Teacher Answer Key

Case Study

1. Dr. Chen's AI reads subtle physical differences in CT scan data that human eyes cannot detect, unlocking text that was physically inaccessible for nearly 2,000 years. This shows how digital technology can transform the recovery of ancient knowledge without touching or damaging fragile artifacts.

2. The scrolls potentially contain entirely unknown ancient texts — works of literature, philosophy, or history that survived nowhere else. Even if they duplicate known texts, their condition and completeness could correct errors in manuscripts copied and re-copied for centuries.

Multiple Choice

1. C

2. D

3. B

Matching

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

Fill-in-the-Blank

1) twenty (20), 2) 1,800, 3) quarter

Short Answer (Sample Responses)

Q1: Pompeii was buried in dry, porous ash and pumice that preserved stone structures but not organic material, and left cavities where bodies decayed. Herculaneum was buried in dense volcanic mud that excluded oxygen, preserving wood, food, textiles, and scrolls that would have rotted in Pompeii's conditions.

Q2: The scrolls carbonized into fragile cylinders that crumbled when touched, and ink and papyrus were nearly the same color, making optical reading impossible. CT scanning and AI that detects microscopic ink-raised texture differences have now made reading sealed scrolls possible without unrolling them.

Q3: The modern town of Ercolano sits directly above the rest of Herculaneum, requiring complex underpinning, resident consultation, and enormous expense to excavate beneath. If overcome, thousands of preserved wooden structures, organic material, and possibly additional scroll libraries could be recovered.