Test Plan for E-Commerce System

1. Introduction

1.1 Purpose

The purpose of this test plan is to define the objectives, scope, strategy, resources, and schedule for testing the e-commerce platform. The goal is to ensure that the system meets functional and non-functional requirements and adheres to business needs.

1.2 Scope

The testing will cover:

- **Functional Testing**: Authentication, product browsing, shopping cart, payments, order management, and admin functionalities.

- **API Testing**: Verification of API endpoints for authentication, product data, checkout, and payments.

- **Performance Testing**: Load, stress, and scalability testing.

- **Security Testing**: SQL injection.

- **Usability Testing**: Ensuring a smooth user experience across multiple devices.

1.3 Testing Objectives

- Validate that the system meets business requirements.

- Identify and resolve defects early in the development cycle.

- Ensure that the platform supports multiple concurrent users efficiently.

- Verify that the e-commerce system works on various browsers and devices.

- Ensure secure transactions and data protection.

2. Test Strategy

2.1 Testing Types

1. **Unit Testing** – Performed by developers to test individual components.

2. **Integration Testing** – Ensuring modules work together (e.g., API and UI integration).

3. **System Testing** – End-to-end testing of the entire e-commerce flow.

4. **User Acceptance Testing (UAT)** – Validating business scenarios with stakeholders.

5. **Performance Testing** – Load, stress, and scalability testing.

6. **Usability Testing** – Checking UI/UX responsiveness and accessibility.

2.2 Tools and Technologies

- **UI Automation**: Selenium WebDriver, TestNG
- **API Testing**: Postman, Rest Assured
- **Performance Testing**: JMeter
- **Test Management**: Jira

3. Test Deliverables

- **Test Plan** – Defines strategy, objectives, and execution details.
- **Test Schedule** – Timeline for different testing phases.
- **List of Risks** – Identified risks and mitigation strategies.
- **Risk Register** – Documentation of risks, their impact, and mitigation plans.
- **Entry and Exit Criteria** – Conditions to start and complete testing.
- **Test Cases** – Detailed scenarios covering all functionalities.
- **Test Execution Report** – Logs test results, defects, and fixes.
- **Bug Reports** – Documentation of defects found.
- **Final Test Summary** – Provides insights into test coverage and results.

4. Test Environment

- **Operating Systems**: Windows
- **Browsers**: Chrome, Firefox, Edge
- **Devices**: Desktop, Mobile, Tablet
- **Test Environments**: Staging, UAT

5. Test Schedule

Phase	Activity	Timeline
Week 1	Test Case Development	5 days
Week 2	Functional Testing	7 days
Week 3	Performance & Security Testing	5 days
Week 4	UAT	7 days
Week 5	Test Closure & Reporting	3 days

6. Defect Management

- Defects will be logged in **Jira**.

- Priority Levels:

    - **Critical** – Blocks major functionality.

    - **High** – Major defect with no workaround.

    - **Medium** – Defect with minor impact.

    - **Low** – Cosmetic or minor issue.

7. Entry and Exit Criteria

Entry Criteria

- Test environment is set up and stable.

- Test cases are reviewed and approved.

- Required test data is available.

- Development team has completed initial testing.

Exit Criteria

- All critical and high-priority defects are resolved.

- Functional and non-functional test cases have been executed successfully.

- UAT sign-off from business stakeholders.

- System performance meets defined benchmarks.

8. Risks and Mitigation

Risk	Mitigation Strategy
Tight deadlines	Prioritize test cases and automate tests.
Last-minute changes	Implement continuous testing.
Security threats	Conduct regular security audits.

9. Risk Register

Risk ID	Description	Impact	Probability	Mitigation Strategy
R001	Tight deadlines may impact test coverage	High	Medium	Prioritize critical test cases and automate where possible
R002	Unexpected last-minute feature changes	Medium	High	Implement continuous testing and have a flexible testing schedule
R003	Security vulnerabilities may be exploited	High	Medium	Conduct regular security audits
R004	Performance issues under high load	High	Medium	Perform load and stress testing early

10. Conclusion

This test plan ensures a structured and systematic approach to testing the e-commerce platform. The combination of manual and automated testing will help achieve a robust, high-performing, and secure e-commerce system.