

Name: _____ Class: _____ Date: _____
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1. Mobile belts form when convergent plate margins develop.

- a. True
- b. False

ANSWER:

True

2. The Appalachian and Ouachita mountains represent ancient mobile belts.

- a. True
- b. False

ANSWER:

True

3. Platform sedimentary rocks are entirely carbonate rocks.

- a. True
- b. False

ANSWER:

False

4. Polar ice caps existed through most of the Cambrian.

- a. True
- b. False

ANSWER:

False

5. During the Sauk transgression, the Transcontinental Arch was a highland estimated to be tens of thousands of feet high.

- a. True
- b. False

ANSWER:

False

6. After the Sauk Sea had regressed, the exposed surface of the North American continent was subjected to extensive glaciation.

- a. True
- b. False

ANSWER:

False

7. The boundary between the Tippecanoe and Sauk sequences is a vast unconformity with deep erosional relief.

- a. True
- b. False

ANSWER:

True

8. The basal unit of the transgressive Kaskaskia sequence is marked by extensive black shale deposition.

- a. True
- b. False

ANSWER:

False

9. The Taconic, Caledonian, and Acadian orogenies were all part of the same major orogenic event related to the closing of the Iapetus Ocean.

- a. True

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- b. False

ANSWER:

True

10. Terranes and microplates were part of the formation of Pangaea.

- a. True
b. False

ANSWER:

True

11. _____ are the relatively stable and immobile parts of continents and form the foundation on which Phanerozoic sediments were deposited

- a. Shields
b. Platforms
c. Cratons
d. Epeiric seas
e. Orogenies

ANSWER:

c

12. Each of the major continents at the beginning of the Paleozoic had two major components. These were a(n) _____.

- a. trough and a range
b. craton and a mobile belt
c. immobile belt and a rift margin
d. craton and a ocean basin
e. volcano and a desert

ANSWER:

b

13. Rocks of the shield are _____.

- a. exclusively igneous
b. exclusively metamorphic
c. exclusively sedimentary
d. primarily igneous and metamorphic
e. primarily igneous and sedimentary

ANSWER:

d

14. Paleozoic paleogeographic reconstructions are based primarily on _____.

- a. magnetic anomalies
b. volcanic rocks
c. metamorphic assemblages
d. structural relationships
e. transgressive sequences

ANSWER:

d

15. During the _____ Period, southern Gondwana moved over the South Pole, resulting in extensive glaciation.

- a. Permian

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- b. Carboniferous
- c. Devonian
- d. Ordovician
- e. Cambrian

ANSWER:

b

16. Which of the following was *not* a mobile belt around the North American continent during the Paleozoic?

- a. Franklin
- b. Cordilleran
- c. Hercynian
- d. Ouachita
- e. Appalachian

ANSWER:

c

17. What were the general climatic conditions on the Paleozoic supercontinent (Pangaea)?

- a. arid
- b. arid to semiarid
- c. semiarid to subtropical
- d. subtropical to humid
- e. humid

ANSWER:

b

18. In a cratonic sequence, which phase is commonly well-preserved?

- a. regressive
- b. sedimentary
- c. transgressive
- d. evaporite
- e. epeiric

ANSWER:

c

19. Geologists use sequence stratigraphy most in what industry?

- a. petroleum
- b. coal
- c. uranium
- d. mapping
- e. gemstone

ANSWER:

a

20. A cratonic sequence is distinguished by a ____.

- a. transgressive phase followed by regressive phase
- b. regressive phase followed by a transgressive phase
- c. regressive phase only
- d. transgressive phase only

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- e. lack of any sequence

ANSWER:

a

21. Extensive _____ were deposited as the Tiptecanoe Sea gradually regressed from the North American craton during the late Silurian.

- a. sandstones
- b. shales
- c. volcanic rocks
- d. evaporites
- e. limestones

ANSWER:

d

22. Why are organic reefs useful paleoecological indicators?

- a. Organisms only form limestone reefs in cold, tropic waters.
- b. Organisms only form limestone reefs where there is a great abundance of mineral matter in the water.
- c. Organisms only form limestone reefs in warm, clear, shallow water.
- d. Organisms in the modern world only form limestone reefs between 30 degrees north and south of the equator.
- e. Modern organisms only form limestone reefs in warm, clear, shallow water, between 30 degrees north and south of the equator.

ANSWER:

e

23. The majority of Kaskaskian rocks are _____.

- a. shales
- b. carbonates
- c. sandstones
- d. volcanics
- e. metamorphic

ANSWER:

b

24. The basal beds of the Kaskaskia Sequence are _____.

- a. basalts
- b. halite evaporite beds
- c. barrier reefs
- d. shales
- e. well-sorted quartz sandstones

ANSWER:

e

25. By the end of the Permian, the Absaroka Sea had retreated from the craton, exposing what type of deposits?

- a. evaporite
- b. black shale
- c. volcanic
- d. red bed
- e. reef

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ANSWER:

d

26. What do cyclothems represent?

- a. volcanism
- b. evaporation
- c. transgressive and regressive cycles
- d. transgression only
- e. regression only

ANSWER:

c

27. Extensive oil deposits exist in the Permian _____ deposits in Texas and New Mexico.

- a. reef
- b. sandstone
- c. shale
- d. phosphate
- e. volcanic

ANSWER:

a

28. Uplift of the Ancestral Rockies occurred during the _____.

- a. Late Kaskaskia
- b. Early Absaroka
- c. Late Absaroka
- d. Early Kaskaskia
- e. Middle Devonian

ANSWER:

c

29. What characteristic feature of Pennsylvanian rocks distinguishes rocks of the Absaroka sequence from those of the Kaskaskia sequence, as well as others in North America?

- a. cyclothems
- b. carbonates
- c. coal
- d. conodonts
- e. chordates

ANSWER:

a

30. What separates one cyclothem from another in a sequence?

- a. an erosional surface
- b. a body of water
- c. a craton
- d. a mobile belt
- e. a clastic wedge

ANSWER:

a

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31. An idealized cyclothem is characterized by which of the following sequences from bottom to top?

- a. coal beds, fluvial deltaic sediments, detrital shallow water marine, limestone
- b. limestone, detrital shallow water marine, fluvial deltaic sediments, coal beds
- c. limestone, detrital shallow water marine, coal beds, fluvial deltaic sediments
- d. fluvial deltaic sediments, coal beds, detrital shallow water marine, limestone
- e. detrital shallow water marine, fluvial deltaic sediments, limestone, coal beds

ANSWER:

d

32. Which orogeny was the first pulse of mountain building in the Appalachian mobile belt?

- a. Caledonian
- b. Acadian
- c. Antler
- d. Ouachita
- e. Taconic

ANSWER:

e

33. Which orogeny was part of the general worldwide tectonic activity that occurred when Gondwana united with Laurasia?

- a. Antler
- b. Ouachita
- c. Taconic
- d. Cordilleran
- e. Alleghenian

ANSWER:

b

34. During the entire Paleozoic, the western margin of North America could be described as ____.

- a. tectonically active with the development of numerous mobile belts
- b. a passive margin with only localized mountain building events
- c. a passive margin with no evidence of orogeny
- d. an active margin with thick carbonate platforms
- e. a zone of active volcanism

ANSWER:

b

35. When did the Ouachita system change sedimentation styles from those typical of a passive margin to an active margin?

- a. Late Paleozoic
- b. Early Pennsylvanian
- c. Late Permian
- d. late Devonian
- e. Early Mississippian

ANSWER:

e

36. The Queenston Delta formed in response to ____.

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- a. the uplift of the Taconic Highlands
- b. the subduction of the Iapetus plate
- c. the uplift of the Caledonides
- d. carbonate deposition
- e. the Mississippi River

ANSWER:

a

37. In southeast Missouri, dolostones provide which mineral resource?

- a. salts
- b. uranium
- c. lead
- d. copper
- e. oil

ANSWER:

c

38. Most _____ coal in Europe and North America is bituminous.

- a. Permian
- b. Devonian
- c. Pennsylvanian
- d. Silurian
- e. Cambrian

ANSWER:

c

39. The Zechstein deposits of Europe form the caprock for large quantities of _____.

- a. lime
- b. gas
- c. aluminum
- d. silica
- e. iron

ANSWER:

b

40. The Silurian Clinton Formation is an important source for _____.

- a. rock salt
- b. oil and gas
- c. iron
- d. silica
- e. lime

ANSWER:

c

41. During the Paleozoic, cratons were covered with large bodies of water called _____.

ANSWER: epeiric seas

42. At the beginning of the Paleozoic, _____ major continents were present.

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ANSWER: six
6

43. The supercontinent that formed near the end of the Paleozoic from an assembling of all the continents was called _____.

ANSWER: Pangaea

44. Prior to the transgression of epeiric seas in the Middle Cambrian, the North American craton had been undergoing weathering and _____.

ANSWER: erosion

45. The boundary between the Tippecanoe Sequence and the overlying Kaskaskia Sequence is marked by a major _____.

ANSWER: unconformity

46. The most abundant rock type deposited during the Kaskaskian sequence was _____.

ANSWER: carbonate

47. The Antler orogeny that occurred in the Cordilleran mobile belt was caused by _____.

ANSWER: subduction

48. Erosion of the Taconic Highlands resulted in the development of a(n) _____ called the Queenston Delta.

ANSWER: clastic wedge

49. Thick deposits of Silurian evaporites are important sources of various _____.

ANSWER: salts

50. Most of the productive coal beds of Paleozoic age are found in rocks formed during the _____ period.

ANSWER: Pennsylvanian

51. What are mobile belts of a continent?

ANSWER: Mobile belts are elongated areas of mountain-building activity along the margins of the continent.

52. During the Cambrian, where were the major continents located?

ANSWER: They were dispersed around the globe at low tropical latitudes.

53. What are believed to be the causes of global transgressive and regressive cycles?

ANSWER: The causes are largely thought to be due to changes in sea level resulting from major tectonic and glacial events.

54. What is the Tippecanoe sequence?

ANSWER: The Tippecanoe sequence is the transgressive-regressive sequence that followed the Sauk sequence and preceded the Kaskaskia sequence).

55. What are cyclothems?

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ANSWER: Cyclothems are rhythmically repeated alternating marine and nonmarine sedimentary strata.

56. Explain how extensive black shales such as those seen in the Middle Devonian across the United States might form.

ANSWER: The essential features required to produce extensive black shales include undisturbed anaerobic bottom water, a reduced supply of coarser detrital sediment, and high organic productivity in the overlying oxygenated waters. High productivity in the surface waters leads to a shower of organic material, which decomposes on the undisturbed seafloor and depletes the dissolved oxygen at the sediment–water interface.

57. Describe a clastic wedge. How can a clastic wedge be used as evidence for an orogeny?

ANSWER: A clastic wedge is an extensive accumulation of mostly detrital sediments deposited adjacent to an uplifted area. The wedge is thickest nearest the uplift and thins with distance from the uplift. These sediments eventually grade into carbonate cratonic facies. The existence of the wedge indicates that there was once a highland because of the thick sediments at one end and thinned sediments at the other. A highland indicates that there was once an orogeny.

58. What role did microplates and terranes play in the formation of Pangaea? Provide an example.

ANSWER: Numerous terranes or microplates of various sizes were involved in Paleozoic orogenic events. For example, the microcontinent of Avalonia separated from Gondwana in the Early Ordovician and existed as a separate continent until it collided with Baltica during the Late Ordovician–Early Silurian and then with Laurentia later in the Silurian. During the times when the microplates were separate from the larger continental masses they developed their own unique floral and faunal assemblages.