Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

M.E DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Second Semester

Computer Science and Engineering

SE4151- Advanced Software Engineering

Regulations - 2021

Duration : 3 Hrs *Maximum: 100 Marks*

*PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	What is the purpose of prototype evaluation in software development?	UN	1	2
2.	Define the concept of scenario-based modeling.	RE	1	2
3.	Explain the importance of design concepts in software engineering.	UN	2	2
4.	What is component-level design?	RE	2	2
5.	Compare redundancy and diversity in the context of enhancing system dependability.	UN	3	2
6.	What is security engineering?	RE	3	2
7.	Why is service composition important for building scalable applications?	RE	4	2
8.	Outline the role of real-time operating systems in real-time applications.	UN	4	2
9.	Why debugging is an essential part of the software maintenance process?	RE	5	2
10.	What is black-box testing?	RE	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	Classify and explain three common architectural styles used in software design.	AN	1	13
		Or			
	b	Compare and contrast the different techniques employed in functional modeling. Illustrate your discussion with a case study.	AN	1	13
12.	a	Describe the key components of software architecture and their influence in system design. Illustrate the impact of effective software architecture on project success.	UN	2	13
		Or			
	b	Discuss the key principles of user experience (UX) design and their relevance to software development. Use case studies to illustrate your points.	UN	2	13
13.	a	Demonstrate the importance of reliability engineering in the software development process. What are the key practices and methodologies used to assess and enhance the reliability of software systems?	UN	3	13

		Or			
	b	Discuss the components of a safety case and its role in demonstrating the safety of a system.	UN	3	13
14.	a	Identify key components of service-oriented architecture (SOA) and build a diagram illustrating their relationships and interactions within a system.	AP	4	13
		Or			
	b	Build an embedded system for a specific application such as home automation and construct a system architecture that highlights key components and their interactions.	AP	4	13
15.	a	Model a piece of software using control structures and apply white-box testing techniques such as basis path testing and construct test cases that ensure all paths through the code are covered and report your findings.	AP	5	13
		Or			
	b	Develop a detailed SCM process for a software project by outlining each phase and its objectives.	AP	5	13

*PART – C (Marks 1*15 = 15)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
16.	a	Apply current real-time software engineering practices to assess their effectiveness in ensuring the timely delivery and functionality of real-time applications.	AP	4	15
		Or			
	b	Choose various integration testing approaches to identify which are most effective in uncovering interface defects. Utilize examples to support your analysis.	AP	5	15