this scenario. (3 Marks) Justify your answer and explain the model in detail (7 Marks)	CO1	3	10
2.	A software company is developing a customer-centric financial application that demands continuous interaction with customers, high reliability, and frequent changes in requirements. Since the application is mission-critical, any failure could result in financial loss and reduced customer trust. The development team is considering two different software development approaches: • One approach emphasizes short development cycles, continuous customer feedback, frequent testing, and adaptability to change. • The other approach focuses on collaborative development where two developers work together at the same workstation to improve code quality and reduce errors. As a software engineering student: a) Analyse the given scenario and compare the two development approaches based on their working principles and suitability for the project. (5 Marks) b) Identify which approach is more appropriate for developing this critical financial application. Justify your answer with valid reasons, focusing on customer involvement and quality assurance. (5 Marks)	CO1	3	10

3.	A startup is developing a mobile payment application that must be released before a regulatory deadline. Delays can cause financial penalties. The project activities and their durations (in days) are given below. <table><tr><th>Activity</th><th>Task</th><th>Predecessor(s)</th><th>Duration (days)</th></tr><tr><td>A</td><td>Market Study</td><td>—</td><td>5</td></tr><tr><td>B</td><td>UI Design</td><td>A</td><td>6</td></tr><tr><td>C</td><td>Backend Setup</td><td>A</td><td>4</td></tr><tr><td>D</td><td>API Integration</td><td>B, C</td><td>7</td></tr><tr><td>E</td><td>Functional Testing</td><td>D</td><td>5</td></tr><tr><td>F</td><td>Performance Testing</td><td>D</td><td>3</td></tr><tr><td>G</td><td>App Release</td><td>E, F</td><td>2</td></tr></table> - Construct the CPM network diagram.(3 marks) - Compute the total float for each activity. (3 marks) - Identify all critical activities. (2 Marks) - What is the total project duration?(2 marks)	Activity	Task	Predecessor(s)	Duration (days)	A	Market Study	—	5	B	UI Design	A	6	C	Backend Setup	A	4	D	API Integration	B, C	7	E	Functional Testing	D	5	F	Performance Testing	D	3	G	App Release	E, F	2	C02	3	10
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4.	a) A software company is developing a library management system for a university. The system includes student records, book transactions, fine calculation, and report generation. The estimated size of the software is 32 KLOC. The project is well understood, developed by an experienced team, and follows standard development practices. With constant values $a=2.4$, $b=1.05$, $c=0.38$ - Identify the type of software project and calculate the effort (person-months) using Basic COCOMO Model and Calculate the development time (months) and estimate the average number of developers required. b) A software company is developing an online examination system for a university. The system includes modules for student registration, exam scheduling, question management, evaluation, and result generation. Based on past projects, the organization estimates the software size to be 40,000 Lines of Code (LOC). The company follows the LOC-based estimation approach with the following parameters: Productivity = 500 LOC per person-month Average cost per developer = ₹60,000 per person-month - Calculate the total effort required in person-months. And estimate the total development cost of the project and if the project must be completed in 8 months, calculate the average team size required.	C02	3	5																																
5.	a) A bank intends to develop an Online Banking System to provide digital services to its customers. Through this system, customers should be able to register, log in securely, view their account balance, transfer funds to other accounts, pay utility bills, and view transaction history. An administrator is responsible for managing customer accounts, approving registrations, and generating system reports. The system also interacts with an external payment gateway for processing bill payments. Based on this scenario, draw a Use Case Diagram by identifying the actors, use cases, and their relationships. b) A university plans to implement an Online Examination System to conduct internal and semester examinations. Students should be able to register, log in, attend examinations, and view results. Faculty members should be able to create question papers, schedule exams, and evaluate answers. The system should support a large number of simultaneous users, ensure accuracy in evaluation, provide quick result processing, and maintain data integrity. From the given scenario, identify the functional and non-functional requirements.	C03	3	5																																
