

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

Plate Tectonics

Earth Science

# Plate Tectonics Practice Exam

**Directions:** For questions 1-25 record your answers on the scantron provided. Some questions may require the use of the 2011 Edition Reference Tables for Physical Setting/Earth Science.

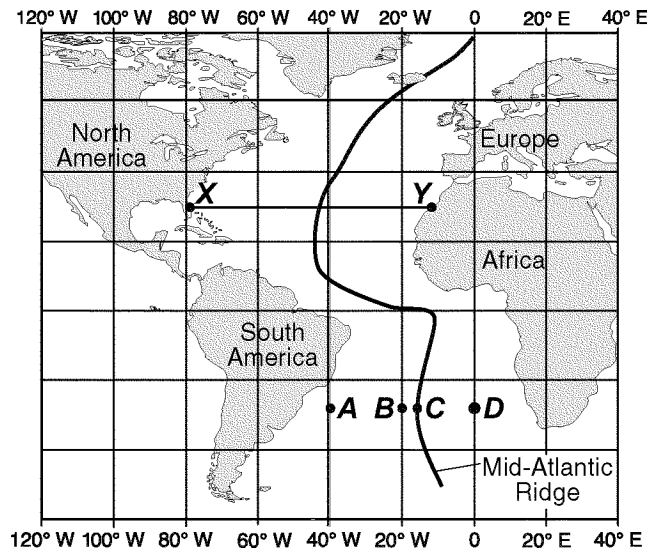


- 1) Which type of tectonic plate boundary is found between the South American Plate and the Scotia Plate?
- 1) divergent                      2) complex or uncertain                      3) transform                      4) convergent
- 2) The Hawaiian Islands were formed as a result of
- 1) two oceanic plates colliding to form an island arc                      2) an oceanic plate moving over a mantle hot spot  
 3) tectonic plates sliding past each other                      4) lava flowing over Earth's surface where two tectonic plates move apart
- 3) Which observation about the Mid-Atlantic Ridge region provides the best evidence that the seafloor has been spreading for millions of years?
- 1) The ridge is the location of irregular volcanic eruptions.  
 2) Seafloor bedrock is younger near the ridge and older farther away.  
 3) Several faults cut across the ridge and nearby seafloor.  
 4) The bedrock of the ridge and nearby seafloor is igneous rock.
- 4) Which one of the following landmasses is moving northward with Australia as part of the same tectonic plate?
- 1) India                      2) North America                      3) South America                      4) Antarctica
- 5) Which tectonic feature is associated with a complex or uncertain plate boundary?
- 1) East African Rift                      2) Galapagos Hot Spot                      3) Southwest Indian Ridge                      4) Mariana Trench
- 6) The edges of most lithospheric plates are characterized by
- 1) reversed magnetic orientation                      2) unusually rapid radioactive decay  
 3) low P-wave and high S-wave velocity                      4) frequent volcanic activity
- 7) Which coastal area is most likely to experience a severe earthquake?
- 1) west coast of Africa                      2) east coast of North America                      3) east coast of Australia                      4) west coast of South America
- 8) Based on the theory of plate tectonics, it is inferred that over the past 250 million years North America has moved toward the
- 1) southwest                      2) southeast                      3) northwest                      4) northeast

- 9) According to tectonic plate maps, New York State is presently located
- 1) at a convergent plate boundary
  - 2) above a mantle hot spot
  - 3) near the center of a large plate
  - 4) above a mid-ocean ridge
- 10) Antarctica's location and climate changed over the last 200 million years because Antarctica moved
- 1) southward, resulting in a colder climate
  - 2) southward, resulting in a warmer climate
  - 3) northward, resulting in a warmer climate
  - 4) northward, resulting in a colder climate
- 11) Which two tectonic plates are separated by a mid-ocean ridge?
- 1) Indian-Australian and Pacific
  - 2) North American and South American
  - 3) North American and Eurasian
  - 4) Indian-Australian and Eurasian
- 12) What part of Earth's interior is inferred to have convection currents that cause tectonic plates to move?
- 1) rigid mantle
  - 2) outer core
  - 3) inner core
  - 4) asthenosphere
- 13) When two tectonic plates collide, oceanic crust usually subducts beneath continental crust because oceanic crust is primarily composed of igneous rock that has
- 1) high density and is mafic
  - 2) high density and is felsic
  - 3) low density and is felsic
  - 4) low density and is mafic
- 14) The Mariana Trench was most likely created by the
- 1) movement of the Pacific Plate over the Hawaii Hot Spot
  - 2) convergence of the Pacific and Philippine Plates
  - 3) sliding of the Pacific Plate past the North American Plate
  - 4) divergence of the Eurasian and Philippine Plates
- 15) Alternating parallel bands of normal and reversed magnetic polarity are found in the basaltic bedrock on either side of the
- 1) Yellowstone Hot Spot
  - 2) Peru-Chile Trench
  - 3) San Andreas Fault
  - 4) Mid-Atlantic Ridge
- 16) The best evidence of crustal uplift would be provided by
- 1) trenches in the Pacific Ocean floor
  - 2) marine fossils in the Rocky Mountains
  - 3) sediment in the Gulf of Mexico
  - 4) igneous rock deep within the Earth

**Questions 17 through 19 refer to the following:**

The map below shows the Mid-Atlantic Ridge. Points A through D are locations on the ocean floor. Line XY connects locations in North America and Africa.



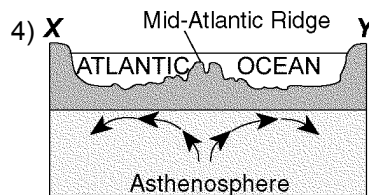
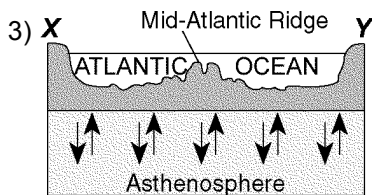
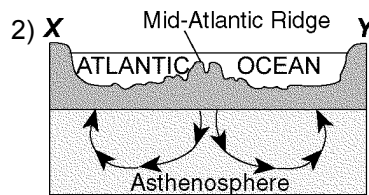
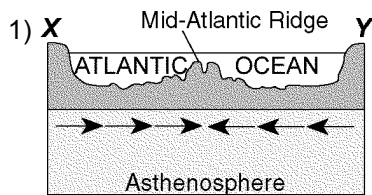
17) Samples of ocean-floor bedrock were collected at points A, B, C, and D on the given map. Which sequence shows the correct order of the age of the bedrock from *oldest* to *youngest*?

- 1) A → D → B → C      2) C → B → D → A      3) A → B → D → C      4) D → C → B → A

18) The boundary between which two tectonic plates is most similar geologically to the plate boundary at the Mid-Atlantic Ridge?

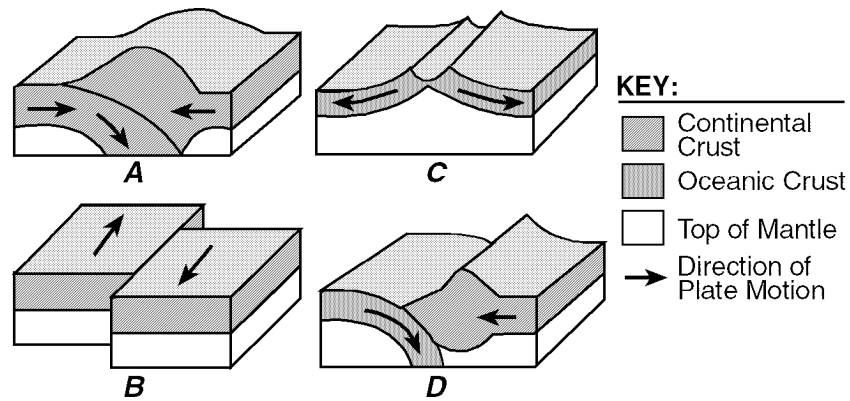
- 1) Pacific and Nazca      2) Nazca and South American      3) Cocos and Caribbean      4) Eurasian and Indian-Australian

19) In which cross section do the arrows best show the convection occurring within the asthenosphere beneath line XY on the map shown?



**Questions 20 through 22 refer to the following:**

The diagrams below represent four kinds of plate movements that occur in the Earth's crust. The arrows in the diagrams show the relative motions of the crustal plates at each boundary.



20) Which diagram best represents the kind of boundary that occurs in the Atlantic Ocean between Africa and South America?

- 1) A                                      2) B                                      3) C                                      4) D

21) At present, the western part of California is moving northward relative to the rest of the State. Which diagram best represents this kind of plate boundary?

- 1) A                                      2) B                                      3) C                                      4) D

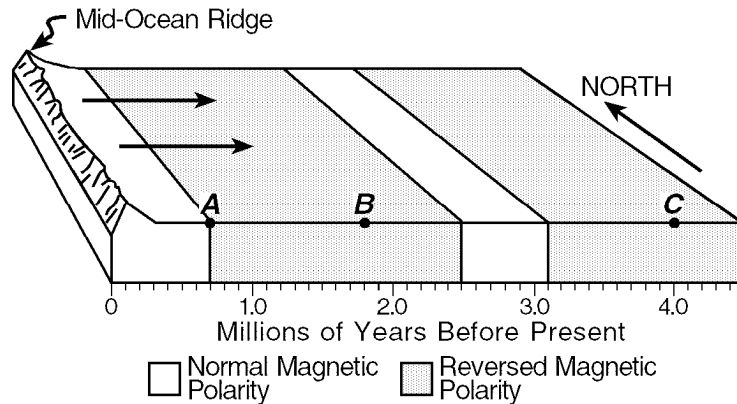
22) At location C, the movement of the crustal plates is a direct cause of

- 1) folded mountain ranges                                      2) the formation of oceanic crust  
 3) the formation of continental crust                                      4) magnetic reversals

**Questions 23 through 25 refer to the following:**

At intervals in the past, the Earth's magnetic field has reversed. The present North magnetic pole was once the South magnetic pole, and the present South magnetic pole was once the North magnetic pole. A record of these changes is preserved in the igneous rocks that formed at mid-ocean ridges and moved away from the ridges.

The diagram below represents the pattern of normal and reversed magnetic polarity in the igneous rocks composing the ocean crust on the east side of a mid-ocean ridge.



23) Approximately how many million years were required to form the material shown between A and B in the diagram?

- 1) 0.7                                      2) 1.1                                      3) 1.8                                      4) 2.5

24) The igneous material along this mid-ocean ridge was found to be younger than the igneous material farther from the ridge. This fact supports the theory of

- 1) superposition                      2) dynamic equilibrium                      3) crustal subsidence                      4) seafloor spreading

25) Which diagram below best shows the pattern of normal and reversed polarity on the west side of the midocean ridge?

1) Mid-Ocean Ridge

2) Mid-Ocean Ridge

3) Mid-Ocean Ridge

4) Mid-Ocean Ridge