

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) An unconformity is a buried _____.
 - A) fault or fracture with older rocks above and younger rocks below
 - B) surface of erosion with older strata above and younger strata below
 - C) surface of erosion separating younger strata above from older strata below
 - D) fault or fracture with younger strata above and older strata below

- 2) Among the following radioactive parent isotopes, which has the shortest half-life?
 - A) carbon-14
 - B) potassium-40
 - C) rubidium-87
 - D) uranium-238

- 3) Which of the following radioactive isotopes would be best for age-dating a rock from 50,000 years ago?
 - A) potassium-40
 - B) thorium-232
 - C) uranium-238
 - D) carbon-14

- 4) Why do the eras of the Phanerozoic eon all end with "zoic"?
 - A) These eras were all first described near the London Zoo, so the names pay tribute to that location.
 - B) "Zoic" means "time" in Latin.
 - C) These names refer to life or living things; they invoke the changes in fossil organisms from one era to the next.
 - D) They are based on rock called zoisites.

- 5) The principle of _____ is the concept that ancient life forms evolved in a definite order, and therefore, their fossils can help determine the geologic ages of strata.
 - A) fossil assemblage
 - B) cross-cutting relationships
 - C) fossil succession
 - D) superposition

- 6) Which of the following is an essential characteristic of an index fossil?
 - A) The organism lived in a very specific environment or two, such as tropical volcanic islands.
 - B) The organism lived on the land, not in the ocean.
 - C) The organism lived for a very limited period of geologic time.
 - D) The fossils of the organism are exceptionally well preserved.

- 7) Using the known rates of radioactive decay to date the crystallization of certain minerals is known as _____ dating.
 - A) relative
 - B) fossil assemblage
 - C) conventional
 - D) radiometric

- 8) The earliest 88% of geologic time is represented by the time span informally called the _____.
 - A) Precambrian
 - B) Paleozoic
 - C) Phanerozoic
 - D) Mesozoic

- 9) Why isn't the Precambrian more finely divided into subdivisions like periods and epochs?
 - A) Precambrian rocks don't have radioactive isotopes in them.
 - B) Fewer and less diverse fossils exist in Precambrian rocks.
 - C) The Precambrian lacks the igneous rocks that are most useful for radiometric dating.
 - D) Geologists just don't care about the Precambrian the way they do about more recent time periods.

- 10) The principle of _____ states in an undeformed sequence of sedimentary rocks each bed is older than the one above and younger than the one below.
 - A) original horizontality
 - B) cross-cutting relationships

C) superposition

D) lateral continuity

- 11) A worm would stand a poor chance of being fossilized because _____.
- A) worms live in the shallow ocean
B) worms have no hard parts
C) worms contain no carbon-14
D) worms were very rare during the geologic past
- 12) Which of the following principles addresses rock fragments being enclosed within another rock layer?
- A) principle of cross-cutting relationships
B) principle of superposition
C) principle of original horizontality
D) principle of inclusions
- 13) The idea of _____ suggests that the physical, chemical, and biological laws that operate today have also operated in the geologic past.
- A) evolution
B) catastrophism
C) absolutism
D) uniformitarianism
- 14) A principle by which sedimentary beds originate as continuous layers until they grade into another rock type or thin out is called the _____.
- A) principle of original horizontality
B) principle of cross-cutting relationships
C) principle of lateral continuity
D) principle of inclusions
- 15) The principle of cross-cutting relationships states that geologic features that cut across rocks most form _____ the rocks they cut through.
- A) before
B) below
C) above
D) after
- 16) The amount of time it takes for half of the remaining radioactive isotopes to decay is the _____ of an isotope system.
- A) half-life
B) beta emission
C) alpha emission
D) electron capture
- 17) A sandstone is found to overlie a shale. The shale contains a volcanic ash layer that has been radiometrically dated to 84 million years ago. Both the shale and the sandstone are cut by a pluton of gabbro that has been dated to 60 million years old. How old is the sandstone layer?
- A) older than 84 millions years old
B) between 84 and 60 million years old
C) more information is needed to constrain the age
D) younger than 60 million years old
- 18) We now live in the _____ era.
- A) Mesozoic
B) Cenozoic
C) Paleozoic
D) Neoproterozoic
- 19) After three half-lives, _____ of an original, radioactive, parent isotope remains and the rest has decayed into the daughter isotope.
- A) 75% or three-fourths (3/4)
B) 25% or one-fourth (1/4)
C) 50% or one-half (1/2)
D) 12.5% or one-eighth (1/8)
- 20) Most igneous rocks can be dated directly by _____ methods.
- A) radiometric
B) unconformity
C) relative
D) fossil assemblage
- 21) A set of fossil organisms found together in a given layer is called a(n) _____.
- A) microfossils
B) index fossil
C) fossil succession
D) fossil assemblage
- 22) The scientific study of fossils is called _____.
- A) stratigraphy
B) seismology
C) paleontology
D) petrology

- 23) Which of the following is an example of a nonconformity?
- A) shale sitting atop sandstone
 - B) shale sitting atop granite
 - C) lava flow sitting atop schist
 - D) volcanic ash deposited on conglomerate
- 24) A section of marine sediments is uplifted, folded, eroded to a flat surface and then overlain by sandstone. What is the name of the resulting unconformity?
- A) nonconformity
 - B) disconformity
 - C) intrusion
 - D) angular unconformity
- 25) To calculate the age of a rock, you need to know the parent-daughter isotope ratio and _____.
- A) the half-life of a radioactive isotope
 - B) the composition of the parent rock
 - C) the sequence of depositional events
 - D) the area in which the rock was deposited