



VIT

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

REG.NO.:

SLOT: E1+TE1

SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2026-2027

Session: III

Programme Name & Branch : B.Tech (CSE - Artificial Intelligence and Data Engineering)
B.Tech (CSE - Cyber Security)
Course Code and Course Name : BCSE301L - Software Engineering
Faculty Name(s) : Prof. ASHA N, Prof. JAGADEESH G, Prof. BALA GANESH N
Class Number(s) : VL2026270102559, VL2026270103052, VL2026270102563
Date of Examination : 01-10-2026
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, 4 - Analyse, 5 - Evaluate, 6 - Create)
- Course Outcomes:
CO3 - Perform Requirements modelling and apply appropriate design and testing heuristics to produce quality software systems.
CO4 - Demonstrate the complete Software life cycle activities from requirements analysis to maintenance using the modern tools and techniques

Q. No	Question	M	CO	BL
1. ✓	An online examination system allows a student to log in, select an examination, retrieve questions, submit answers and receive the result. The system consists of: • Student • Web Application • Authentication Service • Examination Service • Question Database • Result Service Construct a Sequence Diagram showing the complete interaction. Your diagram should include lifelines, activation bars, messages, return messages The sequence diagram should demonstrate the chronological interaction between objects as described in the module.	10	3	6
2. ○	A vehicle service centre receives service requests from customers. The system checks vehicle details, creates a service order, assigns a mechanic, records service activities, generates the bill and processes payment. Construct: a) Context Diagram b) Level-0 DFD c) Level-1 decomposition of the Service Order Management process. Identify suitable data stores and explain the consistency of data flows between the three levels.	10	3	6



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3.	Consider the following three modules: Module A: calculateSalary() sendEmail() generateReport() Module B: calculateTax() calculatePF() calculateNetSalary() Module C: updateEmployeeDatabase(employeeObject) a) Identify the cohesion issue in Module A. [2 Marks] b) Identify the coupling issue between Module A and Module C. [2 Marks] c) Identify the coupling issue when Module B receives a complete Employee object but uses only salary information. [2 Marks] d) Suggest a suitable redesign of the three modules to achieve high cohesion and loose coupling. [4 Marks]	10	3	5
4.	A Library Management System maintains information about books, authors, members, and book loans. A book can have one or more authors, and an author can write multiple books. Members can borrow multiple books, and each loan records the issue date, due date, and return date. Design an Entity-Relationship (ER) Diagram for the above system. Your ER diagram should clearly show: a) Entities and their relevant attributes. [6 Marks] b) Relationships among the entities. [3 Marks] d) Cardinality [1 Mark]	10	3	4
5.	A software organization is developing an Online Shopping System. During development: ➤ Customers disagree about some requirements. ➤ Developers disagree about the class design. ➤ Several coding defects are reported. ➤ Management wants to verify compliance with organizational procedures. a) Identify the appropriate review activity for each situation. [4 Marks] b) Explain why the selected review is appropriate. [3 Marks] c) Identify which review activity is the most formal and rigorous. [1 Mark] d) Explain how the review results should influence subsequent development activities. [2 Marks]	10	4	5
