# Elvis Ilor

**Part A:**

**1. Define software testing and explain its primary purpose in the SDLC.** Software testing is an integral phase of the Software Development Life Cycle (SDLC), aimed at evaluating the functionality, reliability, performance, and security of a software application to ensure it meets the specified requirements. Its primary purpose is to identify and resolve defects before the software is deployed, ensuring the quality and efficiency of the final product (Tilley & Rosenblatt, 2021).

**2. Differentiate between unit testing and integration testing with examples.** Unit testing involves testing individual components or units of a software application independently to ensure they function correctly (e.g., a function to calculate tax). Integration testing follows unit testing and involves testing the interaction between these units to ensure they work together as expected (e.g., ensuring the tax calculation module works correctly with the billing module) (Tilley & Rosenblatt, 2021).

**3. What is the significance of a test plan? List three key elements it must include.** A test plan outlines the scope, approach, resources, and schedule of intended test activities. It is significant as it ensures the testing is systematic and thorough. Key elements include scope of testing, test objectives, and the resources (time, personnel, and tools) required for testing (Tilley & Rosenblatt, 2021).

**4. Describe user acceptance testing (UAT) and why it is critical before system deployment.** User Acceptance Testing (UAT) is the final stage of testing, where actual users test the software to ensure it can handle required tasks in real-world scenarios. UAT is critical as it ensures the software meets the end users' needs and requirements, which is crucial for the software's success post-deployment (Tilley & Rosenblatt, 2021).

**5. Explain how testing strategies can vary between traditional and agile development models.** In traditional models, testing usually occurs as a distinct phase after development. In contrast, Agile incorporates continuous testing, which involves regular tests throughout the development process. This allows for immediate feedback and quicker iterations, enhancing product quality and speeding up the development cycle (Tilley & Rosenblatt, 2021).

**Part B:**

**1. Identify and describe at least three types of testing that should be performed on this system.** The system should undergo functional testing to ensure all features work as intended, performance testing to verify it can handle the expected load, and security testing to protect against vulnerabilities (Tilley & Rosenblatt, 2021).

**2. Who should be involved in user acceptance testing for this system and why?** Stakeholders including actual users (e.g., store managers), IT staff, and business managers should be involved in UAT to ensure the system meets practical business requirements and user needs (Tilley & Rosenblatt, 2021).

**3. Design a brief test case for the "inventory update" module. Include: test input, expected output, and pass/fail criteria.** Test Case for Inventory Update:

- **Input**: Adding 50 units of a new product.
- **Expected Output**: Total inventory reflects an addition of 50 units.
- **Pass/Fail Criteria**: The test passes if the inventory correctly updates; it fails if it does not (Tilley & Rosenblatt, 2021).

**4. Suggest one possible risk if thorough testing is not conducted before system deployment.** If thorough testing is not conducted, there could be undetected bugs leading to system failures, which can disrupt business operations and damage the company's reputation (Tilley & Rosenblatt, 2021).

**Citation:**

Tilley, S., & Rosenblatt, H. J. (2021). *Systems Analysis and Design* (11th ed.). Cengage Learning.