

SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)
SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF INFORMATION TECHNOLOGY

QUESTION BANK



V SEMESTER

IT3561- OBJECT ORIENTED SOFTWARE ENGINEERING

Regulation – 2023

Academic Year 2025– 2026 (odd Semester)

Prepared by

Dr.S.Sekar, Asso.Prof/IT

Mr.S.Suresh Kumar, Asst.Prof(Sr.G)/IT



SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

DEPARTMENT OF INFORMATION TECHNOLOGY



QUESTION BANK

SUBJECT CODE & NAME: IT3561- OBJECT ORIENTED SOFTWARE ENGINEERING

SEM / YEAR: V / III

UNIT-I:INTRODUCTION TO SOFTWARE ENGINEERING			
Introduction to Software Engineering - Software engineering failures - software engineering concepts – software engineering development activities - managing software development - ARENA case study			
PART - A			
Q.no	Questions	BTL	Competence
1	What is software engineering?	BTL-1	Remembering
2	Why do software projects fail?	BTL-1	Remembering
3	What is a software process?	BTL-1	Remembering
4	List any two characteristics of good software.	BTL-1	Remembering
5	Mention two examples of software engineering failures.	BTL-1	Remembering
6	What are functional requirements?	BTL-1	Remembering
7	Define software quality.	BTL-1	Remembering
8	What is meant by software lifecycle?	BTL-1	Remembering
9	What is the role of a software engineer?	BTL-1	Remembering
10	List any two software process models.	BTL-1	Remembering
11	What is the purpose of software documentation?	BTL-1	Remembering
12	Why is software engineering important?	BTL-2	Understanding
13	Explain the term "software product" with an example.	BTL-2	Understanding
14	Differentiate between software and hardware.	BTL-2	Understanding
15	What is meant by software project management?	BTL-2	Understanding
16	What are the key goals of software engineering?	BTL-2	Understanding
17	Describe the term “software failure.”	BTL-2	Understanding
18	What do you understand by the term software development activities?	BTL-2	Understanding
19	Explain the need for software process models.	BTL-2	Understanding
20	What is the significance of abstraction in software design?	BTL-2	Understanding
21	How does modularity support software engineering practices?	BTL-2	Understanding
22	Describe the ARENA case study in one or two lines.	BTL-2	Understanding
23	Explain the term “software verification” with an example.	BTL-2	Understanding
24	How software failure can be minimized?	BTL-1	Remembering

PART-B

Q.No	Questions	BTL	Competence
1	Illustrate the phases of software development activities with suitable examples. (16)	BTL3	Applying
2	Apply the software engineering principles to design a simple student management system. (16)	BTL3	Applying
3	Demonstrate how modularity and abstraction can be used in software design. (16)	BTL3	Applying
4	Explain with an example how a software process model is applied in real-life project development. (16)	BTL3	Applying

5	Apply the concept of software engineering to explain the development of a mobile application. (16)	BTL3	Applying
6	Analyze the reasons for software engineering failures with reference to at least two real-world case studies(16)	BTL-4	Analyzing
7	Compare and analyze the advantages and disadvantages of two software process models. (16)	BTL-4	Analyzing
8	Analyze the ARENA case study and identify its software engineering challenges. (16)	BTL-4	Analyzing
9	Identify and analyze the causes and consequences of poor project management in software development. (16)	BTL-4	Analyzing
10	Break down the key components of a successful software development process and explain their roles. (16)	BTL-4	Analyzing
11	Evaluate the importance of using structured software engineering methods in project success. (16)	BTL-4	Analyzing
12	Justify the need for documentation throughout the software development life cycle. (16)	BTL-5	Evaluating
13	Assess the impact of poor requirement analysis on the success of a software project. (16)	BTL-5	Evaluating
14	Evaluate different software engineering approaches in managing large-scale projects. (16)	BTL-5	Evaluating
15	Critically evaluate the effectiveness of software project planning and scheduling tools. (16)	BTL-6	Creating
16	Design a basic software process model for an online food ordering system. (16)	BTL-6	Creating
17	Propose a framework to prevent software failures in large, safety-critical systems. (16)	BTL-6	Creating

UNIT-II:MODELING WITH UML AND PROJECT ORGANIZATION AND COMMUNICATION

Overview of UML - Use case Model – Class diagrams – Interaction diagrams – Activity diagrams- State chart diagrams- Project organization and communication - Introduction - an overview of projects - project organization concepts - project communication concepts - organizational activities.

PART – A

Q.No	Questions	BTL	Competence
1	What is UML?	BTL-1	Remembering
2	Define a use case.	BTL-1	Remembering
3	What is a class diagram?	BTL-1	Remembering
4	What is an activity diagram?	BTL-1	Remembering
5	List any two interaction diagrams.	BTL-1	Remembering
6	What is a state chart diagram?	BTL-1	Remembering
7	Define project organization.	BTL-1	Remembering
8	What is project communication?	BTL-1	Remembering
9	Mention any two components of UML.	BTL-1	Remembering
10	What is meant by organizational activity?	BTL-1	Remembering
11	List two key stakeholders in a software project.	BTL-1	Remembering
12	Explain the purpose of a use case model.	BTL-2	Understanding
13	How are class diagrams used in software design?	BTL-2	Understanding
14	Differentiate between activity and state chart diagrams.	BTL-2	Understanding
15	What is the role of interaction diagrams in modeling behavior?	BTL-2	Understanding
16	Describe how communication is essential in project management.	BTL-2	Understanding
17	What are the core elements of project organization?	BTL-2	Understanding

18	Explain the relationship between project structure and communication flow.	BTL-2	Understanding
19	How does UML help in software development?	BTL-2	Understanding
20	Describe a real-world scenario where a use case diagram is useful.	BTL-2	Understanding
21	What is the importance of activity diagrams in workflow modeling?	BTL-2	Understanding
22	Explain the purpose of a state chart diagram in system behavior modeling.	BTL-2	Understanding
23	Describe the significance of organizational activities in project execution.	BTL-2	Understanding
24	What is the purpose of Sequential Diagram?	BTL-2	Understanding
PART-B			
Q.No		BTL	Competence
1	Draw a use case diagram for an ATM system and explain its components. (16)	BTL3	Applying
2	Construct a class diagram for a Library Management System. (16)	BTL3	Applying
3	Apply interaction diagrams to model an online shopping cart process. (16)	BTL3	Applying
4	Create an activity diagram for a student course registration system. (16)	BTL3	Applying
5	Demonstrate a state chart diagram for a ticket booking system. (16)	BTL3	Applying
6	Analyze the role of UML diagrams in various stages of software development. (16)	BTL-4	Analyzing
7	Compare and contrast interaction diagrams: sequence vs. collaboration. (16)	BTL-4	Analyzing
8	Analyze how poor project communication affects project outcomes. (16)	BTL-4	Analyzing
9	Break down the structure of project organization and explain how it supports project goals. BTL4	BTL-4	Analyzing
10	Analyze the relationship between organizational activities and team productivity. (16)	BTL-4	Analyzing
11	Evaluate the effectiveness of using UML in managing large-scale software projects. (16)	BTL-4	Analyzing
12	Assess the importance of consistent communication in agile vs. traditional project teams. (16)	BTL-5	Evaluating
13	Justify the need for different UML diagrams in software modeling. (16)	BTL-5	Evaluating
14	Critically evaluate project communication strategies and their impact on success. (16)	BTL-5	Evaluating
15	Design a complete UML model (use case, class, and activity diagrams) for an e-learning system. (16)	BTL-6	Creating
16	Develop a project organization structure for a team working on mobile application development. (16)	BTL-6	Creating
17	Propose an effective communication model for a distributed software development project. (16)	BTL-6	Creating

UNIT-III:SYSTEM DESIGN AND OBJECT DESIGN

System design concepts – System design activities – Managing system design - Overview of object design – Reuse concepts – Reuse activities – Managing reuse.

PART – A

Q.No	Questions	BTL	Competence
1	What is system design?	BTL-1	Remembering
2	Define object design.	BTL-1	Remembering
3	What are system design activities?	BTL-1	Remembering
4	What is reuse in software engineering?	BTL-1	Remembering
5	Define software reuse.	BTL-1	Remembering
6	List any two system design concepts.	BTL-1	Remembering
7	What do you mean by design constraints?	BTL-1	Remembering
8	What is component reuse?	BTL-1	Remembering
9	Name any two reuse activities.	BTL-1	Remembering
10	What is the goal of system design?	BTL-1	Remembering
11	Define reuse library.	BTL-1	Remembering
12	Explain the need for system design.	BTL-2	Understanding
13	What is the significance of object design in OOP?	BTL-2	Understanding
14	Differentiate between system design and object design.	BTL-2	Understanding
15	Describe the role of design patterns in reuse.	BTL-2	Understanding
16	What are the benefits of reuse in software development?	BTL-2	Understanding
17	How do reuse activities influence the development lifecycle?	BTL-2	Understanding
18	Explain the challenges in managing reuse.	BTL-2	Understanding
19	Describe the steps involved in object design.	BTL-2	Understanding
20	What is the role of design models in system design?	BTL-2	Understanding
21	How does managing system design impact project delivery?	BTL-2	Understanding
22	Why is reuse considered an important strategy in software engineering?	BTL-2	Understanding
23	Explain how object design supports encapsulation	BTL-2	Understanding
24	List the types of reuse	BTL-2	Understanding

PART-B

Q.No	Questions	BTL	Competence
1	Apply system design principles to develop a system for a college admission process. (16)	BTL-3	Applying
2	Illustrate the various system design activities using a practical example. (16)	BTL-3	Applying
3	Create an object design for a hotel reservation system. (16)	BTL-3	Applying
4	Demonstrate the process of designing a reusability framework. (16)	BTL-3	Applying
5	Apply reuse activities to a real-world software project and explain the outcomes. (16)	BTL-3	Applying
6	Analyze the relationship between system design and software architecture. (16)	BTL-4	Analyzing
7	Compare different reuse techniques with their pros and cons. (16)	BTL-4	Analyzing
8	Break down the components involved in object design and explain their roles. (16)	BTL-4	Analyzing
9	Analyze how design constraints affect system performance and scalability. (16)	BTL-4	Analyzing
10	Examine the factors involved in successful reuse management. (16)	BTL-4	Analyzing
11	Evaluate the impact of effective system design on software quality. (16)	BTL-5	Evaluating
12	Critically assess the effectiveness of object-oriented design in modular system development. (16)	BTL-5	Evaluating

13	Justify the role of reuse in reducing cost and time in software development. (16)	BTL-5	Evaluating
14	Assess the risks and limitations associated with unmanaged reuse. (16)	BTL-5	Evaluating
15	Design a reusable component library for a healthcare management system. (16)	BTL-6	Creating
16	Propose a complete object design approach for an e-commerce website. (16)	BTL-6	Creating
17	Develop a strategic plan for managing reuse in a large software enterprise(16).	BTL-6	Creating

UNIT-IV: TESTING AND RATIONALE MANAGEMENT

An Overview of Testing – Testing concepts – Testing Activities – Managing testing – Overview of rationale – Rational concepts – Rational Activities.

PART - A

Q.no	Questions	BTL	Competence
1	What is software testing?	BTL-1	Remembering
2	Define test case.	BTL-1	Remembering
3	What is unit testing?	BTL-1	Remembering
4	What is integration testing?	BTL-1	Remembering
5	Define system testing.	BTL-1	Remembering
6	What is meant by test coverage?	BTL-1	Remembering
7	What are the two main objectives of testing?	BTL-1	Remembering
8	Define rationale management.	BTL-1	Remembering
9	What is regression testing?	BTL-1	Remembering
10	What is a defect?	BTL-1	Remembering
11	Mention any two testing activities.	BTL-1	Remembering
12	Differentiate between black-box and white-box testing.	BTL-2	Understanding
13	Explain the importance of testing in software development.	BTL-2	Understanding
14	What are the key phases of testing activities?	BTL-2	Understanding
15	Describe the purpose of rationale management.	BTL-2	Understanding
16	How does rationale support decision making in software projects?	BTL-2	Understanding
17	Explain the need for managing testing in large projects	BTL-2	Understanding
18	What is the role of test planning in software projects?	BTL-2	Understanding
19	Describe the process of documenting rationale.	BTL-2	Understanding
20	What is the impact of poor rationale management on project outcomes?	BTL-2	Understanding
21	Explain how rationale activities are integrated with design and testing.	BTL-2	Understanding
22	What is meant by traceability in testing?	BTL-2	Understanding
23	Describe test automation with an example.	BTL-2	Understanding
24	What is Alpha and Beta testing	BTL-2	Understanding

PART-B

Q.no	Questions	BTL	Competence
1	Apply testing techniques to a login module and design sample test cases. (16)	BTL-3	Applying
2	Illustrate the sequence of testing activities in a software project. (16)	BTL-3	Applying
3	Demonstrate how test planning is done for a mobile app. (16)	BTL-3	Applying
4	Apply rationale concepts to justify the design decision for a payment system. (16)	BTL-3	Applying
5	Develop a test plan for a library management system. (16)	BTL-3	Applying

6	Analyze the importance of rationale management during requirement changes. (16)	BTL-4	Analyzing
7	Distinguish between various levels of testing with real-world examples. (16)	BTL-4	Analyzing
8	Analyze the benefits and limitations of manual vs. automated testing. (16)	BTL-4	Analyzing
9	Examine the impact of missing rationale information on software maintenance. (16)	BTL-4	Analyzing
10	Analyze the interdependence between testing and rationale documentation. (16)	BTL-4	Analyzing
11	Evaluate the effectiveness of test-driven development (TDD). (16)	BTL-5	Evaluating
12	Justify the need for rationale management in distributed teams. (16)	BTL-5	Evaluating
13	Critically evaluate various testing strategies used in agile projects. (16)	BTL-5	Evaluating
14	Assess the role of rationale management in improving design quality. (16)	BTL-5	Evaluating
15	Propose a rationale management model for documenting design trade-offs. (16)	BTL-6	Creating
16	Create a complete test strategy for an e-commerce platform including unit, integration, and system testing. (16)	BTL-6	Creating
17	Design a testing framework for an online examination system. (16)	BTL-6	Creating

UNIT-V: CONFIGURATION MANAGEMENT AND PROJECT MANAGEMENT

An overview of Configuration Management-Configuration Management Concepts and activities – Managing configuration management – An overview of project management – Project management concepts – Activities – Agile project management activities.

PART - A

Q.no	Questions	BTL	Competence
1	What is configuration management?	BTL-1	Remembering
2	Define a configuration item.	BTL-1	Remembering
3	What is version control?	BTL-1	Remembering
4	What is change control?	BTL-1	Remembering
5	List two tools used in configuration management.	BTL-1	Remembering
6	What is a baseline in configuration management?	BTL-1	Remembering
7	Define project management.	BTL-1	Remembering
8	What is a project milestone?	BTL-1	Remembering
9	Mention two activities in configuration management.	BTL-1	Remembering
10	What is scope management?	BTL-1	Remembering
11	Define agile project management	BTL-1	Remembering
12	Explain the purpose of configuration management.	BTL-2	Understanding
13	Differentiate between versioning and change tracking.	BTL-2	Understanding
14	Describe the significance of baselines in software projects.	BTL-2	Understanding
15	How does configuration management support software maintenance?	BTL-2	Understanding
16	What are the roles and responsibilities of a project manager?	BTL-2	Understanding
17	Explain the role of configuration audit.	BTL-2	Understanding
18	What is the importance of risk management in projects?	BTL-2	Understanding

19	Explain how project scheduling is managed.	BTL-2	Understanding
20	What is the difference between traditional and agile project management?	BTL-2	Understanding
21	Describe any two agile project management activities.	BTL-2	Understanding
22	How is configuration management integrated into the software development lifecycle?	BTL-2	Understanding
23	What is the importance of project communication in project management?	BTL-2	Understanding
24	What is software project management	BTL-2	Understanding
PART-B			
Q.no		BTL	Competence
1	Apply configuration management concepts to manage multiple versions of a document management system. (16)	BTL-3	Applying
2	Illustrate a configuration control process with a real-world example. (16)	BTL-3	Applying
3	Demonstrate the steps involved in managing software releases using version control tools. (16)	BTL-3	Applying
4	Apply agile project management principles in a software startup scenario. (16)	BTL-3	Applying
5	Create a sample configuration item list for a web-based ERP project. (16)	BTL-3	Applying
6	Analyze the impact of poor configuration management on a software project. (16)	BTL-4	Analyzing
7	Compare traditional project management and agile project management approaches. (16)	BTL-4	Analyzing
8	Analyze the responsibilities of a project manager in handling scope creep. (16)	BTL-4	Analyzing
9	Identify and explain the components of a configuration management plan. (16)	BTL-4	Analyzing
10	Analyze how agile methodologies handle changing customer requirements. (16)	BTL-4	Analyzing
11	Evaluate the effectiveness of Git as a version control tool in configuration management. (16)	BTL-5	Evaluating
12	Justify the need for configuration audits in large-scale systems. (16)	BTL-5	Evaluating
13	Assess the importance of stakeholder involvement in agile project management. (16)	BTL-5	Evaluating
14	Critically evaluate the success factors of software project planning and monitoring. (16)	BTL-5	Evaluating
15	Design a configuration management framework for a hospital management system. (16)	BTL-6	Creating
16	Propose a project management strategy for a cloud-based e-learning platform. (16)	BTL-6	Creating
17	Create an agile project schedule for the development of a mobile banking app. (16)	BTL-6	Creating