Natural Hazards and Disasters 5th edition Hyndman Test Bank

SKU: 9781305581692-TEST-BANK

Chapter 02 - Plate Tectonics and Physical Hazards

1. Earth's crust is thinner than its mantle.
   a. True
   b. False

ANSWER: True
REFERENCES: Earth Structure
KEYWORDS: Bloom's: Remember

2. The concept of isostacy states that high-density rock will stand higher than low-density rock, which explains the formation of subduction zones.
   a. True
   b. False

ANSWER: False
REFERENCES: Earth Structure
KEYWORDS: Bloom's: Remember

3. The plates involved in plate tectonics are part of Earth's lithosphere.
   a. True
   b. False

ANSWER: True
REFERENCES: Plate Movement
KEYWORDS: Bloom's: Remember

4. A divergent boundary is responsible for rift zones.
   a. True
   b. False

ANSWER: True
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Remember

5. Convergent boundaries produce a relatively low number of earthquakes compared to other boundaries.
   a. True
   b. False

ANSWER: False
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Remember

6. The tallest mountain ranges are created at transform boundaries.
   a. True
   b. False

ANSWER: False
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Remember

7. Transform boundaries are responsible for the formation of island chains such as the Hawaiian Islands.
   a. True
   b. False

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank

ANSWER: False
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Remember

8. Volcanoes are only formed at plate boundaries, and cannot exist in the middle of large plates.
   a. True
   b. False
ANSWER: False
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Remember

9. The theory of continental drift was developed using the theory of plate tectonics.
   a. True
   b. False
ANSWER: False
REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Remember

10. Earth's magnetic field played a crucial role in understanding subduction zones
   a. True
   b. False
ANSWER: False
REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Remember

11. Which statement about the Earth's is true?
   a. The lithosphere is less dense than the asthenosphere, and located above it.
   b. The lithosphere is denser than the asthenosphere, and located above it.
   c. The lithosphere is less dense than the asthenosphere, and located below it.
   d. The lithosphere is denser than the asthenosphere, and located below it.
   e. The lithosphere and asthenosphere are equally dense.
ANSWER: a
REFERENCES: Earth Structure
KEYWORDS: Bloom's: Understand

12. Compared to the lithosphere, the asthenosphere is ____.
   a. cooler and more rigid
   b. cooler and more plastic
   c. hotter and more rigid
   d. the same temperature and rigidity
   e. hotter and more plastic
ANSWER: e
REFERENCES: Earth Structure
KEYWORDS: Bloom's: Understand

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank

13. The concept of isostacy explains why ____.
    a. magnetic differences exist in stripes along the seafloor
    b. magma plumes are created
    c. continental crust stands higher than oceanic crust
    d. convection moves magma under the lithosphere
    e. lithospheric plates move in response to convection

ANSWER: c
REFERENCES: Earth Structure
KEYWORDS: Bloom's: Understand

14. Oceanic crust is denser than continental crust because ____.
    a. continental crust stands at a higher altitude
    b. oceanic crust is rich in silica
    c. oceanic crust is compressed at convergent boundaries
    d. water pressure from the oceans makes oceanic crust thinner
    e. oceanic crust is rich in iron- and magnesium-containing minerals

ANSWER: e
REFERENCES: Earth Structure
KEYWORDS: Bloom's: Understand

15. When oceanic plates meet continental plates at a convergent boundary, a ____.
    a. subduction zone will form because the oceanic plate is more dense than the continental plate
    b. subduction zone will form because the oceanic plate is less dense than the continental plate
    c. rift zone will form because the oceanic plate is more dense than the continental plate
    d. rift zone will form because the oceanic plate is less dense than the continental plate
    e. subduction zone will form on the oceanic plate, and a rift zone will form on the continental plate

ANSWER: a
REFERENCES: Plate Movement
KEYWORDS: Bloom's: Understand

16. Earth's crust is divided into ____.
    a. dozens of large plates and a much smaller number of small plates
    b. about a dozen large plates and about an equal number of small plates
    c. a small number of large plates and dozens of small plates
    d. five large oceanic plates and an equal number of small plates
    e. dozens of small plates

ANSWER: b
REFERENCES: Plate Movement
KEYWORDS: Bloom's: Understand

17. Areas of Earth's sea floor can create new crust because ____.
    a. continental collisions raise mountains continuously higher
    b. earthquakes consume new sea floor at transform zones
    c. hot spots cause crustal material to sink into the mantle
    d. continental plates rise higher through isostacy

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank

e. crust is consumed in subduction zones

ANSWER: a
REFERENCES: Plate Movement
KEYWORDS: Bloom's: Understand

18. Earthquakes are common along which types of plate boundaries?
a. only convergent
b. only divergent
c. only convergent and divergent
d. convergent, divergent, and transform
e. only convergent and transform

ANSWER: d
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

19. Basalt lava flows primarily erupt in ____.
a. rift zones
b. continental collision zones
c. subduction zones
d. volcanic hotspots
e. convergence zones

ANSWER: a
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

20. Which process creates island chains with active volcanoes at one end?
a. Asthenospheric convection moves a magma plume under a stationary plate.
b. Magma plumes form on the Earth's outer core and rotate under a stationary plate.
c. Divergent boundaries move plates away from a stationary magma plume.
d. Convergent boundaries move the location of melting crust under a stationary plate.
e. Crustal plates move over a stationary magma plume.

ANSWER: e
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

21. The San Andreas Fault marks a ____.
a. convergent boundary
b. divergent boundary
c. subduction zone
d. continental collision zone
e. transform boundary

ANSWER: e
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank

22. Volcanoes and earthquakes along the Mid-Atlantic Ridge are ____.
    a. rare, but create catastrophic damage to island chains
    b. rare, and do not threaten populations
    c. common, and cause moderate coastal damage from storm surge
    d. rare, but cause catastrophic coastal damage from tsunamis
    e. common, and do not threaten populations

ANSWER: a
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

23. Spreading centers on continental plates ____.
    a. spread much faster than spreading centers on oceanic plates and create rift zones
    b. spread much slower than spreading centers on oceanic plates and create rift zones
    c. are identical to spreading centers on oceanic plates
    d. spread much faster than spreading centers on oceanic plates but do not create rift zones
    e. spread much slower than spreading centers on oceanic plates but do not create rift zones

ANSWER: b
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

24. When an oceanic plate sinks in a subduction zone, a volcanic arc arises ____.
    a. on the oceanic side of the zone
    b. at the zone
    c. on the opposite side of the subducting plate
    d. on the opposite side of the inland plate
    e. inland from the zone

ANSWER: a
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

25. Subduction zones ____.
    a. dissipate heat from Earth's interior
    b. occur when plates collide instead of sink
    c. produce high mountain ranges
    d. generate Earth's largest earthquakes
    e. are rarely associated with volcanoes

ANSWER: d
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

26. Transform boundaries occur where ____.
    a. rising basalt is transformed to rhyolite
    b. volcanic arcs are created by convergent zones
    c. there are no plate borders
    d. plates move without pulling apart or colliding

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank

e. a convergent boundary becomes a divergent boundary

ANSWER: d
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

27. Magma plumes ____.
a. only create volcanoes on oceanic plates
b. create volcanoes on both oceanic and continental plates
c. only create volcanoes on continental plates
d. create only volcanoes on oceanic plates, and only earthquakes on continental plates
e. create only earthquakes on oceanic plates, and only volcanoes on continental plates

ANSWER: b
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

28. Plate motion is responsible for ____.
a. only convergent boundaries
b. only divergent boundaries
c. convergent, divergent, and transform boundaries
d. only convergent and divergent boundaries
e. only divergent and transform boundaries

ANSWER: c
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

29. Basalt is material that ____.
a. forms most of the material of continental plates
b. is created when rhyolite is subjected to high temperatures
c. is created when serpentine reacts with seawater
d. comes from the mantle relatively unchanged
e. is created only at places where an oceanic plate subducts into the mantle

ANSWER: d
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Understand

30. Oceanic plates are ____.
a. poor in basalt, but rich in silicates
b. an even mix of basalts and silicates
c. rich in basalt and silicates
d. rich in basalt, but poor in silicates
e. poor in basalts and silicates

ANSWER: d
REFERENCES: Earth Structure
KEYWORDS: Bloom's: Understand

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank

31. The alternating stripes of magnetic field patterns are used to explain ____.
    a. seafloor spreading
    b. island chains
    c. transform faults
    d. stratovolcanoes
    e. oceanic trenches

ANSWER: a
REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Understand

32. Wegener used ____.
    a. only geographic information from maps in forming the theory of continental drift
    b. only geological information from rock composition in forming the theory of continental drift
    c. geographic and geological information to form the theory of continental drift
    d. geographic and geological information to form the theory of plate tectonics
    e. geographic and geological information to disprove the theory of plate tectonics

ANSWER: c
REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Understand

33. Earth's magnetic field ____.
    a. changes polarity due to motions in Earth's mantle, while plate motion remains relatively stable
    b. changes polarity due to motions in Earth's core, while plate motion remains relatively stable
    c. changes polarity due to motions in Earth's crust, while plate motion remains relatively stable
    d. remains stable, while plate motion oscillates back and forth
    e. remains stable, while magma motion oscillates back and forth

ANSWER: b
REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Understand

34. The theory of plate tectonics is a ____.
    a. theory that improved on the theory of continental drift
    b. hypothesis that may improve on the theory of continental drift
    c. theory that disproved the theory of continental drift
    d. hypothesis that may disprove the theory of continental drift
    e. natural law that arose from the theory of continental drift

ANSWER: a
REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Understand

35. Wegener's hypothesis that continents move apart ____.
    a. was too flawed to result in an accepted theory
    b. is disproved by modern data, but explains the reasons for continental drift properly
    c. is disproved by modern data, and does not explain the reasons for continental drift properly
    d. is confirmed by modern data, and explains the reasons for continental drift properly

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank

e. is confirmed by modern data, but does not explain the reasons for continental drift properly

ANSWER: a
REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Understand

36. The asthenosphere is part of the layer of Earth's interior called the _____.
ANSWER: mantle
REFERENCES: Earth Structure
KEYWORDS: Bloom's: Remember

37. The _____ includes the crust and portions of the upper mantle.
ANSWER: lithosphere
REFERENCES: Earth Structure
KEYWORDS: Bloom's: Remember

38. When an oceanic plate collides with continental crust, a(n) _____ zone is the most likely result.
ANSWER: subduction
REFERENCES: Plate Movement
KEYWORDS: Bloom's: Remember

39. The movement of Earth's plates is described by "the theory of _____".
ANSWER: plate tectonics
REFERENCES: Plate Movement
KEYWORDS: Bloom's: Remember

40. A(n) _____ boundary is formed where two plates slide past each other.
ANSWER: transform
REFERENCES: Plate Movement
KEYWORDS: Bloom's: Remember

41. A series of ridges along a divergent boundary marks a(n) _____ zone.
ANSWER: rift

REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Remember

42. _____ volcanoes are found far from plate boundaries.
ANSWER: Hotspot
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Remember

43. The Himalayan mountains are located at a(n) _____ boundary between Indian and Asian plates.
ANSWER: convergent
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Remember

44. Wegener proposed that the major continents were once part of a supercontinent named _____.

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank

ANSWER: Pangaea

REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Remember

45. Currents in Earth's core create a(n) _____ field.
ANSWER: magnetic
REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Remember

46. Describe the three types of plate boundaries and the motions that lead to them.
ANSWER: Convergent boundaries are created when two plates collide, with both plates moving toward each other. Divergent boundaries are created when two plates separate, with both plates moving away from each other. Transform boundaries are created when two plates slide past each other, neither separating or colliding.
REFERENCES: Plate Movement
KEYWORDS: Bloom's: Apply

47. The major islands of the state of Hawaii are formed from a line of separate volcanoes emerging from the ocean floor of the Pacific Plate. The line extends from Kauai in the northwest, to Hawai'i in the southeast over a range of hundreds of miles. Kauai was formed from volcanoes that formed about 5 million years ago; on Hawai'i the volcanoes are currently active.

Explain the process that formed the Hawaiian Islands and what information a geophysicist could determine about the motion of Earth's parts from observing them.

ANSWER: In the deep layers of the mantle, a hot lump of basalt will rise and begin to melt. As it nears the surface, it will create a "magma plume," a bubble of hot molten rock. This plume will eventually fuel a volcano under the ocean, which grows above the surface to form an island. The crustal plate moves as new volcanoes are created, causing the volcanoes to be spaced out in a line of separate islands. By observing the Hawaiian Islands, a geophysicist could conclude that the Pacific Plate is moving in the direction from Hawai'i towards Kauai, and that it must have moved at a certain speed to move Kauai away from the hot spot in the last five million years.
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Analyze

48. The theories of continental drift and plate tectonics rely on many pieces of physical evidence. Identify and explain three observations that led to the acceptance of the theory of plate tectonics.
ANSWER: Possible answers taken from the text include that:
- the coastlines of South America and Africa have similar shapes, implying that these landmasses were once joined, then moved apart
- ancient rocks, fossils, and the shape of mountain ranges are similar at places where the current continents were once connected in a supercontinent
- evidence of ancient glacial processes implies that the same glaciers moved through areas on several different continents, implying that they were once joined
- fossils of species from warm climates have been found in the Arctic and Antarctic, implying that the fossils were created when the land was in a warm climate zone, but that the land has since moved to a cold climate zone
- the Mid-Atlantic Ridge is a center for numerous earthquakes and implies that the ridge could result from the spreading of the seafloor away from a central area
- magnetic effects detectable in rocks around the Mid-Atlantic Ridge prove that the ridge is created by

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank

slowly emerging basalt which moves away from a divergent zone

REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Apply

49. Discuss the source and interaction of basalt and rhyolite.
ANSWER: Basalt consists of rock that comes from the magma in Earth's mantle. Rising basalt is hot enough to melt the silica-rich material of continental plates. Rhyolite is the result of hot basalt melting continental plate material.
REFERENCES: Hazards and Plate Boundaries
KEYWORDS: Bloom's: Apply

50. Why is an understanding of Earth's magnetic field important in the acceptance of the theory of plate tectonics?
ANSWER: It is known that Earth's magnetic field changes its polarity, or direction, with a long recurrence interval due to changes in currents in its core. New rock formed at divergent boundaries like the Mid-Atlantic Ridge "records" the polarity of Earth's magnetic field. Observations of the recorded magnetic field in ridges around the Mid-Atlantic Ridge show that the stripes of alternating polarity surround the ridge. The conclusion is that the stripes represent rock created during different epochs of the magnetic field, demonstrating that the ridge is an area where new rock is created.
REFERENCES: Development of a Theory
KEYWORDS: Bloom's: Apply

Copyright Cengage Learning. Powered by Cognero.

Natural Hazards and Disasters 5th edition Hyndman Test Bank