



Sixth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Software Testing

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Define the following terms with examples:
* Software Quality
* Correctness versus Reliability
* Testing and Debugging
* Test Metrics (05 Marks)
- b. Explain the insights gained from a Venn diagram in the context of software testing. How can it help in identifying test cases. (05 Marks)
- c. Write generalized pseudocode for the “ tringle problem” and derive at least five test cases for it. (05 Marks)
- d. Differentiate between static testing and dynamic testing. Provide one example of each. (05 Marks)

OR

- 2 a. Discuss the importance of requirements in software testing. How can poorly defined requirement impact the testing process? (05 Marks)
- b. Explain the “ NextDate function” problem. List the key test cases you would design to ensure its correctness. (05 Marks)
- c. Describe the SATM (Simple Automatic Teller Machine) problem. What are the challenges in testing such a system? (05 Marks)
- d. Explain the concept of error and fault taxonomies. How do they help in improving the testing process? (05 Marks)

Module-2

- 3 a. Explain Boundary Value Analysis (BVA) and Robustness Testing with examples. How are they applied to triangle problem? (05 Marks)
- b. Discuss the concept of equivalence classes. Derive equivalence test cases for the “NextDate Function.” (05 Marks)
- c. What is a decision table? Create a decision table for the commission problem and derive test cases from it. (05 Marks)
- d. Briefly explain fault – based testing and mutation analysis. How do they contribute to test adequacy? (05 Marks)

OR

- 4 a. Explain the concept of worst-case testing and robust worst – case testing. Apply these techniques to the triangle problem. (05 Marks)
- b. Discuss the guidelines and observations for equivalence class testing. How do they help in designing effective test cases? (05 Marks)
- c. What are the assumptions in fault – based testing? Explain fault – based adequacy criteria with an example. (05 Marks)
- d. Compare and contrast boundary value analysis and equivalence partitioning with examples. (05 Marks)

Module-3

- 5 a. Explain the concept of statement testing and condition testing. How are they used to ensure code coverage? (05 Marks)
- b. Define path testing and DD paths. How do you calculate cyclomatic complexity for basis path testing? (05 Marks)
- c. What is data-flow testing? Explain the concept of definition – use testing with an example. (05 Marks)
- d. Discuss the role of test oracles in test execution. How are self – checks used as oracles? (05 Marks)

OR

- 6 a. Explain the concept of test coverage metrics. How do they help in measuring the effectiveness of testing? (05 Marks)
- b. What is slice – based testing? Discuss its advantages and limitations. (05 Marks)
- c. Describe the process of test execution, from test case specification to test case execution. What is scaffolding, and how is it used? (05 Marks)
- d. Compare generic scaffolding with specific scaffolding. Provide examples of each. (05 Marks)

Module-4

- 7 a. Explain the basic principles of the process framework: sensitivity, redundancy, restriction, partition, visibility, and feedback. (05 Marks)
- b. Discuss the importance of planning and monitoring in the quality process. How are quality goals defined and achieved? (05 Marks)
- c. What are dependability properties? How do they contribute to the overall quality of software? (05 Marks)
- d. Explain the role of the quality team in improving the software testing process. (05 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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OR

- 8 a. Describe the structure and importance of the test strategy document. What key elements should it include? (05 Marks)
- b. Discuss the process of risk planning in software testing. How are risks monitored and mitigated during the testing process? (05 Marks)
- c. Explain the purpose of test design specifications and test analysis reports. How do they contribute to the testing process? (05 Marks)
- d. What are organizational factors that influence the software testing process? How can they be managed effectively? (05 Marks)

Module-5

- 9 a. Explain the different integration testing strategies. How do they differ in their approach to testing components and assemblies? (05 Marks)
- b. Discuss the concept of system testing. What are the key objectives and challenges in system testing? (05 Marks)
- c. What is regression testing? Explain regression test selection techniques and test case prioritization. (05 Marks)
- d. Compare traditional levels of testing with alternative life – cycle models. How is integration testing separated from system testing? (05 Marks)

OR

- 10 a. Describe the SATM (Simple Automatic Teller Machine) system. How is integration testing applied to this system? (05 Marks)
- b. Explain decomposition – based, call graph-based, and path – based integration testing techniques. (05 Marks)
- c. What is usability testing? How does it differ from acceptance testing? (05 Marks)
- d. Discuss the importance of selective execution in regression testing. How is it implemented in practice? (05 Marks)
