SOP Template: Functional and Performance Testing Protocols

This SOP defines the **functional and performance testing protocols** required to ensure that systems and components operate correctly and meet specified performance criteria. It covers test planning, execution, monitoring, and documentation procedures designed to validate functionality, measure response times, assess reliability under various conditions, and verify compliance with user requirements and industry standards. The objective is to guarantee system integrity, enhance quality assurance, and minimize operational risks through systematic testing methodologies.

1. Purpose

To provide a structured approach for planning, executing, and documenting functional and performance tests for systems and components.

2. Scope

- Applies to all new and modified systems/components prior to deployment.
- Covers functional validation, performance measurement, and compliance verification.

3. Roles and Responsibilities

Role	Responsibility
Test Manager	Oversee test planning, resource allocation, and progress tracking.
Test Engineer	Design, execute, and report on test cases.
System Owner	Review test plans, results, and approve releases.
Quality Assurance	Ensure protocols are followed and standards are met.

4. Procedures

4.1 Test Planning

1. Identify test objectives and acceptance criteria.
2. Define test types (functional vs. performance).
3. Develop a detailed test plan, including schedule and resources.
4. Prepare test cases and test scripts addressing all requirements.
5. Review and approve test plan with stakeholders.

4.2 Test Environment Setup

1. Configure test environments to mirror production as closely as possible.
2. Verify all necessary hardware, software, and data are available.
3. Document environment configuration for reproducibility.

4.3 Test Execution

1. Execute test cases and record results.
2. For functional testing, ensure all features work as intended and edge cases are covered.
3. For performance testing, measure metrics such as response times, throughput, resource usage under different load levels, and scalability.
4. Document issues, failures, or unexpected behaviors.

4.4 Monitoring and Logging

- Use automated tools where possible for monitoring and logging performance data.
- Track and analyze logs to identify trends or bottlenecks.
- Escalate critical issues immediately to responsible parties.

4.5 Defect Reporting and Resolution

1. Log defects with detailed descriptions and relevant data.
2. Assign severity and priority levels.
3. Re-test resolved defects and update status in documentation.

4.6 Test Documentation and Reporting

1. Summarize test activities, results, and deviations.
2. Prepare a comprehensive test report for stakeholders.
3. Archive all test documentation for future reference and compliance.

5. Compliance and Review

- Ensure all protocols adhere to organizational and industry standards (e.g., ISO, IEEE).
- Review and update this SOP annually or after significant process changes.

6. References

- IEEE 829: Standard for Software Test Documentation
- ISO/IEC/IEEE 29119: Software Testing Standards
- Internal QA Guidelines

7. Revision History

Version	Date	Description	Author/Editor
1.0	2024-06-01	Initial release.	QA Team