Teacher Answer Key

Case Study

1. The disordered mass burial — bodies stacked with no orientation, no grave goods, dropped rather than placed — indicates that the community had lost the capacity to conduct normal burial practices. The reading explains that Black Death burials show exactly this pattern: when death rates overwhelmed available labor and resources, careful individual burial became impossible. The tooth samples are likely to yield Yersinia pestis DNA, confirming plague as the cause.

2. The reading says the paleopathological record is biased toward chronic conditions because acute diseases kill before leaving skeletal marks. Black Death supports this in one way — plague DNA is found in teeth, not in bone lesions, because the disease killed too fast to reshape bone. But it challenges the claim in another way: the burial pattern itself (mass graves, no ritual care) is indirectly visible in the archaeological record even when the disease left no direct skeletal trace.

Multiple Choice

1. D
2. C
3. B

Matching

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

Fill-in-the-Blank

1) paleopathology, 2) lesions, 3) Pott's

Short Answer (Sample Responses)

Q1: Different types of damage leave different signatures in bone. Disease lesions tend to be bilateral (affecting both sides of the body), follow characteristic patterns for specific pathogens (like Pott's disease for TB), and show gradual progression. Traumatic injuries tend to be asymmetrical, localized, and show either healing or perimortem fracture patterns. Age-related degeneration shows predictable wear at joint surfaces. Paleopathologists are trained to distinguish these patterns, though some conditions can overlap and require careful analysis.

Q2: The presence of syphilitic bone lesions in pre-Columbian American remains but not in clearly pre-Columbian European remains strongly supports the Columbian hypothesis — that the disease originated in the Americas and was introduced to

Europe by sailors returning with Columbus in 1493. The sudden European epidemic of the 1490s fits this pattern. While some researchers dispute this with European evidence, the overall archaeological picture is consistent with transatlantic transmission following contact.

Q3: Tracing ancient disease patterns reveals how long pathogens have coexisted with humans, how they evolved over time, and how populations developed resistance or vulnerability. Understanding that TB has been with humanity for 9,000 years, for example, helps researchers understand the deep evolutionary relationship between the bacterium and human immune systems. Ancient plague DNA studies have similarly helped researchers understand how Yersinia pestis became so virulent — information directly relevant to modern biosecurity.