

1. Which property of layered architectures *most* enables the *unit testing* of individual layers?
(A) Clear interfaces and contracts (B) Replaceability (C) Maintainability (D) Dependency direction
2. Which is the best description of patching in Python tests?
(A) Renaming files so imports resolve differently at runtime. (B) Temporarily replacing a name so tests use a controlled implementation. (C) Editing third-party library source code to remove side effects. (D) Converting integration tests into unit tests by deleting dependencies.
3. Why are fixtures important when running many tests?
(A) They make test modules easier to follow for new devs. (B) They make integration tests unnecessary by design. (C) They reduce duplication in the arrange step. (D) They prevent the need for assertions in tests.
4. Which statement best describes what a code formatter does?
(A) Tracks how many lines of code tests execute in a project. (B) Infers types at runtime to prevent crashes in production. (C) Automatically rewrites code to conform to a style guide. (D) Detects likely bugs and suspicious patterns in code.
5. What is a test double?
(A) A test that executes twice to confirm stability. (B) A stand-in used in tests to replace a dependency. (C) A type annotation that forces runtime validation. (D) A test that covers the same lines of code as an existing test but prevents a different regression.
6. In the context of testing frameworks, what does “ceremony” usually refer to?
(A) Adding extra print statements to show progress. (B) Celebrating when a test run is all green. (C) Required setup and structure around tests to define them. (D) Using a slower computer so tests feel more realistic to user experiences.
7. In Python, why must you patch the name where it is used rather than where it is defined?
(A) Because patch only works on built-in library functions, not user code. (B) Because patch modifies the file on disk, not the runtime objects. (C) Because the code under test references the imported name it already bound. (D) Because Python forbids patching symbols across modules.
8. Which best describes a data model in an application?
(A) A UI layout that renders data on a screen. (B) The structure of data and its rules within the system. (C) A test suite that verifies data is stored correctly. (D) The neural network an app’s AI engine is powered by.
9. What does “coverage” measure in automated testing?
(A) How many lines are executed or not by the test suite. (B) How many bugs were fixed since the last release. (C) How strictly layered the system is. (D) How fast the tests run compared at covering many input sizes.
10. Which statement best describes a static type checker?
(A) A tool that rewrites code to match a style guide. (B) A tool that executes tests in a random order. (C) Flags suspicious code patterns and potential errors. (D) A tool that analyzes code types without running the program.
11. How is a Mock different from a Fake?
(A) A Mock can only be used in unit tests, not integration tests. (B) A Fake can only be used in integration tests, not unit tests. (C) A Fake records calls, while a Mock subclasses its double. (D) A Mock is a flexible stand-in object, a Fake is a lightweight implementation.
12. Which statement best describes what a linter does?
(A) Ensures there are no type safety issues in code. (B) Flags suspicious code patterns and potential errors. (C) Executes unit tests and reports failing tests. (D) Adjusts whitespace in code to match a style guide.
13. What is the primary purpose of using mocks in tests?
(A) To isolate the subject under test from dependencies. (B) To test the integration between multiple units of code. (C) To ensure production uses the same objects as the tests. (D) To make the test suite slower but more realistic.

14. Which property *most* enables large organizations to have many teams working on the same layered system?
(A) Separation of Concerns (B) Maintainability (C) Dependency direction (D) Testability (E) Replaceability
15. In practice, what does the Arrange step typically include?
(A) Checking expected outcomes with assertions. (B) Calling the function or method under test. (C) Setting up inputs, objects, and test doubles. (D) Deleting temporary files created by the test runner.
16. Why is a separate static type checker typically unnecessary in Java?
(A) Java's programs do not have runtime errors. (B) Java relies on duck typing, so type checking is optional. (C) Java's compiler has type checking built-in. (D) Java only runs in IDEs, which enforce types automatically.
17. Why is a static type checker useful in Python specifically?
(A) It removes the need to write unit tests for business logic. (B) It catches many errors before executing the program. (C) It catches many errors at runtime. (D) It prevents syntax errors that Python would otherwise allow.
18. A team already uses a formatter. What unique value does a linter still provide?
(A) It replaces the need for code review by testing correctness. (B) It guarantees identical output across different operating systems. (C) It makes code run faster by optimizing hot paths. (D) It can catch issues that are valid syntax but likely wrong.
19. Which best contrasts declarative vs. imperative style in data modeling libraries?
(A) Declarative specifies constraints not implementations, imperative specifies implementations. (B) Declarative runs only at compile time, imperative runs only at runtime. (C) Declarative runs only at runtime, imperative runs only at compile time. (D) Declarative requires if statements and loops, imperative gives short-hand syntax for modeling.
20. What is data validation?
(A) Encrypting data so attackers cannot read it. (B) Checking input data against expected constraints. (C) The collected results of acceptance tests to verify program correctness. (D) Compressing data so it uses less disk space.
21. Which scenario most clearly calls for a unit test rather than an integration test?
(A) Confirming an API endpoint works with a real database. (B) Ensuring two services can communicate over HTTP. (C) Checking the full app can start, authenticate, and render UI screens. (D) Verifying a single function's logic while patching side-effects.
22. What is a strict layered architecture?
(A) An architecture where layers can only make calls to the layer above or below it. (B) An architecture where all modules can call each other freely. (C) An architecture where each layer depends only on the layer directly below it. (D) An architecture where every class must inherit from a common base type.
23. Which trade-off is commonly introduced by layered architectures?
(A) Less replaceability but more testability because layers can be mocked. (B) Performance improvements at the cost of increased code complexity. (C) More upfront structure in exchange for maintainability. (D) Fewer interfaces but more classes.
24. Why is data validation important?
(A) It eliminates the need for error handling in lower layers of the architecture. (B) It guarantees the database will be free of corrupted data. (C) It prevents invalid data from flowing into the system. (D) It makes all API responses smaller automatically.
25. Which statement best captures what a fixture is in testing?
(A) A tool that enforces formatting rules in the codebase. (B) A test that is always installed in the dev environment. (C) Reusable setup to prepare a common test environment. (D) A replacement object that records how it was called.