**Team and environments**

1. **Team Activities in Each Stage:**

**Requirement Analysis (Planning):**  
In IT, the team collaborates with business analysts to conduct a feasibility study of requirements, analyze potential risks, create test plans, and develop a strategy for quality assurance testing. This includes determining the types of testing to be used, as each project requires a unique approach due to its specific characteristics.

**Design:**  
Review the design for testability, ensuring that the architecture meets all functional and non-functional requirements. QA tests the design upon completion to mimic end-user behavior.

**Development:**  
Quality assurance in software development can be performed once the software is created, or a Test-Driven Development (TDD) approach can be used.

**Testing:**  
Testing can be conducted at the end or through TDD, where the software undergoes testing during development after each change. Both methods may be applied depending on the software's specifics and client requirements.

**Deployment:**  
After product release, developers maintain it while the QA team creates user guides and product manuals for end-users. Additionally, specialists prepare test documentation to ensure all bugs have been identified and fixed.

1. **QA's Crucial Role in SDLC:**

* **Requirement Analysis:** QA collaborates with business analysts.
* **Design:** The design is tested for compliance with requirements.
* **Development:** Includes both post-development testing and TDD, ensuring the software is tested after each change.
* **Deployment:** QA ensures all bugs are identified and fixed, creating user guides and product manuals for end-users.

1. **Environments and Testing Types:**

**Dev Environment:**

* **Development Environment:** Developers write code and conduct initial tests.
* **Unit Tests:** Executed by developers to verify the functionality of individual components at the code level.

**Test Environment:**

* **Smoke Tests:** Quick tests to check if a new software version can be deployed without major issues, verifying critical functions.
* **Manual Functional Testing:** Extensive manual tests to verify the complete functionality of the application in a production-like environment.
* **Regression Tests:** Ensure recent changes haven't affected existing functionality, verifying every button and link.

**Staging Environment:**

* **Manual Functional Testing:** Ongoing manual testing to ensure the application works correctly.
* **Sanity Tests:** Tests to verify specific parts function as required after minor changes or fixes.
* **Beta Testing:** Tests the nearly finished version to identify and eliminate as many errors as possible before the final release.
* **Maintainability Testing:** Determines how easy it is to maintain the system.

**Production Environment:**

* **Manual Functional Testing:** Limited manual testing to verify critical functionalities.
* **Maintenance Tests:** Identify issues that may arise post-deployment, ensuring application availability and performance.
* **Alpha Testing:** Conducted by employees or independent specialists to simulate real-use scenarios.

It's important to adapt testing types and activities according to each environment to ensure software quality and minimize error risks at every stage.