Teacher Answer Key

Case Study

1. The CTO's statement reveals that debugging requires genuine understanding of how the code works, not just the ability to prompt AI with error messages. Under real pressure, the AI cannot identify what the problem is if the practitioner cannot explain what the code was supposed to do or why it is failing. Surface work produces code you cannot maintain.

2. Dev's portfolio projects succeeded because they were built in familiar, supported conditions where AI could handle the scenarios he asked about. The production bug was an unfamiliar failure in code he did not understand, which is exactly the kind of novel situation the reading says breaks surface work. He had no analytical foundation to draw on when AI could not solve it for him.

Multiple Choice

1. D

2. A

3. B

Matching

1-B, 2-E, 3-D, 4-C, 5-A

Fill-in-the-Blank

1) foundational, 2) accountability, 3) amplify

Short Answer (Sample Responses)

Q1: Surface work breaks down during diagnosis: a practitioner who did not understand what they produced cannot identify why it failed or fix it without starting over. It also breaks down in novel situations: AI tools perform best on familiar problems, so when the situation falls outside that range, the surface worker has no analytical foundation to fall back on.

Q2: A developer with foundational code knowledge can read AI-generated code, catch security vulnerabilities the AI introduced, and understand why those vulnerabilities exist. The foundational skill means the developer is not dependent on the AI being right, because they can evaluate and correct it. Without that skill, every AI error the developer misses becomes a production vulnerability.

Q3: AI tools take direction from the practitioner using them. If that practitioner does not understand the domain deeply enough to ask the right questions, evaluate

the output, or catch errors, the AI amplifies superficiality rather than genuine capability. Real skills are what make AI assistance actually useful rather than a liability, because only a practitioner with deep understanding can direct AI in a way that produces reliably sound results.