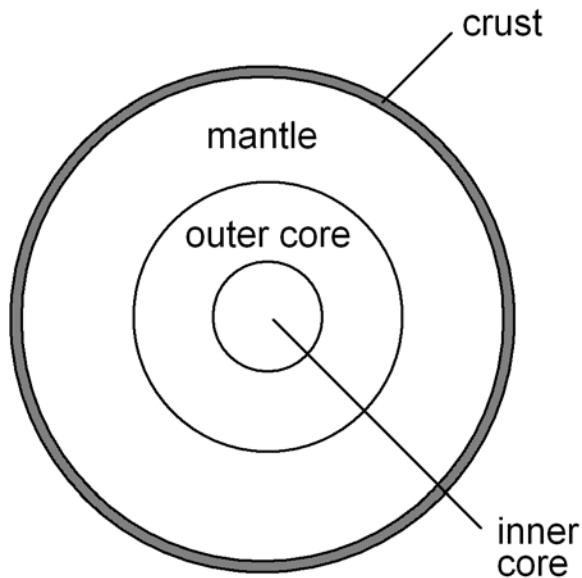


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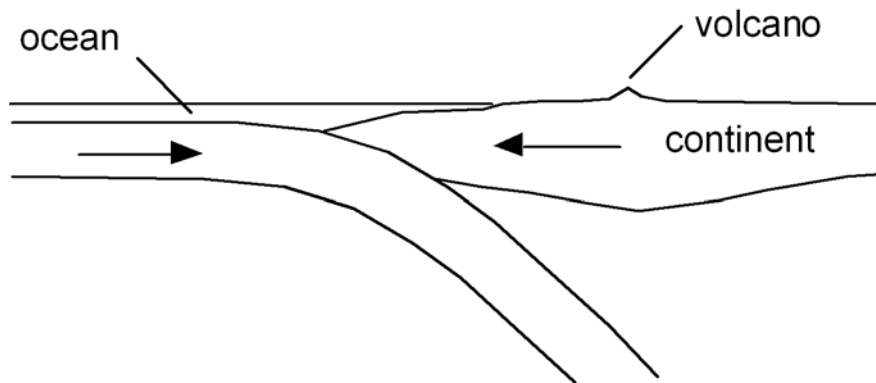
1. Which of the following statements regarding the scientific method is false?
- A) A hypothesis must be agreed upon by more than one scientist.
 - B) A theory is a hypothesis that has withstood many scientific tests.
 - C) A theory is proven to be true and therefore may not be discarded.
 - D) A hypothesis cannot predict the outcome of scientific experiments.

Use the following to answer question 2.



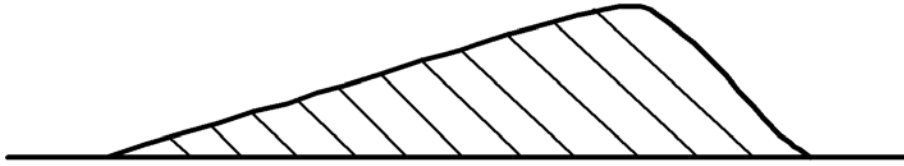
2. Which part of the Earth depicted in the figure above is molten?
- A) crust
 - B) mantle
 - C) outer core
 - D) inner core

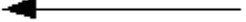


Use the following to answer question 3.



3. What type of plate boundary is shown in the diagram?
- A) a continent collision
 - B) a subduction zone
 - C) a spreading center
 - D) a transform fault
4. New oceanic crust is created at _____.
- A) subduction zones
 - B) deep-sea trenches
 - C) mid-ocean ridges
 - D) transform boundaries
5. Which of the following substances is not considered a mineral?
- A) coal
 - B) diamond
 - C) gypsum
 - D) rock salt
6. Rocks that form from the solidification of molten rock are called:
- A) metamorphic
 - B) sedimentary
 - C) igneous
 - D) chemical
7. The largest forms of igneous intrusions are called _____.
- A) dykes
 - B) stocks
 - C) sills
 - D) batholiths

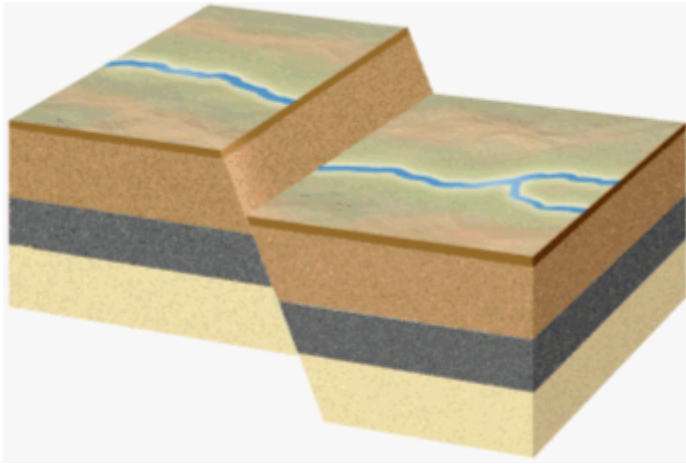
Use the following to answer questions 8-9.



8. Assuming the sand dune was deposited by wind currents, which way was the wind blowing?
- A) 
 - B) 
 - C) 
 - D) can't determine from the information given
9. The diagonal layers are called _____.
- A) cross-beds
 - B) graded beds
 - C) point bars
 - D) ripples
10. Which of the following sedimentary environments is dominated by river currents and waves?
- A) alluvial
 - B) deep-sea
 - C) deltaic
 - D) desert
11. Marble is a metamorphic rock that forms from _____?
- A) granite
 - B) limestone
 - C) sandstone
 - D) shale
12. A geothermometer is _____.
- A) a device that measures current rock temperatures
 - B) a device that measures temperature when lowered into deep drill holes
 - C) a mineral assemblage that reveals the maximum temperature attained by a rock
 - D) the range of temperatures encountered by a rock in its geologic history

13. What is the average rate at which temperature increases with depth in the Earth's crust?
- A) 10°C/km
 - B) 30°C/km
 - C) 100°C/km
 - D) 300°C/km
14. Which of the following processes will cause metamorphism?
- A) an increase in pressure
 - B) minor interaction with hydrothermal fluids
 - C) an increase in temperature
 - D) all of the above
15. Which of the following is a general pressure in all directions, such as the pressure that the atmosphere exerts?
- A) confining pressure
 - B) pore pressure
 - C) directional pressure
 - D) stress pressure
16. What type of metamorphism is caused by high temperature and normal pressures imposed over a large volume of crust?
- A) burial
 - B) contact
 - C) regional
 - D) shock
17. What type of metamorphism is caused by igneous intrusions?
- A) burial metamorphism
 - B) regional metamorphism
 - C) contact metamorphism
 - D) shock metamorphism
18. What is the relation between metamorphic foliation and sedimentary bedding?
- A) Sedimentary bedding is generally perpendicular to metamorphic foliation.
 - B) Sedimentary bedding is generally at a 45° angle to metamorphic foliation.
 - C) Sedimentary bedding is generally parallel to metamorphic foliation.
 - D) There is no general angular relationship between sedimentary bedding and metamorphic foliation.

Use the following to answer question 19.

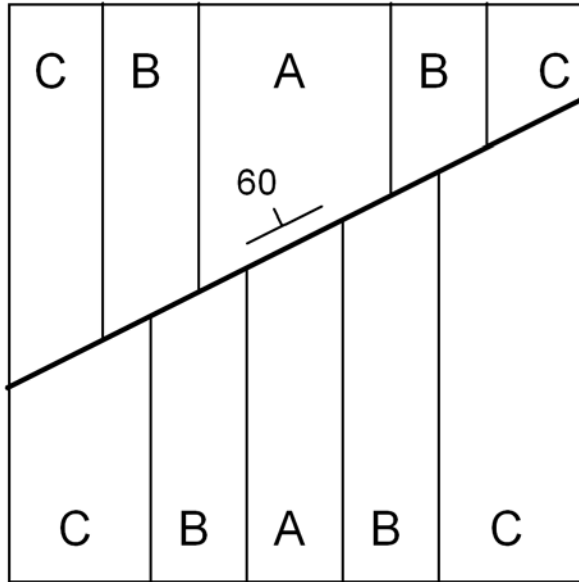


19. What type of fault is depicted in the cross section above?
- A) left-lateral strike-slip fault
 - B) reverse fault
 - C) normal fault
 - D) right-lateral strike-slip fault
20. Which of the following statements best describes the behavior of rocks during deformation?
- A) Brittle materials deform by faulting, whereas ductile materials deform by folding.
 - B) Brittle materials deform by folding, whereas ductile materials deform by faulting.
 - C) Both brittle and ductile materials deform by faulting.
 - D) Both brittle and ductile materials deform by folding.
21. What determines whether a rock deforms in a brittle fashion versus a ductile fashion?
- A) temperature
 - B) rock type
 - C) rate of deformation
 - D) at least temperature, rate of deformation, and rock type
22. If a basalt unit near the surface of the Earth underwent compressive deformation, the result would most likely be _____.
- A) folding

- B) folding followed by faulting
- C) faulting
- D) faulting followed by folding

Use the following to answer questions 23-25.

Units A, B, and C are sedimentary rocks; unit A is the oldest and unit C is the youngest. The sedimentary rocks are cut by a fault, indicated by the bold line.



23. What type of structure is shown in the geologic map?
- A) a faulted anticline
 - B) a faulted syncline
 - C) a folded strike-slip fault
 - D) The structure cannot be determined from the information given.
24. The type of fold depicted on the map south of the fault is a syncline
- a. True or
 - b. False
25. What type of fault is depicted on the geologic map?
- A) a normal fault
 - B) a thrust fault

- C) a right-lateral fault
- D) a left-lateral fault

26. A mass of rock exposed at the Earth's surface is called _____.
- A) continental crust
 - B) bedrock
 - C) outcrop
 - D) exposure
27. The study of the layers in sedimentary rock is known as _____.
- A) stratigraphy
 - B) paleontology
 - C) sedimentation
 - D) geochronology
28. Which of the following is the best statement of the principle of original horizontality?
- A) Igneous intrusions always form horizontal layers.
 - B) Metamorphic layering seen in schists pre-dates deformation.
 - C) Sediments are deposited as horizontal layers.
 - D) All igneous, metamorphic, and sedimentary rocks in the Earth's crust form horizontal layers.
29. An undeformed sedimentary layer is _____ than the layer above and _____ than the layer below.
- A) younger, younger
 - B) older, younger
 - C) younger, older
 - D) older, older
30. The principle of superposition states that _____.
- A) a fault is younger than the rocks it cuts
 - B) sediments are deposited as essentially horizontal layers
 - C) the present is the key to the past
 - D) undisturbed sedimentary layers get progressively younger from bottom to top
31. The study of ancient life forms preserved in the rock record is referred to as _____.
- A) stratigraphy
 - B) paleontology

- C) geochronology
- D) zoology

32. Fossils are most common in which rock types?

- A) igneous
- B) metamorphic
- C) sedimentary
- D) Fossils are equally common in sedimentary, igneous, and metamorphic rocks.

33. What is an unconformity?

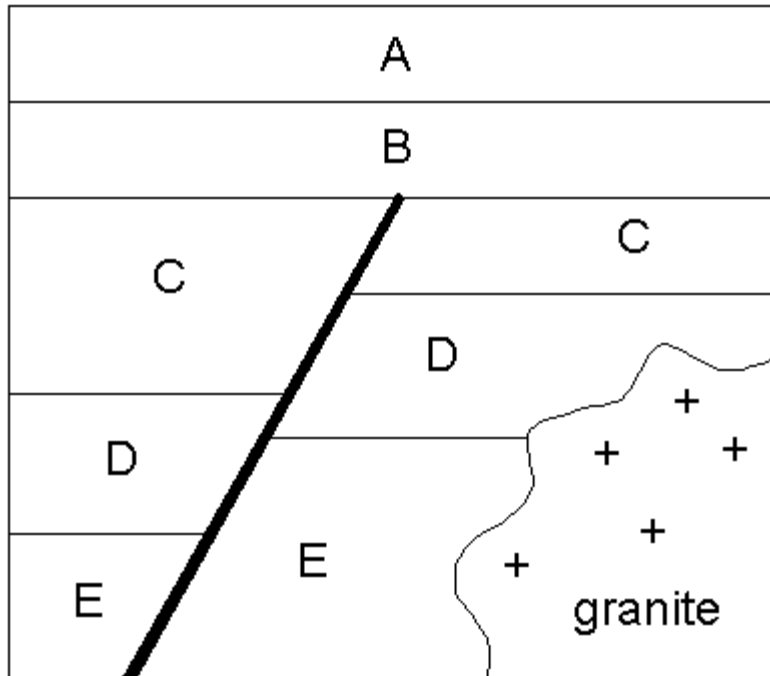
- A) a gap in the geologic record
- B) a period of deposition
- C) a sedimentary layer of variable thickness
- D) a sequence of deformed rocks

34. A disconformity is _____.

- A) an erosional surface between horizontal layers of sedimentary rocks
- B) an erosional surface between igneous and sedimentary rocks
- C) a rock unit that does not contain fossils
- D) a rock unit that is different than units above or below it

Use the following to answer questions 35-36.

Units A, B, C, D, and E are sedimentary rocks. The thick dark line is a fault.

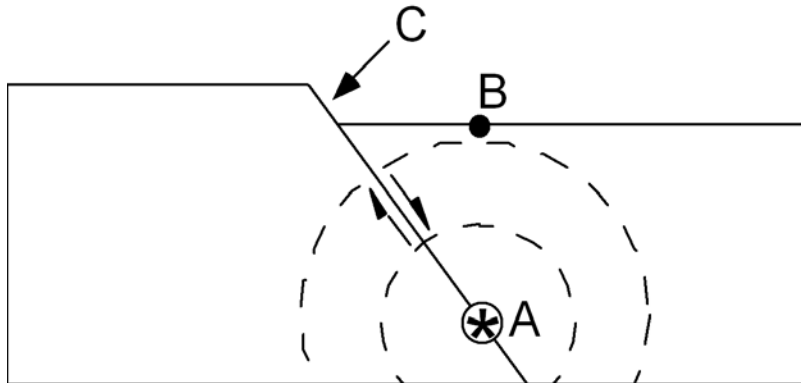


35. When did faulting occur?
- before the deposition of A and B
 - between the deposition of C and D
 - between the deposition of B and C
 - between the deposition of D and E
36. Which of the units in the picture is the oldest?
- unit A
 - unit C
 - unit E
 - the granite
37. How old are the oldest minerals on Earth?
- approximately 10,000 years old
 - approximately 500 million years old
 - approximately 65 million years old
 - approximately 4.4 billion years old
38. The hypothesis that explains the formation of the solar system is referred to as _____.
- Big Bang hypothesis
 - origin hypothesis

- C) nebular hypothesis
- D) planetesimal hypothesis

39. When did the Big Bang take place?
- A) approximately 4.5 million years ago
 - B) approximately 4.5 billion years ago
 - C) approximately 13.7 million years ago
 - D) approximately 13.7 billion years ago
40. Which of the following statements about the age of the Earth and Moon is true?
- A) The Earth is approximately 3 billion years older than the Moon.
 - B) The Earth and Moon are approximately the same age.
 - C) The Earth is approximately 1.5 billion years younger than the Moon.
 - D) The Earth is approximately 4.5 billion years younger than the Moon.
43. The tallest volcano in the solar system is found on _____.
- A) the Earth
 - B) Mercury
 - C) Venus
 - D) Mars

Use the following to answer questions 45-46.



45. Point A, where slip initiated during the earthquake, is called the _____.
- A) dip
 - B) epicenter
 - C) focus

D) strike

46. Point B is called the earthquake _____.

- A) dip
- B) epicenter
- C) focus
- D) strike

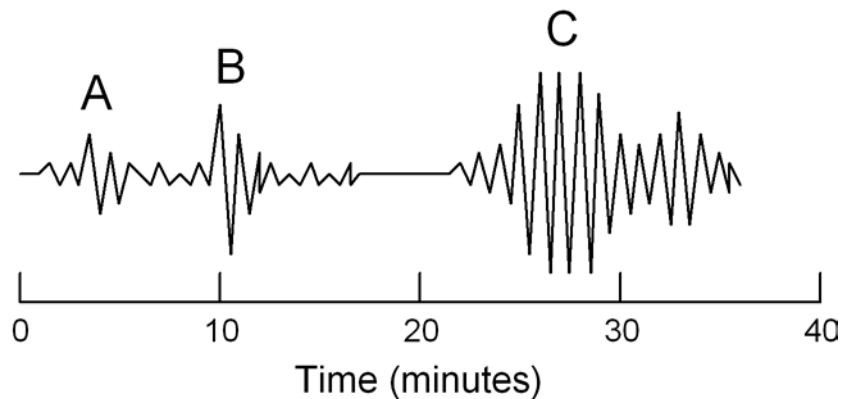
47. Rocks that undergo elastic deformation will _____.

- A) return to their original shape once the stress is released
- B) cause a large magnitude earthquake
- C) undergo permanent deformation
- D) None of the above.

48. Energy waves that are released during an earthquake are called _____.

- A) shock waves
- B) BODY waves
- C) strain waves
- D) non-elastic waves

Use the following to answer questions 49-50.



49. What causes the up-and-down wiggles on the seismogram?

- A) electromagnetic pulses
- B) tsunami waves
- C) ground vibrations
- D) variations in air pressure

50. Which set(s) of waves is/are most likely surface waves?

- A) set A
- B) set B
- C) set C
- D) Sets A, B, and C are all surface waves.

51. Which of the following types of seismic waves arrive at a seismograph first?

- A) P waves
- B) S waves
- C) surface waves
- D) All of these waves arrive at the same time.

52. Which of the following correctly lists the order in which seismic waves arrive at a seismograph station?

- A) P waves \emptyset surface waves \emptyset S waves
- B) P waves \emptyset S waves \emptyset surface waves
- C) S waves \emptyset P waves \emptyset surface waves
- D) surface waves \emptyset P waves \emptyset S waves

53. What type of seismic wave causes the most building damage?

- A) P waves
- B) Surfacewaves
- C) tsunamis
- D) They all cause an equal amount of building damage.