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**1) What occurs during the testing stage of the SDLC?**

In the testing phase of the SDLC, the system or application undergoes a series of evaluations to verify that it meets the project's initial requirements. This stage primarily aims to identify and report any defects so they can be resolved before the system goes live. Since project requirements may evolve throughout the SDLC, it's crucial to use tests that align with these updated specifications, ensuring comprehensive validation of the system's functionality.

**2) Why is the testing stage vital to a successful SDLC?**

The testing phase plays a crucial role in a successful SDLC, as it gives developers and testers the chance to detect errors before the code is deployed in a live environment. Table 1.1 in the textbook clearly demonstrates that identifying errors earlier in the SDLC significantly reduces the cost of fixing them. For instance, the table estimates that correcting an error during the coding stage costs around $10, whereas addressing the same error after the system or application goes live can cost approximately $100,000.

**3) Are there any exceptions in which the testing stage would occur earlier or later than it typically does in the SDLC? Explain.**

In a traditional sequential development model like Waterfall, testing is generally reserved for the final phase of the process. In contrast, an iterative model like Agile incorporates testing at the conclusion of each sprint. Agile development breaks down a large project into smaller, manageable sprints—typically lasting 2 to 4 weeks, where the code is tested at the end of each sprint before the development team moves on to the next cycle. This approach promotes early and continuous feedback, allowing for ongoing improvements throughout the project.