**Chapter 01 Test Bank: Humans and the Geologic Environment**

**Multiple Choice Questions**

1. Which trend best describes human population growth?

A. Exponential

B. Unpredictable

C. Planar

D. Linear

E. Tangential

2. Which of the following measures do environmentalists suggest may be necessary in order for humans to live in a sustainable manner?

A. Conserve resources

B. Reduce per capita consumption of resources

C. Develop renewable energy resources

D. Stabilize the population

E. All of the answers listed here

3. The tragedy of the commons is an important concept related to environmental degradation and human behavior. Which of the following best describes this concept?

A. When humans act irrationally during a large-scale natural disaster.

B. When over population creates living conditions that lower the quality of life.

C. When the self interest of individuals destroys natural resources being shared by society.

D. When humans overreact to an environmental threat and then limit economic growth.

E. When a common disease spreads through society due to poor sanitation.

4. Which of the following refers to the process by which the physical world is examined in a logical manner?

A. Inquiry Theory

B. Scientific Method

C. Intelligent Design

D. Elemental Method

E. Plausibility Theory

5. Which term refers to a scientific explanation of data that can be tested in such a way that shows it to be false?

A. Hypothesis

B. All of the answers listed here

C. Plausibility

D. Uncertainty

E. Educated Guess

6. Which of the following in NOT an attribute of a good scientific explanation?

A. Sustainable

B. Falsifiable

C. Peer-Reviewed

D. Consistent with all the data available

E. All of the answers listed here

7. About how many years old is the Earth as shown by science?

A. 4.6 billion

B. 10 thousand

C. 4.6 trillion

D. 4.6 thousand

E. 4.6 million

8. Which of the following terms refers to the use of resources in such a way that future generations will have a fair share and inherit a quality environment?

A. Catastrophism

B. Renewability

C. All of the answers listed here

D. Sustainability

E. Environmentalism

9. This type of dating uses radioactive elements and their decay products to determine an absolute age for an earth material.

A. Petrographic Dating

B. Fossilization Timing

C. Relative Dating

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E. Radiometric Dating

10. How does the ecological footprint for people living in developed (industrialized) nations compare to that of people living in still developing nations?

A. It is greater

B. This is not a plausible comparison

C. It is equivalent

D. It is not defined for developing nations

E. It is smaller

11. How was the geologic time scale developed?

A. By systematically dividing all of earth history into equally spaced time intervals, similar to the hours and minutes on a clock.

B. All of the answers listed here.

C. By correlating exposed rock sections from around the world.

D. By compiling Biblical and historical records to reconstruct Earth's history.

E. By radiometrically dating successive intervals in rock layers.

12. When defining environmental risks, scientists must primarily consider which of the following components?

A. The magnitude and consequences of an event.

B. Whether an event is even possible.

C. The measures necessary to prevent environmental risks from occurring.

D. The probability that an event will occur and the expected consequences of that event.

E. The consequences of an event only.

13. Which of the following is NOT

TRUE

 of incremental processes?

A. They can be difficult to recognize.

B. They generate very small changes with time.

C. They take place somewhat randomly as discrete events.

D. Climate change is an example of an incremental process.

E. Deforestation is an example of an incremental process.

14. Which of the following statements is NOT

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 regarding the Earth system?

A. Earth’s life forms are dependent on the system.

B. It is affected by other bodies in the solar system.

C. Humans are not capable of affecting the system.

D. It consists of several sub-systems.

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A. Geologic Commons

B. Environmental Area

C. Consumption Rate

D. Ecological Footprint

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16. Which of the following are potentially limiting factors associated with food production and distribution?

A. All of the answers listed here

B. Water supply and resources

C. Mineral resources

D. Energy resources

E. Topsoil erosion

17. Almost all of the environmental problems discussed in class were ultimately tied to one factor. Which of the following is the root cause of most of our problems?

A. Human population

B. Energy production

C. Food production

D. Air pollution

E. Water pollution

**True / False Questions**

18. The biggest environmental issue facing the human race is sustainability.

True / False

19. A scientific law describes the relationship between several different hypotheses.

True / False

20. As one of many species living on Earth, humans are very limited in their ability to impact the environment.

True / False

21. In geologic time, humans have existed for only a very brief amount of Earth's history.

True / False

**Multiple Choice Questions**

22. The two critical factors that led to the development of Earth's diversity of life are

A. the surface temperature of the Earth, and the ability to retain its atmosphere.

B. the amount of solar insolation, and the presence of the Moon.

C. the distance between Sun and Moon, and the effect of the Moon on Earth.

D. the amount of glacial ice, and the number of oceans.

23. What is meant by the tragedy of the commons?

A. Common people go through tragic environmental problems.

B. The self-interest of people results in the destruction of a common or shared resource.

C. Common societies are disconnected from the natural environment.

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24. What is a scientific theory?

A. A prediction made about a scientific phenomenon

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25. What is the Law of Superposition?

A. Sedimentary rocks are always deposited in horizontal layers

B. Sedimentary features are always superimposed on other types of rocks

C. Sedimentary layers become progressively older with depth

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26. Why is pollution considered a geologic hazard?

A. It always involves materials not found in nature.

B. It may involve extraterrestrial phenomena.

C. It directly impacts human health.

D. It involves nonrenewable resources.

27. What is used to determine the age of a rock in years?

A. Heat

B. Gravity

C. Solar radiation

D. Radioactive elements

28. Which of the following is not a sporadic geologic process?

A. Eroding of sedimentary rocks

B. Landslides

C. Earthquakes

D. Floods

29. What is an example of creeping normalcy?

A. Landsliding

B. Volcanic activity

C. The process of deforestation

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30. What is an interdisciplinary field of study?

A. A study of special environments

B. A combination of two or more fields

C. Any specialized field in geology

D. Any highly specialized field focusing on the environment

31. What is the downside of specialization?

A. Scientists lose sight of nature as a whole

B. Very few jobs exist

C. Specialized jobs do not pay well

D. None of these choices are correct

32. What comprises the geosphere?

A. All of the organisms on Earth

B. All of the water on Earth

C. All of the gases surrounding the Earth

D. The solid Earth

33. Which of the following is not an adverse consequence of deforestation?

A. Increased soil erosion

B. Increased landslide activity

C. Decreased use of resources per capita

D. Decreased plant and animal life

34. How might deforestation contribute to global warming?

A. Trees no longer prevent soil erosion.

B. Trees no longer remove carbon dioxide from the atmosphere.

C. Trees no longer produce oxygen.

D. Burning of trees increases the heat output of Earth.

35. Linear growth occurs when the amount added over successive time periods

A. increases.

B. decreases.

C. increases then rapidly decreases.

D. stays the same.

36. Exponential growth occurs when the amount added over successive time periods

A. increases.

B. decreases.

C. increases then rapidly decreases.

D. stays the same.

37. What is the projected population of Earth in 2050?

A. 95 million

B. 9.5 billion

C. 95 billion

D. 950 billion

38. Why didn't human population collapse as predicted by Malthus?

A. His mathematical model was flawed

B. The rate of population growth unexpectedly decreased

C. Food production increased at an exponential rate

D. Food production increased at a linear rate

39. Why is infinite population growth not possible?

A. Topsoils are being lost at an alarming rate.

B. Water supplies are stretched to the limit in many places.

C. Supplies of crude oil and gas are in decline.

D. All of these choices are correct.

40. What is meant by the term sustainability?

A. Food production is sustained by fertilizers.

B. A system or process can be maintained for an indefinite period of time.

C. Soils are sustained by conservation measures.

D. Resources are replenished by geological processes.

41. What is meant by demographic transition?

A. Populations stabilize when birth and death rates are equal.

B. Populations increase when birth rates exceed death rates.

C. Populations decrease when death rates exceed birth rates.

D. Populations decrease as food production is diminished.

42. Which factors are key to sustainability?

A. Earth's total population

B. use of resources per capita

C. Total population and use of resources per capita

D. None of these choices are correct

43. What is meant by the term ecological footprint?

A. The total number of ecosystems present on Earth

B. The amount of biologically-productive land and sea area needed to support the lifestyle of humans

C. The amount of land not affected by human activity

D. The amount of coastline inhabited by humans

44. What is the estimated average ecological footprint of humanity?

A. 6 acres per person

B. 60 acres per person

C. 600 acres per person

D. 6000 acres per person

45. What is the biggest environmental issue facing humanity?

A. Volcanic eruptions may cause climate change

B. Coastlines may be drowned by rising sea levels

C. Depletion of local drinking water supplies

D. Sustainability

46. What is the key problem facing sustainability?

A. Economic prosperity is limited by food production.

B. Economic prosperity is limited by money.

C. Economic prosperity is limited by technology.

D. Economic prosperity is based on growth.

**Chapter 01 Test Bank: Humans and the Geologic Environment Key**

**Multiple Choice Questions**

1. Which trend best describes human population growth?

**A.** Exponential

B. Unpredictable

C. Planar

D. Linear

E. Tangential

*Bloom's Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.06 Explain the concept of exponential population growth and how it relates to geologic hazards and resource depletion.
Section: 01.06 Earth and Human Population
Topic: Investigating Geologic Questions*

2. Which of the following measures do environmentalists suggest may be necessary in order for humans to live in a sustainable manner?

A. Conserve resources

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C. Develop renewable energy resources

D. Stabilize the population

**E.** All of the answers listed here

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Learning Outcome: 01.01 Describe the major focus of the discipline called environmental geology.
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4. Which of the following refers to the process by which the physical world is examined in a logical manner?

A. Inquiry Theory

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Learning Outcome: 01.02 Characterize how scientists develop hypotheses and theories as a means of understanding the natural world.
Section: 01.02 Scientific Inquiry
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5. Which term refers to a scientific explanation of data that can be tested in such a way that shows it to be false?

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**A.** Sustainable

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7. About how many years old is the Earth as shown by science?

**A.** 4.6 billion

B. 10 thousand

C. 4.6 trillion

D. 4.6 thousand

E. 4.6 million

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Learning Outcome: 01.03 Describe the concept of geologic time and how the geologic time scale was constructed.
Learning Outcome: 01.04 Explain how geologic time and the rate at which natural processes operate affect how humans respond to environmental issues.
Section: 01.04 Environmental Problems and Time Scales
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8. Which of the following terms refers to the use of resources in such a way that future generations will have a fair share and inherit a quality environment?

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9. This type of dating uses radioactive elements and their decay products to determine an absolute age for an earth material.

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**C.** By correlating exposed rock sections from around the world.

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13. Which of the following is NOT

TRUE

 of incremental processes?

A. They can be difficult to recognize.

B. They generate very small changes with time.

**C.** They take place somewhat randomly as discrete events.

D. Climate change is an example of an incremental process.

E. Deforestation is an example of an incremental process.

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 regarding the Earth system?

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15. Which term is used to describe the amount of biologically productive land/sea area necessary to support the lifestyle of an individual?

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16. Which of the following are potentially limiting factors associated with food production and distribution?

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17. Almost all of the environmental problems discussed in class were ultimately tied to one factor. Which of the following is the root cause of most of our problems?

**A.** Human population

B. Energy production

C. Food production

D. Air pollution

E. Water pollution

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**True / False Questions**

18. The biggest environmental issue facing the human race is sustainability.

**TRUE**

As the human population continues to grow, our ability to make use of Earth's limited resources in a sustainable manner will determine whether or not our planet will be able to continue supporting the life of our species. Thus, sustainability is the greatest environmental concern for the human race as it determines our existence.

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Topic: Investigating Geologic Questions*

19. A scientific law describes the relationship between several different hypotheses.

**FALSE**

A theory describes the relationship between several different hypotheses. A law describes natural phenomena in which the relationship between different data occurs regularly and with little deviation.

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Learning Outcome: 01.02 Characterize how scientists develop hypotheses and theories as a means of understanding the natural world.
Section: 01.02 Scientific Inquiry
Topic: Nature of Geology*

20. As one of many species living on Earth, humans are very limited in their ability to impact the environment.

**FALSE**

Humans are an integral part of the Earth system, and the way we interact with this system can have profound impacts on the environment upon which we depend.

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Section: 01.05 Earth as a System
Topic: Investigating Geologic Questions*

21. In geologic time, humans have existed for only a very brief amount of Earth's history.

**TRUE**

Geologic time is immense. The Earth is 4.6 billion years old, and humans have been in existence for only 200,000 years, a very short amount of geologic time.

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22. The two critical factors that led to the development of Earth's diversity of life are

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Topic: Nature of Geology*

29. What is an example of creeping normalcy?

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**C.** The process of deforestation

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B. Very few jobs exist

C. Specialized jobs do not pay well

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34. How might deforestation contribute to global warming?

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Learning Outcome: 01.05 Describe how Earth operates as a system and why humans are an integral part of the system.
Section: 01.05 Earth as a System
Topic: Humans and the Geologic Environment
Topic: Sustainability*

35. Linear growth occurs when the amount added over successive time periods

A. increases.

B. decreases.

C. increases then rapidly decreases.

**D.** stays the same.

*Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Gradable: automatic
Learning Outcome: 01.06 Explain the concept of exponential population growth and how it relates to geologic hazards and resource depletion.
Section: 01.06 Earth and Human Population
Topic: Humans and the Geologic Environment
Topic: Population Growth
Topic: Sustainability*

36. Exponential growth occurs when the amount added over successive time periods

**A.** increases.

B. decreases.

C. increases then rapidly decreases.

D. stays the same.

*Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Gradable: automatic
Learning Outcome: 01.06 Explain the concept of exponential population growth and how it relates to geologic hazards and resource depletion.
Section: 01.06 Earth and Human Population
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Topic: Population Growth
Topic: Sustainability*

37. What is the projected population of Earth in 2050?

A. 95 million

**B.** 9.5 billion

C. 95 billion

D. 950 billion

*Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.06 Explain the concept of exponential population growth and how it relates to geologic hazards and resource depletion.
Section: 01.06 Earth and Human Population
Topic: Humans and the Geologic Environment
Topic: Population Growth
Topic: Sustainability*

38. Why didn't human population collapse as predicted by Malthus?

A. His mathematical model was flawed

B. The rate of population growth unexpectedly decreased

**C.** Food production increased at an exponential rate

D. Food production increased at a linear rate

*Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.06 Explain the concept of exponential population growth and how it relates to geologic hazards and resource depletion.
Section: 01.06 Earth and Human Population
Topic: Humans and the Geologic Environment
Topic: Population Growth
Topic: Sustainability*

39. Why is infinite population growth not possible?

A. Topsoils are being lost at an alarming rate.

B. Water supplies are stretched to the limit in many places.

C. Supplies of crude oil and gas are in decline.

**D.** All of these choices are correct.

*Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Gradable: automatic
Learning Outcome: 01.06 Explain the concept of exponential population growth and how it relates to geologic hazards and resource depletion.
Section: 01.06 Earth and Human Population
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Topic: Sustainability*

40. What is meant by the term sustainability?

A. Food production is sustained by fertilizers.

**B.** A system or process can be maintained for an indefinite period of time.

C. Soils are sustained by conservation measures.

D. Resources are replenished by geological processes.

*Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Gradable: automatic
Learning Outcome: 01.07 Define the concept of sustainability in terms of the living standard of developed nations and also in terms of the human impact on the biosphere.
Section: 01.06 Earth and Human Population
Topic: Humans and the Geologic Environment
Topic: Population Growth
Topic: Sustainability*

41. What is meant by demographic transition?

**A.** Populations stabilize when birth and death rates are equal.

B. Populations increase when birth rates exceed death rates.

C. Populations decrease when death rates exceed birth rates.

D. Populations decrease as food production is diminished.

*Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.07 Define the concept of sustainability in terms of the living standard of developed nations and also in terms of the human impact on the biosphere.
Section: 01.06 Earth and Human Population
Topic: Humans and the Geologic Environment
Topic: Population Growth
Topic: Sustainability*

42. Which factors are key to sustainability?

A. Earth's total population

B. use of resources per capita

**C.** Total population and use of resources per capita

D. None of these choices are correct

*Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.07 Define the concept of sustainability in terms of the living standard of developed nations and also in terms of the human impact on the biosphere.
Section: 01.06 Earth and Human Population
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Topic: Population Growth
Topic: Sustainability*

43. What is meant by the term ecological footprint?

A. The total number of ecosystems present on Earth

**B.** The amount of biologically-productive land and sea area needed to support the lifestyle of humans

C. The amount of land not affected by human activity

D. The amount of coastline inhabited by humans

*Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.07 Define the concept of sustainability in terms of the living standard of developed nations and also in terms of the human impact on the biosphere.
Section: 01.06 Earth and Human Population
Topic: Humans and the Geologic Environment
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Topic: Sustainability*

44. What is the estimated average ecological footprint of humanity?

**A.** 6 acres per person

B. 60 acres per person

C. 600 acres per person

D. 6000 acres per person

*Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.07 Define the concept of sustainability in terms of the living standard of developed nations and also in terms of the human impact on the biosphere.
Section: 01.06 Earth and Human Population
Topic: Humans and the Geologic Environment
Topic: Population Growth
Topic: Sustainability*

45. What is the biggest environmental issue facing humanity?

A. Volcanic eruptions may cause climate change

B. Coastlines may be drowned by rising sea levels

C. Depletion of local drinking water supplies

**D.** Sustainability

*Accessibility: Keyboard Navigation
Bloom's Level: 1. Remember
Gradable: automatic
Learning Outcome: 01.06 Explain the concept of exponential population growth and how it relates to geologic hazards and resource depletion.
Section: 01.07 Environmentalism
Topic: Humans and the Geologic Environment
Topic: Population Growth
Topic: Sustainability*

46. What is the key problem facing sustainability?

A. Economic prosperity is limited by food production.

B. Economic prosperity is limited by money.

C. Economic prosperity is limited by technology.

**D.** Economic prosperity is based on growth.

*Accessibility: Keyboard Navigation
Bloom's Level: 2. Understand
Gradable: automatic
Learning Outcome: 01.07 Define the concept of sustainability in terms of the living standard of developed nations and also in terms of the human impact on the biosphere.
Section: 01.07 Environmentalism
Topic: Humans and the Geologic Environment
Topic: Population Growth
Topic: Sustainability*

**Chapter 01 Test Bank: Humans and the Geologic Environment Summary**

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