K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:V
Class:TY	Program:B.Tech
Branch Code:COM	Pattern:2023
Name of Course:Software Testing and Quality Assurance	Course Code:2301306C
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 2 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

		Marks	CO
Question No. 1			
1	Explain the Software Testing Life Cycle (STLC) by describing each of its phases and discuss the major types of software testing—Functional & Non-Functional.	(6)	CO1
Question No. 2			
2	Identify the different boundary types used in Boundary Value Analysis (BVA) and design boundary test cases for a login system that allows passwords with a length between 8 and 16 characters.	(6)	CO2
Question No. 3			
3.a)	What is Selenium? Explain its components and advantages.	(6)	CO3
	OR		
3.b)	Differentiate between Manual Testing and Automation Testing. Explain how frameworks like Selenium and TestNG enhance automation reliability.	(6)	CO3
3.c)	Explain the Concept of a Hybrid Automation Framework. Discuss its Features and Advantages over Standalone Frameworks.	(5)	CO3
	OR		
3.d)	What is TestNG? Compare it with JUnit.	(5)	CO3
3.e)	What is the significance of using assertions in JUnit or TestNG? Provide examples of different assertion types.	(5)	CO3
	OR		
3.f)	Write a short note on generating and analyzing test reports in Selenium using TestNG and Jenkins.	(5)	CO3
Question No. 4			
4.a)	Define Software Quality and explain the key goals of Software Quality Assurance (SQA). How do these goals contribute to a successful software product?	(6)	CO4
	OR		

4.b)	Describe the major activities of Software Quality Assurance (SQA). How do these activities help in preventing defects and maintaining software quality?	(6)	CO4
4.c)	What are software reviews and audits? Explain their types, objectives, and significance in ensuring software quality.	(5)	CO4

OR

4.d)	Explain the software quality metrics – Defect Density, MTTF, and Code Coverage with examples.	(5)	CO4
4.e)	What is Code Coverage? Describe its types and significance in testing.	(5)	CO4

OR

4.f)	A software project reports 25 defects after testing 5000 lines of code. Calculate the defect density and interpret its meaning. Give another example.	(5)	CO4

Question No. 5

5.a)	Define Defect Management in software testing. Explain its key steps with suitable examples.	(6)	CO5

OR

5.b)	Explain Web Application Testing. What challenges are faced during web testing?	(6)	CO5
5.c)	Explain the role of Artificial Intelligence (AI) in software testing. Discuss any two benefits and one challenge of using AI-based testing tools in modern software development.	(5)	CO5

OR

5.d)	Define Security Testing. Describe any four types of security testing with suitable explanations	(5)	CO5
5.e)	What is performance testing? Explain any 4 types of performance testing.	(5)	CO5

OR

5.f)	Describe Test Strategy Design with a case study.	(5)	CO5

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