



VIT

Vellore Institute of Technology
(Approved to be a Private University under section 3 of UGC Act, 1956)

REG.NO.:

School of Computer Science Engineering and Information Systems
CONTINUOUS ASSESSMENT TEST - II
WINTER SEMESTER 2024-2025

SLOT: E2+TE2

Programme Name & Branch	:B.Tech & IT	
Course Code and Course Name	:BITE307L & Software Engineering	
Faculty Name(s)	:Prof.Kalaivani S, Prof.Sujatha R & Prof. Santhosh Kumar S V N	
Class Number(s)	:3101, 3097 & 3111	
Date of Examination	:20/03/2025	
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
 3. Develop abstract models and architectural design for software development.
 4. Choose appropriate software testing and evolution strategies.

Q. No	Question	M	CO	BL
1.	Explain which architectural pattern can be applied to design this Library Management System. Describe the responsibilities of them in detail and how they interact. Identify the key components of your proposed architecture. Provide specific examples relevant to the library system. You are tasked with designing the architecture for a University Library Management System. This system needs to manage a vast collection of books, journals, and other resources. It should support various functionalities, including: • Cataloging: Adding new resources, updating existing entries, searching for resources based on different criteria (title, author, ISBN, etc.). • Borrowing/Returning: Tracking which resources are borrowed by which users, managing due dates, handling overdue items. • User Management: Managing user accounts, including student and faculty information, borrowing privileges, and fines. • Reservation: Allowing users to reserve resources that are currently checked out. • Reporting: Generating reports on resource availability, borrowing trends, overdue items, etc. The system must be reliable, secure, and maintainable. The library anticipates a large number of concurrent users and a growing collection of resources.	10	3	3
2.	For the scenario mentioned in the Question No. 1 Draw the sequence diagram for the following: a) Searching for a Book (5 M) b) Reserving a Book (5 M)	10	3	3



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3.	a. Draw the control flow graph. Clearly label each node and edge. (5 M) b. Compute the cyclomatic complexity, independent path. (3 M) c. Determine the minimum number of test cases required to achieve 100% path coverage. (2 M) <pre>1 public String classifyTriangle(int a, int b, int c) { 2 if (a + b <= c a + c <= b b + c <= a) { 3 return "Not a triangle"; 4 } else if (a == b && b == c) { 5 return "Equilateral"; 6 } else if (a == b a == c b == c) { 7 return "Isosceles"; 8 } else { 9 return "Scalene"; 10 } 11 }</pre>	10	4	3
4.	A program reads three numbers A, B and C, within the range [1,50] and prints the smallest number. Design test cases for this program using BVC and robust testing.	10	4	3
5.	Enterprise Resource Planning (ERP) systems aim to integrate various business processes and data across an organization. a. Discuss the key challenges organizations face when implementing ERP systems and strategies for overcoming them. In the trending world, Data analytics is essential for extracting insights from ERP data. (5 M) b. Discuss how organizations can leverage data analytics to improve decision-making and optimize business processes within an ERP environment. (5 M)	10	5	3