Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (S,FE) (FT) (WP/PT) Examination May 2025 (2019 Scheme)

Course Code: CST309

Course Name: MANAGEMENT OF SOFTWARE SYSTEMS

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		What is Software? What are the essential attributes of a good software?	3
2		Compare Plan-driven and Agile software development using a neat diagram.	3
3		Describe Traceability Matrix with an example.	3
4		Describe the necessity of Requirements management planning process.	3
5		Compare Alpha and Beta testing.	3
6		What are the three fundamental principles of DevOps?	3
7		Describe the fundamental project management activities.	3
8		Discuss the role of using Backlogs and Sprints in SCRUM frameworks.	3
9		Explain the ISO 9001:2000 standard for Software.	3
10		Describe microservices with an example.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a)	Describe Software Engineering Ethics and also explain the ACM/IEEE Code of Ethics.	8
	b)	An organization is given a software project on behalf of certain customer who is unsure of his requirements and likely to change his requirements. Identify the suitable life cycle model to be used in this scenario and explain that model in detail.	6
12	a)	Describe the process model for prototype development with neat diagram.	8
	b)	Describe the relevance of using Pair programming and Refactoring during Agile development process.	6

Module -2

13	a)	Describe the basic activities in the requirements engineering process, using a neat diagram.	8
	b)	Explain Functional and Non-functional requirements with examples.	6
14	a)	What are use-cases? Illustrate the components of a use-case diagram with an example.	8

	b)	Explain Personas, Scenarios and Feature identification.	6

Module -3

15	a)	Differentiate between Top-down and Bottom-up Integration testing methods with suitable diagrams.	8
	b)	A software computes the square root of an input integer, which can assume values in the range 0 to 5000. Design 3 test suits using Equivalence Class Partitioning strategy.	6
16	a)	Illustrate the software evolution process in detail using a neat diagram.	8
	b)	Define the Software maintenance process and also explain the different types of software maintenance.	6

Module -4

17	a)	Explain the Risk Management Process in detail, using a neat diagram.	7
	b)	What is algorithmic cost modelling? What problems does it suffer from when compared with other approaches to cost estimation?	7
18	a)	Consider a project to develop a full screen editor. The major components identified are : 1.Screen Edit 2.Command Language Interpreter 3.File input and output 4.Cursor movement 5.Screen movement. The sizes of these are estimated to be 4K, 2K, 1K, 2K and 3K delivered source code lines. Use COCOMO model to estimate the overall effort required, A = 2.94 and B = 1.17. Assume that: i) required software reliability is high i.e. 1.15, ii) Product complexity is high i.e. 1.15, iii) Analyst capability is high i.e. 0.86, iv) Programming language experience is low i.e. 1.07, and all other cost drivers are assumed to be nominal.	7
	b)	Why do we need Configuration management? Describe the Configuration management process activities with a neat diagram.	7

Module -5

19	a)	What is Capability Maturity Model? Explain the different levels in it.	7
	b)	How is Software Quality achieved during Software engineering process?	7
20	a)	Explain elements of Software Quality Assurance and SQA Tasks.	7
	b)	Describe in detail about the Software Process Improvement (SPI) process.	7

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