# **Unit 4 Test: Biogeochemical Cycles TEST REVIEW**

### **Multiple Choice**

- 1. What is a naturally occurring, solid mass of mineral or mineral-like matter?
  - a. a rock b. a mineral
- c. lava d. a fossil
- 2. Which of the following is NOT one of the three types of rock?
  - a. igneous
  - b. magma

- c. sedimentary
- d. metamorphic



# Figure 3-1

- 3. In Figure 3-1, what type of rock should occur in the part of the rock cycle labeled B?
  - a. igneous c. lava b. metamorphic
    - d. sedimentary
  - 4. In Figure 3-1, what process or processes would be occurring in the part of the rock cycle labeled E?
    - a. cooling c. compaction and cementation
    - d. weathering and erosion b. melting
- 5. In Figure 3-1, what type of rock should occur in the part of the rock cycle labeled F? c. lava
  - a. igneous
  - b. metamorphic d. sedimentary

 6.	If granite undergoes high temperatures and high pressures at depth within Earth, what type of rock will be							
	formed? Assume that the granite does not m	elt.						
	a. a sedimentary rock	c.	magma					
	b. a metamorphic rock	d.	an igneous rock					
 7.	All of the energy that drives Earth's rock cyc	cle con	nes from					
	a. the wind							
	b. Earth's interior and the sun							
	c. the breakdown of organic matter							
	d. the movement of water over Earth's surf	face						
 8.	A rock that forms when magma hardens beneath Earth's surface is called an							
	a. intrusive metamorphic rock							
	b. intrusive igneous rock							
	c. extrusive sedimentary rock							
	d. extrusive igneous rock							
 9.	A rock that forms from cooling lava is classi	fied as	s an					
	a. intrusive igneous rock	c.	extrusive igneous rock					
	b. extrusive metamorphic rock	d.	intrusive volcanic rock					
 10.	When large masses of magma solidify far be	low Ea	arth's surface, they form igneous rocks that have a					
	a. glassy texture	с.	fine-grained texture					
	b. clastic texture	d.	coarse-grained texture					
 11.	The igneous rock texture that is characterize	d by tv	vo distinctly different crystal sizes is called					
	a. coarse-grained texture	C.	glassy texture					
	b. fine-grained texture	d.	porphyritic texture					
 12.	. Lava that cools so quickly that ions do not have time to arrange themselves into crystals will form igneous							
	rocks with a							
	a. porphyritic texture	C.	coarse-grained texture					
10	b. glassy texture	u.	ime-gramed texture					
 13.	A conglomerate is a rock that forms as a rest	lt of _						
	a. Intense heat and pressure	с. А	rapid cooling					
14		u.						
 14.	Which of the following represents the correct	t order	r of the processes involved in sedimentary rock formation?					
	a. erosion, weathering, compaction, cementation, deposition							
	o. denosition compaction compaction prosion weathering							
	d weathering erosion denosition compaction cementation							
15	Which sedimentary rock would most likely l	non, c	osited in a very high energy stream?					
 13.	a shale	Je uepo	siletone					
	a. shale	υ.	SHISTOR					

b. coal d. conglomerate

Clastic Sedimentary Rocks				Chemical Sedimentary Rocks				
Texture (grain size)		Sediment Name	Rock Name	Composition	<b>Texture</b> (grain size)	Texture (grain size) Rock Name		
Coarse		Gravel (rounded fragments)	Conglomerate	Calcite, CaCO <sub>3</sub>	Fine to coarse crystalline	Crystailine Limestone		
(over 2 mm)		Gravel (angular fragments)	Breccia			Travertine		
Medium (1/16 to 2 mm)		Sand	Sandstone		Visible shells and shell fragments loosely cemented	Coquina	BL i om	
Fine (1/16 to		Mud	Siltstone		Various size shells and shell fragments cemented with calcite cement	Fossiliferous Limestone	he es mt cn	
1/256 mm) Very fine		 *			Microscopic shells and clay	Chalk	Ĩe	
(less than 1/256 mm)		Mud	Shale	Quartz, SiO <sub>2</sub>	Very fine crystalline	Chert (light colored) Flint (dark colored)		
			Gypsum CaSO <sub>4</sub> •2H <sub>2</sub> O	Fine to coarse crystalline	Rock Gypsum			
			Halite, NaCl	Fine to coarse crystalline	Rock Salt			
				Altered plant fragments	Fine-grained organic matter	Bituminous (	Coal	
Figure 3-2								
According to	) rigure 3	5-∠, what type of	TOCK IS COMP	used of very I	me crystamne q	uartz		

#### Classification of Major Sedimentary Rocks

- 16.
  - a. chalk c. rock gypsum
  - d. flint b. sandstone
- 17. According to Figure 3-2, a coarse-grained rock with angular fragments would be classified as a a. conglomerate b. sandstone c. breccia d. crystalline limestone
  - 18. According to Figure 3-2, a clastic sedimentary rock with particles that are 1.5 millimeters in diameter would be classified as a
    - a. conglomerate c. siltstone
    - b. coquina d. sandstone
- 19. Which of the following is a use for fossils found in sedimentary rocks?
  - a. interpreting past environments
  - b. indicating when the rock formed
  - c. matching rocks of the same age found in different places
  - d. all of the above
- 20. Fossils are only found in

a. an ocean floor

b. a desert

- a. intrusive igneous rocks b. foliated metamorphic rocks
- c. sedimentary rocks
- d. nonfoliated metamorphic rocks

21. In which of the following settings would a metamorphic rock most likely form?

- c. 8 kilometers below Earth's surface
- d. on the slopes of an active volcano
- 22. Most of the heat for contact metamorphism is supplied by
  - c. frictional heating along a fault
  - b. radioactive elements d. deep burial within Earth
- 23. Which of the following changes may occur during metamorphism?
  - a. Certain minerals may recrystallize.
  - b. The rock becomes more compact.
  - c. Crystals may grow larger.

a. a nearby mass of magma

d. all of the above

- 24. Which of the following is an example of a renewable resource?
  - c. natural gas
  - b. copper
- 25. Renewable resources

a. cotton

b. trees

a. cotton

- a. can be replenished over months, years, or decades
- b. are all living resources
- c. have finite supplies that will one day be used up
- d. include iron, natural gas, and copper
- 26. Which of the following is an example of a nonrenewable resource?
  - c. cattle
    - d. uranium

d. coal

- 27. The advantages of solar energy include the fact that it is \_\_\_\_\_
  - a. nonrenewable c. expensive
  - b. non-polluting d. absent at night
  - 28. What is one of the drawbacks to the extensive use of solar energy?
    - a. It is nonrenewable.
    - b. Necessary equipment and installation are expensive.
    - c. It is available only at night.
    - d. It produces toxic pollution.

29. The fuel for nuclear fission in nuclear reactors is

- a. petroleum c. hydrogen
- b. carbon d. uranium
- 30. Which of the following is a problem associated with the increased use of nuclear energy?
  - a. cost of building safe nuclear facilities
  - b. major hazards involved in nuclear waste disposal
  - c. concern over the possibility of a serious nuclear accident
  - d. all of the above
- 31. One problem with wind energy as a major source of electricity is \_\_\_\_\_.
  - a. it is nonrenewable
  - b. it causes major air pollution
  - c. it does not work during the night
  - d. the expense of large tracts of land in populated areas
- 32. Hydroelectric power is produced by
  - a. falling water that turns a turbine
  - b. tides that pour through a dam barrier
  - c. hot water that comes from deep underground
  - d. electric current that flows across a dam
  - 33. What is the source of geothermal energy?
    - a. sunlight heating surface waters
    - b. the splitting of atoms to release energy
    - c. natural underground reservoirs of steam and hot water
    - d. very hot minerals deep underground
  - 34. How is tidal power harnessed?
    - a. by building a dam across a swiftly flowing river
    - b. by bombarding uranium nuclei with neutrons
    - c. by building a dam across the mouth of a bay or an estuary in a coastal area
    - d. by tapping into underground steam reservoirs
    - 35. What amount of Earth's total water supply is usable fresh water?
      - c. 50% a. 25% b. less than 1%
        - d. 75%
    - 36. The process that occurs when physical forces break rock into smaller pieces without changing the rock's chemical composition is called .
      - a. differential weathering
      - b. chemical weathering
- c. mechanical weathering
- d. erosion

- 37. When water freezes, its volume
  - a. decreases slightly

c. stays the same

b. increases

- decreases greatly d.
- 38. Which of these factors affects the rate of weathering?
  - a. climate
  - b. chemical composition of the exposed rock
  - surface area of the exposed rock c.
  - d. all of the above



Figure 6-1

- 39. What process is illustrated by the arrows labeled A in Figure 6-1?
  - c. runoff precipitation a.
  - b. evaporation d. infiltration
- 40. In Figure 6-1, what process is illustrated by the arrows labeled D?
  - a. precipitation c. runoff
  - evaporation d. infiltration b.
- 41. What is the energy source for the water cycle shown in Figure 6-1?
  - a. running water c. Earth's internal heat gravity
  - b. the sun d.
  - 42. The water cycle is the
    - a. distribution of drinking water on Earth
    - b. unending circulation of Earth's water supply
    - c. the recycling of water after industrial use
    - d. the evaporation of water from Earth's surface
- 43. Plants release water into the atmosphere through a process called .
  - evaporation c. infiltration a.
  - b. transpiration d. precipitation
- Balance in the water cycle means that 44.
  - the average annual precipitation over Earth equals the amount of water that evaporates a.
  - b. water that falls to Earth only enters oceans
  - c. the amount of water that falls to Earth weighs the same as the amount that condenses in clouds
  - d. water that evaporates from Earth's surface remains forever in the atmosphere
  - 45. How does nuclear fission produce energy?
    - a. Moving water turns turbines to produce electricity.
    - b. Controlled nuclear chain reaction produces heat, driving steam turbines to produce energy.
    - c. Uncontrolled nuclear reaction produces heat, driving steam turbines to produce energy.
    - d. Carbon atoms are bombarded by neutrons.

 46.	Wind power generates						
	a. noise pollution	c.	water pollution				
	b. air pollution	d.	soil pollution				
 47.	Fresh water is used for which of the following:	)					
	a. drinking	c.	cooking				
	b. growing food	d.	all of the above				
 48.	The greenhouse gas carbon dioxide helps to						
	a. deflect harmful radiation from space						
	b. increase precipitation in arid areas						
	c. form clouds in the atmosphere						
	d. maintain warmth near Earth's surface						
 49.	Which of the following is NOT a land resource	?					
	a. soil	c.	iron				
	b. forests	d.	wind				
 50.	Which of the following products do petroleum resources provide in addition to energy?						
	a. aggregate	c.	nickel				
	b. plastic	d.	cardboard				
 51.	Cars with hybrid and electric motors						
	a. use more fuel than conventional cars						
	b. create less air pollution than conventional	cars					
	c. use solar panels for power						
	d. are no longer produced						
 52.	Which of the following is true about rocks?						
	a. Rocks are composed of only one mineral.						
	b. Rocks do not contain any nonmineral matte	er.					
	c. Coal is not considered a true fock.						
50	u. Most focks are a mixture of minerals.						
 55.	which of the following is NOT considered to t	be a					
	a. coal b sandstone	C. d	lava				
51	Where is the energy server from d that drives the	u.	iava				
 54.	where is the energy source found that drives the	ie pi	Forth's interior				
	a. the suid	с. d	moving water				
55	A matamambia roak can be alogaified according	u.	ita				
 55.	A metamorphic fock can be classified according to its						
	a. density and texture b. texture and composition	d.	density and color				
	o. texture una composition	u.	action, and color				

## **Short Answer**

- 56. Explain the difference between renewable and nonrenewable resources.
- 57. What factor most influences the size of mineral crystals in igneous rocks?