

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

M.E DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025**Second Semester****Computer Science and Engineering****PCST2424 - Advanced Software Engineering****Regulations – 2024***Duration : 3 Hrs**Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)***

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Define prescriptive process models in software engineering.	L1	1	2
2.	What is the role of Scrum in Agile development?	L2	1	2
3.	List two key concepts of software architecture.	L1	2	2
4.	Explain the importance of component-level design.	L2	2	2
5.	What is safety-critical systems? Give an example.	L2	3	2
6.	Define fault-tolerant architecture in software systems.	L1	3	2
7.	Define service-oriented architecture.	L1	4	2
8.	What is system evolution in the context of software engineering?	L2	4	2
9.	Differentiate between unit testing and integration testing.	L2	5	2
10.	Why do we need software configuration management?	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Discuss the role of prototype construction and evaluation in software process modeling. Provide examples of when prototyping is essential.	L3	1	8
	ii Compare and contrast Scrum and Kanban as Agile methodologies.	L3	1	8
	Or			
	b i Explain scenario-based modeling and its relevance to requirements engineering. Include examples.	L3	1	8
12.	ii What are the principles of modeling in software engineering? Discuss with examples.	L3	1	8
	a i Explain the different architectural styles in software design. How do they impact software architecture?	L3	2	8
	ii Discuss the importance of user experience design in software.	L3	2	8
	Or			
	b i What are the dependability properties of software systems? Explain the role of redundancy in achieving dependability.	L3	2	8
	ii Discuss the significance of formal methods in developing dependable systems.	L3	2	8

13.	a	i	Analyze the safety engineering processes for safety-critical systems. How do safety cases ensure system reliability?	L4	3	8
		ii	Explain the concept of service composition in a service-oriented architecture. Why is it important in modern software engineering?	L3	3	8
	Or					
	b	i	Inspect the stages of real-time software development with examples.	L4	3	8
		ii	Evaluate the role of architectural patterns in designing embedded systems for real-time software.	L3	3	8
14.	a	i	Compare white-box testing and black-box testing strategies. Provide examples of each.	L3	4	8
		ii	Explain the configuration management process for web and mobile applications.	L3	4	8
	Or					
	b	i	Discuss the architectural patterns commonly used in the design of real-time software systems. How do these patterns ensure efficient real-time processing?	L3	4	8
		ii	Explain the concept of Restful services. How does REST differ from SOAP in service-oriented architecture? Provide examples of scenarios where each is suitable.	L3	4	8
15.	a	i	Explain the role of socio-technical systems in service engineering. How does the interaction between software and human factors impact system design?	L3	5	8
		ii	Describe the challenges in designing real-time embedded systems. How do timing analysis and real-time operating systems (RTOS) help overcome these challenges?	L3	5	8
	Or					
	b	i	Explain the process of validation testing. How does it differ from system testing, and what are each key objective?	L3	5	8
		ii	Compare control structure testing with basis path testing in software development. Discuss their advantages and scenarios where each is best applied.	L3	5	8