Reg. No.															

Question Paper Code	13992

M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

Third Semester

M.E. - Computer Science and Engineering

24PCSEL305 - SOFTWARE QUALITY ASSURANCE AND TESTING

Regulations - 2024

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	An incorrect step, process, or data definition in a program is called (a)Error (b) Failure (c) Defect (d) Fault	1	K1	CO1
2.	Which activity is performed first in test planning? (a) Resource allocation (b) Risk analysis (c) Requirement review (d) Test execution	1	K1	CO1
3.	Which testing approach is used when internal structure is known? (a) Black Box (b) White Box (c) Regression (d) System	1	K1	CO2
4.	Give the testing which ensures software meets user needs before delivery. (a) Unit testing (b) Acceptance testing (c) System testing (d) Reliability testing	1	K1	CO2
5.	Stress and Load Testing come under which test category? (a) Functional (b) Performance (c) Unit (d) Regression	1	K1	CO3
6.	Which test type evaluates system response under heavy load? (a) Unit (b) Stress (c) Functional (d) Regression	1	K1	CO3
7.	In the State-Oriented model, states represent (a) Hardware configurations (b) System responses at given conditions (c) Test case design factors (d) Defect metrics	1	K1	CO4
8.	Which quality model is used to measure process maturity? (a) ISO 9001 (b) TMMi (c) V-Model (d) Agile Model	1	K1	CO4
9.	Fault tolerance is a key concept in (a) Quality Control (b) Quality Assurance (c) Configuration Management (d) Test Planning	1	K1	CO5
10.	Which framework defines six quality characteristics? (a) ISO 9126 (b) ISO 9001 (c) CMMI (d) TMM	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	Define software testing.	2	K1	CO1
12.	Differentiate between verification and validation.	2	K2	CO1
13.	Classify test design techniques.	2	K2	CO2
14.	List any two advantages and disadvantages of system testing.	2	K1	CO2
15.	What is regression testing?	2	K1	CO3
16.	Define boundary value testing.	2	K1	CO3
17.	Infer the quality metrics used in software.	2	K2	CO4
18.	Compare local and distributed test architectures.	2	K2	CO4
19.	Define Maturity Models.	2	K1	CO5
20.	List the components of software quality.	2	K1	CO5
21.	Interpret the term “Fault Tree Analysis”.	2	K2	CO6
22.	Outline Root Cause analysis in Quality Assurance.	2	K2	CO6

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a) (i)	Explain the objectives and importance of software testing.	*6*	*K2*	*CO1*
	(ii)	Discuss the various types of testing with suitable examples.	*5*	*K2*	*CO1*
		OR			
	b)	Compare verification and validation concepts to show how they ensure quality in a software project.	*11*	*K2*	*CO1*
24.	a)	Explain system testing in detail. Illustrate different system testing techniques.	*11*	*K2*	*CO2*
		OR			
	b)	Discuss in detail how boundary value analysis helps in identifying test cases.	*11*	*K2*	*CO2*
25.	a)	Organize the taxonomy of system testing and discuss with suitable examples.	*11*	*K3*	*CO3*
		OR			
	b)	Identify the need and approach for regression testing. How does it ensure software reliability?	*11*	*K3*	*CO3*
26.	a)	Explain the concept of testing with state verification in FSM models.	*11*	*K2*	*CO4*
		OR			
	b)	Discuss software quality metrics and their importance in process improvement.	*11*	*K2*	*CO4*
27.	a)	Identify the procedures of ISO 9000:2000 standards used in software testing and discuss.	*11*	*K3*	*CO5*
		OR			
	b)	Experiment the McCall's Quality factors with its criteria and discuss in detail.	*11*	*K3*	*CO5*
28.	a)	Explain the role of hazard analysis in Software Quality assurance and discuss its application in creating safer, more reliable systems.	*11*	*K2*	*CO6*
		OR			
	b)	Describe Quality Assurance activities for Web-based applications with suitable case study.	*11*	*K2*	*CO6*