

1. What role does `TestClient` provide in `FastAPI`?
 - (A) `TestClient` enables you to unit test routes without needing to override dependencies
 - (B) `TestClient` enables you to test route handler functions by calling them directly
 - (C) `TestClient` enables you to test the HTTP routing layer by simulating HTTP requests
 - (D) `TestClient` enables you to test client-side code from your `pytest` suite
2. You want to represent a collection of projects and the individual projects within it. Which API path set best follows conventional resource naming?
 - (A) `/getProjects` and `/getProject/{project_id}`
 - (B) `/projects` and `/projects/{project_id}`
 - (C) `/project` and `/project?id={project_id}`
 - (D) `/projects/{project_id}/get`
3. Which status code class indicates a server-side error?
 - (A) 5xx
 - (B) 1xx
 - (C) 2xx
 - (D) 4xx
4. You need an endpoint that returns “all orders for a given user” and also supports optional sorting and date-range filtering. Which URL design best follows common REST conventions?
 - (A) `POST /users/42/orders/search` with body `{start,end,sort}`
 - (B) `GET /users/42/orders/start/2026-01-01/end/2026-02-01/sort/created_at`
 - (C) `GET /users/42/orders?start=2026-01-01&end=2026-02-01&sort=created_at`
 - (D) `GET /users?userId=42&include=orders&start=2026-01-01&end=2026-02-01&sort=created_at`
5. Once a system is operational and in production, end-to-end and integration tests replace the need for unit tests.
 - (A) False
 - (B) True
6. If a module has the statement `from random import choice` and later calls `choice(...)`, patching `random.choice` in another test module will reliably control the behavior.
 - (A) False
 - (B) True
7. Which data structure do dependency injection systems leverage under the hood for dependency resolution?
 - (A) red-black tree
 - (B) directed cyclical graph
 - (C) undirected graph
 - (D) directed acyclic graph
8. How does pair programming support continuous code review?
 - (A) It makes pull requests unnecessary
 - (B) Initial review happens during creation
 - (C) It replaces the need for tests because two people are present
 - (D) It guarantees there will be no bugs introduced
9. Using query parameters for filtering (e.g., `/users?role=ta`) is more RESTful than encoding the same filters as additional path segments (e.g., `/users/role/ta`).
 - (A) False
 - (B) True
10. In `FastAPI`, a missing required field in a `Body` can respond with a 422 status without *you* raising an `HTTPException`.
 - (A) True
 - (B) False
11. Which status code class most commonly indicates a redirect?
 - (A) 2xx
 - (B) 4xx
 - (C) 3xx
 - (D) 5xx
12. In `FastAPI`'s request lifecycle for a route with injected dependencies, which ordering best matches what happens?
 - (A) Execute handler -> resolve dependencies -> route match
 - (B) Route match -> execute handler -> resolve dependencies
 - (C) Resolve dependencies -> route match -> execute handler
 - (D) Route match -> resolve dependencies -> execute handler
13. Which status code class indicates a client-side error?
 - (A) 3xx
 - (B) 1xx
 - (C) 2xx
 - (D) 4xx

14. A client requests a user that does not exist: `GET /users/999999`. Which status code + response body pairing is most appropriate?
- (A) 404 with an error object describing the missing resource
 - (B) 500 with a stack trace for debugging
 - (C) 200 with an empty JSON object `{}`
 - (D) 204 with no body to avoid leaking information
15. Dependency Injection improves the testability of classes/functions because dependencies are passed in as arguments.
- (A) False (B) True
16. Which statement best captures the REST idea of stateless request handling?
- (A) Clients must keep a persistent TCP connection open
 - (B) Each request carries what the server needs to process it
 - (C) Servers must never store any data between requests
 - (D) All requests must include a request body
17. A dependency injected provider itself declares another dependency using `Annotated[... , Depends()]`. What is the main consequence of this?
- (A) FastAPI requires clients to call dependencies as separate endpoints
 - (B) FastAPI errors out to avoid recursion
 - (C) FastAPI builds a dependency graph and resolves it automatically
 - (D) FastAPI gives an error when starting the server
18. You want to fetch a specific resource by identity. Which part of an HTTP request most directly expresses that identity in a resource-oriented API?
- (A) Accept header (B) Request body (C) Path parameter (D) Query parameter
19. You define: `GameServiceDI: TypeAlias = Annotated[GameService, Depends(get_game_service)]` What is the main advantage of using this alias across many routes?
- (A) Centralize DI configuration and reduce repeated typing boilerplate
 - (B) Force FastAPI to instantiate the service once per app lifetime
 - (C) Make the service automatically JSON-serializable in responses
 - (D) Prevent dependency overrides in tests from working
20. Which status code class indicates a successful request?
- (A) 1xx (B) 4xx (C) 2xx (D) 5xx
21. If your service layer raises `HTTPException` directly, it is still independent of HTTP concerns because `HTTPException` is just a normal Python exception.
- (A) True (B) False
22. Separating out the layers of a backend system into route handler, services, and persistence improves the response time performance of an API as opposed to writing route handlers that handle all three concerns directly.
- (A) False (B) True
23. The service layer implements domain-specific business logic ignorant of HTTP and underlying storage details.
- (A) False (B) True
24. Which statement best describes *idempotency*?
- (A) The response is always cacheable by browsers and proxies
 - (B) The request must include an authentication token to succeed
 - (C) The server never changes state in response to the request
 - (D) Repeating the same action has the same effect as doing it once
25. You want to quickly inspect the generated API contract and try requests in the browser. Which FastAPI endpoint is designed for that interactive OpenAPI experience?
- (A) `/docs` (B) `/api` (C) `/schema` (D) `/admin`