

Advanced Palaeontological Science

Palaeontology · Practice Test · 8 Questions

1. Which specific clade of archosaurs is defined by the presence of a perforate acetabulum and an elongated deltopectoral crest on the humerus?

- A) Pseudosuchia
- B) Dinosauria
- C) Pterosauria
- D) Ornithodira

2. In the context of the Cambrian Explosion, which fossil assemblage is most noted for preserving soft-bodied organisms via Burgess Shale-type carbonaceous film preservation?

- A) Chengjiang biota
- B) Ediacara biota
- C) Doushantuo Formation
- D) Nama Group

3. The 'Great Unconformity' represents a significant gap in the geological record globally; which biological transition is often associated with the strata immediately overlying it?

- A) The rise of the first eukaryotes
- B) The proliferation of complex metazoans
- C) The Devonian terrestrialization
- D) The K-Pg extinction recovery

4. Which mineral replacement process occurs when the internal structure of wood is preserved at the cellular level by silica, often via hydrothermal fluids?

- A) Carbonization
- B) Permineralization
- C) Silicification
- D) Replacement

5. What is the primary diagnostic feature used to distinguish members of the subclass Ornithischia from Saurischia?

- A) The presence of gastroliths
- B) The orientation of the pubis bone
- C) The development of feathers
- D) The tooth-to-jaw ratio

6. In palaeoclimatology, the delta 18O ($\delta^{18}\text{O}$) ratio found in marine carbonate microfossils is primarily used as a proxy for which variable?

- A) Atmospheric CO₂ concentrations
- B) Global ice volume and water temperature
- C) Salinity levels in estuarine environments
- D) Primary productivity of phytoplankton

7. The transition from lobe-finned fish to tetrapods is best exemplified by which Devonian-aged genus possessing both fish-like scales and tetrapod-like limb bones?

- A) Acanthostega
- B) Ichthyostega
- C) Tiktaalik
- D) Eusthenopteron

8. Which of the following describes the 'Lazarus taxon' phenomenon in the fossil record?

- A) Rapid evolutionary radiation following an extinction event
- B) The reappearance of a taxon in the fossil record after a period of apparent absence
- C) The convergent evolution of unrelated species in isolated ecosystems
- D) The fossilization of trace fossils instead of body fossils