

Advanced Geological Principles

Geology · Practice Test · 10 Questions

1. Which mineral group, characterized by the $(\text{SiO}_4)^{4-}$ tetrahedral structure, constitutes approximately 90% of the Earth's crust?

- A) Feldspars
- B) Micas
- C) Pyroxenes
- D) Amphiboles

2. In the context of paleomagnetism, what does a 'polar wander path' represent?

- A) The physical rotation of the Earth's inner core
- B) The apparent movement of the magnetic pole relative to a continent
- C) The reversal frequency of the Earth's magnetic field over time
- D) The migration of tectonic plates due to mantle convection

3. Which metamorphic facies is typically associated with high-pressure, low-temperature conditions found in subduction zones?

- A) Granulite facies
- B) Greenschist facies
- C) Blueschist facies
- D) Amphibolite facies

4. The Mohorovicic discontinuity represents the boundary between which two distinct layers of the Earth?

- A) Inner core and outer core
- B) Lithosphere and asthenosphere
- C) Crust and mantle
- D) Mantle and outer core

5. Which igneous rock texture is characterized by large crystals, known as phenocrysts, embedded in a fine-grained groundmass?

- A) Phaneritic
- B) Aphanitic
- C) Porphyritic
- D) Pyroclastic

6. What is the primary driver of the 'isostatic rebound' observed in regions formerly covered by continental ice sheets?

- A) Thermal expansion of the mantle
- B) Lithospheric loading and unloading
- C) Magmatic underplating
- D) Eustatic sea-level fluctuations

7. In sequence stratigraphy, what does a 'parasequence' represent?

- A) A conformable succession of genetically related beds bounded by flooding surfaces
- B) An unconformity caused by global sea-level fall
- C) A sequence of volcanic deposits interlayered with sedimentary rock
- D) The total thickness of a sedimentary basin fill

8. Which chemical weathering process is responsible for the conversion of feldspar into kaolinite clay?

- A) Oxidation
- B) Hydrolysis
- C) Dissolution
- D) Carbonation

9. What is the significance of the 'Conrad discontinuity' in crustal geology?

- A) It separates the upper crust from the lower crust
- B) It marks the transition from oceanic to continental crust
- C) It defines the base of the lithosphere
- D) It is the boundary between the inner and outer mantle

10. Which type of seismic wave is unable to propagate through the liquid outer core of the Earth?

- A) P-waves
- B) Rayleigh waves
- C) S-waves
- D) Love waves