


**VIT**

Vellore Institute of Technology

**Final Assessment Test – November 2025**

Course: UCSC102L - Software Engineering

Class NBR(s): 5762 / 5764

Time: Three Hours

Slot: C1+TC1

Max. Marks: 100

- KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
- DON'T WRITE ANYTHING ON THE QUESTION PAPER

| COs | CO Statements                                                                                                                            |
|-----|------------------------------------------------------------------------------------------------------------------------------------------|
| CO1 | Demonstrate the basics of software engineering process, ethics, and development.                                                         |
| CO2 | Illustrate the concept of various process models, activities, and its improvements.                                                      |
| CO3 | Analyze the various aspects of software requirement engineering and system models.                                                       |
| CO4 | Summarize and analyse the decisions about the system architectural design process.                                                       |
| CO5 | Inspect a computer-based system to meet the desired needs of the customer with proper understanding of the critical systems development. |

BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

Answer ALL Questions

(10 X 10 = 100 Marks)

- Case Study: A "Student Scholarship Management System" will be created by a government agency to oversee the processing of applications, verification, approval, and distribution of funds to students at different colleges. The project specifications are well-defined, and no significant modifications are anticipated after approval. A methodical procedure with official documentation and approval at the conclusion of each phase before proceeding to the next is insisted upon by the organization.

**Question:** Describe the main stages, tasks, and advantages or disadvantages of both the Waterfall and Agile models for implementing the project. Compare the suitability of both models and justify which is more effective for the project.

**CO2 BL1**
- Case Study: An online examination system is being developed by a software business for a university to handle automated evaluation, student authentication, exam scheduling, and question paper creation. The project team moves on to the requirements validation phase after gathering and documenting the requirements to make sure they are comprehensive, consistent, and in line with user needs.

**Question:** Assess how the project team can validate the requirements for the scenario. To guarantee the quality and correctness of the requirements, identify the essential checks that must be performed and talk about appropriate validation methods.

**CO3 BL1**

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| 3. | For the scenario "Online Examination System" mentioned in question number 02, Plot a sequence diagram for the process of a student enrolling for an examination up to the publication of results. Clearly show all actors, objects, and interactions involved in the process.                                                                                                                                                                                                                                                                                                                                                                                                              | CO3    BL6 |
| 4. | <p>Case Study: A software company is creating a dynamic library management system for an international university. The system has modules for penalty computation, book borrowing and return, student and staff accounts, and book catalogues. The business intends to carry out user testing prior to full deployment to make sure the system satisfies user requirements and functions properly under actual circumstances.</p> <p><b>Question:</b> Examine the process for conducting user testing on Library Management system. Explain its function and how it contributes to the application quality and user satisfaction.</p>                                                      | CO4    BL4 |
| 5. | <p>Case Study: A software company is bidding to develop a Custom Inventory Management System for a chain of retail stores. The business has to choose a software pricing plan for the project. Several factors may influence the price, including contractual terms, uncertainty in cost estimates, the company's financial health, potential market opportunities, and the likelihood of changing requirements.</p> <p><b>Question:</b> Clarify in detail the various factors which can influence the software pricing decision. Provide some examples on "how each factor may impact the final price".</p>                                                                               | CO5    BL4 |
| 6. | <p>Case Study: MediSoft Solutions is a software business that has created a Healthcare Appointment Management System that enables patients to securely connect with doctors, schedule appointments, and store electronic health information. The quality assurance (QA) team chooses to conduct a static analysis of the source code prior to testing in order to assess its complexity, maintainability, and dependability without actually running the program.</p> <p><b>Question:</b> Evaluate the Static Software Product Metrics contribute to assessing software quality attributes in the given analysis, and propose two additional static metrics suitable for this project.</p> | CO5    BL4 |
| 7. | Examine the differences between Agile (customer-involved) and traditional (CCB-driven) methods to software change management in terms of the change evaluation and prioritizing process. Consider a scenario to explain on deciding software upgrades, whether to approve or reject a modification request?                                                                                                                                                                                                                                                                                                                                                                                | CO5    BL4 |
| 8. | <p>Assume that you are managing a distributed software development team where some members work remotely while others are on-site. You observe that productivity and team morale are gradually declining. As a project manager, you decide to address the issue by focusing on employees' social, esteem, and self-realization needs rather than physical needs.</p> <p><b>Question:</b> Evaluate and explain the strategies to satisfy the levels of needs in your team environment and examine the situation in terms of psychological personality types identified by Bass and Dunteman.</p>                                                                                            | CO5    BL5 |

- 9.a) An IT firm specializing in healthcare management systems is preparing for ISO 9001 certification to improve its process quality and customer satisfaction. The quality team is tasked with identifying and documenting the organization's core processes, such as requirement analysis, design and development, testing, delivery, and customer support, in alignment with ISO 9001 standards.

CO5 BL6

**Question:** Justify that implementing ISO 9001 core process can enhance the product quality, process consistency and customer satisfaction. Suggest any three essential core processes that should be prioritized for ISO 9001 compliance in this scenario.

OR

- 9.b) A team at a Software Development company is performing a program inspection for its Electronic Prescription Management System to detect "defects before testing". The inspection involves developers, testers, and a moderator to ensure process compliance. They aim to review source code and UML models for early error detection. An inspection checklist is prepared to guide the review process. It focuses on coding standards, logic errors, interface consistency, documentation, and requirement traceability.

CO5 BL6

**Question:** Design a software inspection checklist suitable for this scenario, highlighting at least five key areas the team should verify during the inspection. Explain how using such a checklist improves the accuracy and efficiency of defect detection.

- 10.a) A Well renowned hospital is developing a mobile application for remote patient monitoring. The project manager has the responsibility to decide on the release schedule for the first version of the mobile app. Before finalizing the release plan, the team needs to consider several factors, including customer requirements and the urgency of key features, resource availability such as developers and testers, technical dependencies between modules, regulatory compliance requirements for healthcare applications, and budget constraints as well as market competition pressures.

CO5 BL1

**Question:** Analyze on each of the factors mentioned in the scenario which can influence the system release planning for remote patient monitoring. Recommend strategies to balance competing factors and ensure a timely and high-quality release.

OR

- 10.b) Assume that an IT company is developing a Telemedicine Platform that allows patients to consult doctors remotely. During development, the team needs to manage multiple versions of source code, design documents, test scripts, and deployment scripts. To ensure consistency and traceability, the project manager, Anil, decides to implement configuration management (CM) practices. The team must track changes, maintain version histories, control releases, and manage baselines effectively.

CO5 BL1

**Question:** Identify and explain at least five key configuration management terminologies relevant to this scenario. Discuss of these terminologies over the Telemedicine Platform's development process.

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