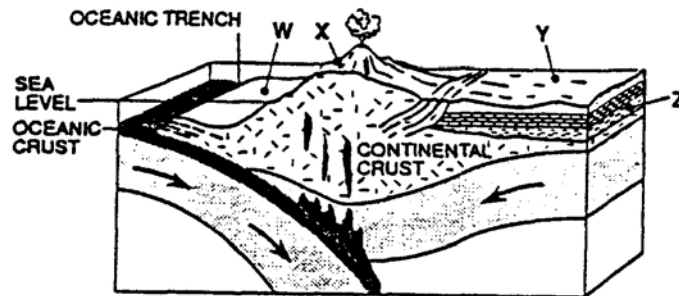


## DYNAMIC CRUST REVIEW

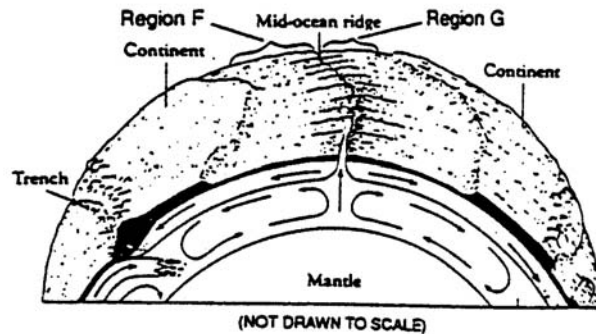
1. According to the *Earth Science Reference Tables*, which of the following locations is the site of a convergent plate boundary?
  - 1 the mid-Atlantic ridge
  - 2 the Tonga trench
  - 3 the Atlantic-Indian ridge
  - 4 the Pacific/North American plate boundary
2. The diagram below represents a cross section of the Earth's crust at a location where an oceanic plate is converging (colliding) with a continental plate. The arrows indicate the direction of plate motion. Letters W, X, Y, and Z represent locations on the Earth.



For an observer on the Earth's surface, the best evidence of this crustal plate collision would probably be provided by

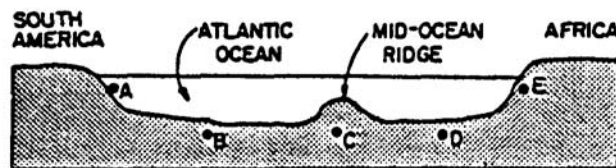
- 1 seafloor fossils at location W
  - 2 earthquakes and volcanic eruptions near location X
  - 3 flooding near location Y
  - 4 horizontal sedimentary layers at location Z
3. Which evidence supports the theory of ocean-floor spreading
    - 1 The rocks of the ocean floor and the continents have similar origins.
    - 2 In the ocean floor, rocks near the mid-ocean ridge are cooler than rocks near the continents.
    - 3 The pattern of magnetic orientation of rocks is similar on both sides of the mid-ocean ridge.
    - 4 The density of oceanic crust is greater than the density of continental crust.
  4. Two samples of ocean floor basaltic bedrock are found at equal distances from, and on opposite sides of, a mid-ocean ridge. The best evidence that both samples were formed at the ridge during the same time period would be that both samples also
    - 1 have the same density
    - 2 contain different crystal sizes
    - 3 are located at different depths below sea level
    - 4 have the same magnetic field orientation
  5. Which is the best evidence supporting the concept of ocean floor spreading?
    - 1 Earthquakes occur at greater depths beneath continents than beneath oceans.
    - 2 Sandstones and limestones can be found both in North America and Europe.
    - 3 Volcanoes appear at random within the oceanic crust.
    - 4 Igneous rocks along the mid-ocean ridges are younger than those farther from the ridges.

6. Which statement provides evidence that the seafloor is spreading out from both sides of the Mid-Atlantic Ridge?
- 1 Parallel strips of igneous rocks on each side of the ridge show matching reversals of magnetic polarity.
  - 2 The fossils found on one side of the ridge are younger than the fossils found on the other side.
  - 3 The age of the rocks decreases as the distance from the ridge increases.
  - 4 Seafloor temperatures increase as the distance from the ridge increases.
7. The diagram below represents a partial cross section of a model of the Earth. The arrows show inferred motions within the Earth.



Which property of the oceanic crust in regions F and G is a result of these inferred motions?

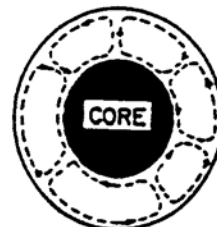
- 1 The crystal size of the rock decreases constantly as distance from the mid-ocean ridge increases.
  - 2 The temperature of the basaltic rock increases as distance from the mid-ocean ridge increases.
  - 3 Heat-flow measurements steadily increase as distance from the mid-ocean ridge increases.
  - 4 The age of the igneous rock increases as distance from the mid-ocean ridge increases.
8. The diagram below represents a cross section of the Atlantic Ocean from the eastern coast of South America to the western coast of Africa along the Equator.



At what point would evidence of a rising convection current in the mantle most likely be found?

- |     |     |
|-----|-----|
| 1 A | 3 C |
| 2 B | 4 D |
9. The accompanying diagram shows a cross-sectional view of the Earth's interior. The motion represented by the arrows indicates that the Earth's mantle

- 1 has properties of a fluid
- 2 is composed of solid metamorphic rocks
- 3 is not affected by the heat from the Earth core
- 4 is more dense than the core



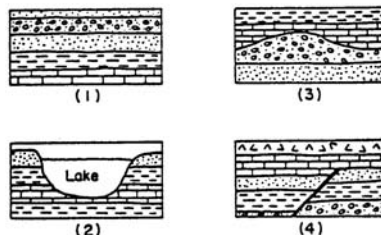
10. Which is suggested by the occurrence of higher than average temperature below the surface of the Earth in the area of the Mid-Atlantic Ridge?
- 1 the existence of convection cells in the mantle
  - 2 the presence of heat due to orographic effect
  - 3 a high concentration of magnetism in the mantle
  - 4 the existence of a thinner crust under mountains
11. The primary cause of convection currents in the Earth's mantle is believed to be the
- 1 differences in densities of earth materials
  - 2 subsidence of the crust
  - 3 occurrence of earthquakes
  - 4 rotation of the Earth
12. Which observation provides the strongest evidence for the inference that convection cells exist within the Earth's mantle?
- 1 Sea level has varied in the past.
  - 2 Marine fossils are found at elevations high above sea level.
  - 3 Displaced rock strata are usually accompanied by earthquakes and volcanoes.
  - 4 Heat-flow readings vary at different locations in the Earth's crust.
13. To get sample material from the mantle, drilling will be done through the oceanic crust rather than through the continental crust because oceanic crust is
- 1 more dense than continental crust
  - 2 softer than continental crust
  - 3 thinner than continental crust
  - 4 younger than continental crust
14. How does the composition of the oceanic crust compare with the composition of the continental crust?
- 1 The oceanic crust is mainly limestone, while the continental crust is mainly sandstone.
  - 2 The oceanic crust is mainly limestone, while the continental crust is mainly granite.
  - 3 The oceanic crust is mainly basalt, while the continental crust is mainly sandstone.
  - 4 The oceanic crust is mainly basalt, while the continental crust is mainly granite.

15. Which Earth process most likely formed the depression now occupied by the lake shown in the diagram below?

- 1 glaciation
- 2 climate change
- 3 erosion
- 4 faulting



16. Which diagram of rock layers represents the best evidence of crustal movement?



17. Which is the best evidence of crustal movement?
- 1 molten rock in the Earth's outer core
  - 2 tilted sedimentary rock layers
  - 3 residual sediments on top of bedrock
  - 4 marine fossils found below sea level
18. Fossils of organisms that lived in shallow water can be found in horizontal sedimentary rock layers at great ocean depths. This fact is generally interpreted by most Earth scientists as evidence that
- 1 the cold water deep in the ocean kills shallow- water organisms
  - 2 sunlight once penetrated to the deepest parts of the ocean
  - 3 organisms that live in deep water evolved from species that once lived in shallow water
  - 4 sections of the Earth's crust have changed their elevations relative to sea level
19. The best evidence of crustal movement would be provided by
- 1 dinosaur tracks found in the surface bedrock
  - 2 marine fossils found on a mountaintop
  - 3 weathered bedrock found at the bottom of a cliff
  - 4 ripple marks found in sandy sediment
20. As one travels from an ocean shore to the interior of a continent, the thickness of the Earth's crust generally
- 1 decreases
  - 2 increases
  - 3 remains the same
21. What else would be found near a divergent plate boundary?
- 1 oceanic trench
  - 2 rift valley
  - 3 subduction zone
  - 4 volcanic island arc
22. Which layer of the interior of the Earth is the thinnest?
- 1 crust
  - 2 asthenosphere
  - 3 stiffer mantle
  - 4 outer core
23. In which layer would the temperature of the Earth be 5,500°C?
- 1 stiffer mantle
  - 2 asthenosphere
  - 3 inner core
  - 4 outer core
24. In which layer of the Earth do convection currents exist that cause plate motions?
- 1 crust
  - 2 asthenosphere
  - 3 stiffer mantle
  - 4 outer core
25. What can be determined from the difference in P and S wave arrival times?
- 1 distance to Earth's core
  - 2 location of an earthquake epicenter
  - 3 distance to an earthquake epicenter
  - 4 location of an earthquake focus