

Satyug Darshan Institute of Technology, Faridabad		
	Programme: BCA	Semester: 6th
	Subject Name : Software Testing and Quality Assurance	Subject Code: BCG-322-V
	Department: BCA	AY: 2025-2026
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Unit -1		
Short Questions		
S. No.	Questions	Bloom Taxonomy (KL)
1	Define software testing.	K1
2	What is an error in software testing?	K1
3	Define bug or defect.	K1
4	What is failure?	K1
5	Differentiate between error and defect.	K2
6	Define verification.	K1
7	Define validation.	K1
8	Differentiate verification and validation.	K2
9	What is a test case?	K1
10	List components of a test case.	K1
11	What is test case design?	K2
12	What is static testing?	K1
13	What is dynamic testing?	K1
14	Differentiate static and dynamic testing.	K2
15	Why is software testing important?	K3
16	Define fault.	K1
Long Questions		
1	Define and differentiate between Error, Bug, Fault, and Failure with examples.	K2
2	Explain the importance of Verification and Validation in the SDLC.	K2
3	Discuss the principles of Test Case Design and what makes a test case effective.	K2
4	Compare Static testing techniques (reviews/inspections) with Dynamic testing.	K4
5	Explain the V-Model of testing and how it relates to development phases.	K2
6	Describe the role of the Software Testing Life Cycle (STLC) in quality assurance.	K1
7	How does the "Pesticide Paradox" affect the testing process over time?	K3
8	Explain the psychological factors involved in software testing.	K2
9	Discuss the importance of early testing in the software development process.	K5
10	Analyze the trade-offs between manual testing and automated testing.	K4

11	Create a sample Test Plan document for a small-scale library system.	K6
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Unit -2

Short Questions

S. No.	Questions	Bloom Taxonomy
1	Define black box testing.	K1
2	List any two black box testing techniques.	K1
3	Define white box testing.	K1
4	List any two white box testing techniques.	K1
5	Differentiate black box and white box testing.	K2
6	What is unit testing?	K1
7	Define integration testing.	K1
8	What is system testing?	K1
9	What is acceptance testing?	K1
10	Differentiate testing and debugging.	K2
11	What is debugging?	K1
12	Explain the debugging process.	K2
13	Name any one debugging approach.	K1
14	What is alpha testing?	K1
15	What is beta testing?	K1
16	Who performs acceptance testing?	K1

Long Questions

S. No.	Question	Bloom's Taxonomy
1	What is White Box Testing? List the various path testing techniques used in it.	K1
2	Describe the process of Boundary Value Analysis and Equivalence Partitioning in Black Box testing.	K2
3	Explain the various debugging approaches like Brute force, Backtracking, and Cause elimination.	K2
4	Calculate the Cyclomatic Complexity for a given code snippet and determine the number of independent paths.	K3
5	Demonstrate how Integration Testing is performed using Top-down and Bottom-up approaches.	K3
6	Analyze the differences between Unit Testing and System Testing in terms of scope and objectives.	K4
7	Compare Alpha and Beta testing. In which scenarios is one preferred over the other?	K4
8	Justify the need for Acceptance Testing before the final delivery of the software to the client.	K5
9	Evaluate the challenges faced during the debugging process in large-scale distributed systems.	K5
10	Formulate a testing strategy that combines both Black box and White box testing for a financial app.	K6
11	Create a Decision Table for a complex insurance premium calculation module.	K6

Unit -3

Short Questions

S. No.	Questions	Bloom Taxonomy
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1	Define software maintenance.	K1
2	List categories of software maintenance.	K1
3	What is corrective maintenance?	K2
4	What is adaptive maintenance?	K2
5	What is perfective maintenance?	K2
6	What is preventive maintenance?	K2
7	Why is software maintenance required?	K3
8	Define regression testing.	K1
9	Why is regression testing needed?	K3
10	What is test case prioritization?	K2
11	Name any one software testing tool.	K1
12	What is object-oriented testing?	K1
13	What is a maintenance model?	K1
14	What is impact analysis?	K2
15	What is change management?	K2
16	Why is software maintenance important?	K3

Long Questions

S. No.	Question	Bloom's Taxonomy
1	Define Software Maintenance. List the four types of maintenance categories.	K1
2	Explain the "Pesticide Paradox" in the context of Regression Testing.	K2
3	Describe the different models of software maintenance used in the industry.	K2
4	Apply Regression Testing techniques to a system after a minor functional update.	K3
5	Use a modern testing tool (like Selenium or JUnit) to automate a repetitive maintenance task.	K3
6	Analyze the factors that contribute to the high cost of software maintenance.	K4
7	Examine the specific challenges involved in testing Object-Oriented Software.	K4
8	Prioritize a set of test cases for regression testing based on fault detection capability.	K5
9	Assess the impact of "Lehman's Laws" on the evolution of software systems.	K5
10	Propose a maintenance plan for a legacy system that needs to be migrated to the cloud.	K6
11	Design a framework for automated regression testing for a continuous integration (CI) pipeline.	K6

Unit -4

Short Questions

S. No.	Questions	Bloom Taxonomy
1	Define software quality.	K1
2	What is software quality assurance (SQA)?	K1
3	List SQA activities.	K1
4	What are formal approaches to SQA?	K2

5	What is statistical software quality assurance?	K2
6	What is CMM?	K1
7	Expand CMM.	K1
8	What are the levels of CMM?	K1
9	What is ISO standard?	K1
10	What is ISO 9126?	K1
11	List quality characteristics of ISO 9126.	K1
12	What is reliability in software quality?	K2
13	What is usability?	K1
14	What is maintainability?	K1
15	What is portability?	K1
16	Why are quality standards important?	K3

Long Questions

S. No.	Question	Bloom's Taxonomy
1	What is SQA? List the primary activities involved in Software Quality Assurance.	K1
2	Explain the various levels of the Capability Maturity Model (CMM).	K2
3	Describe the key quality attributes defined in the ISO 9126 Standard.	K2
4	Implement Statistical Software Quality Assurance techniques to track defect density.	K3
5	Show how a Formal Technical Review (FTR) is conducted within a software team.	K3
6	Analyze the relationship between Software Quality Assurance and Software Configuration Management.	K4
7	Compare the ISO 9000 series standards with the CMMI model for process improvement.	K4
8	Critique the "Cost of Quality" model—is it always beneficial to aim for zero defects?	K5
9	Evaluate the effectiveness of Cleanroom Software Engineering in achieving high reliability.	K5
10	Develop a Software Quality Assurance Plan (SQAP) for a mission-critical medical device software.	K6
11	Create a set of quality metrics to measure the maintainability and reliability of a software product.	K6