

APES Unit 1 Test Ch. 1,2, and 20

____ 1. When we discuss “our environment” we are referring to

- a. All conditions in the world.
- b. only interactions that affect human life.
- c. only conditions that cause negative effects on our health.
- d. primarily interactions that harm the atmosphere.
- e. the sum of all the conditions surrounding us that influence life.

____ 2. Ecosystem services

- a. are the processes by which life supporting resources are produced.
- b. can be provided by a forest.
- c. can be provided by an aquifer.
- d. can be provided by soil.
- e. All of these answers are correct.

____ 3. Evidence of biodiversity is seen in the

- a. genetic variation among human populations.
- b. number of species in a region.
- c. number of ecosystems and habitats in a region.
- d. variety of nutrients available in a region.
- e. All of these answers are correct.

____ 4. The population with the greatest ability to respond to environmental change most likely is the one with

- a. high genetic diversity.
- b. low genetic diversity.
- c. one type of dominant organism.
- d. two types of dominant organisms.
- e. more animals than plants.

____ 5. The concentration of carbon dioxide in the atmosphere

- a. is increasing in part due to fossil fuel use.
- b. has not significantly changed in the past 200 years.
- c. is increasing in part due to deforestation.
- d. has been decreasing since the 1800's.
- e. both a and c.

____ 6. Human population today is closest to

- a. 3 billion.
- b. 5 billion.
- c. 6 billion.
- d. 7 billion.
- e. 12 billion.

____ 7. The following are non-renewable resources except

- a. aluminum.
- b. oil.
- c. coal.
- d. copper.
- e. timber.

____ 8. Economic development goes hand in hand with

- a. decreased use of non-renewable resources.
- b. increased consumption of resources.
- c. smaller more efficient living styles.
- d. better planting strategies for crops.
- e. sustainable use of renewable resources.

____ 9. The following are examples of sustainable practices.

- I. Forests cut for timber are replanted
- II. Steel is recycled.
- III. Plastic is disposed of in landfills because that it is less expensive than recycling.
- a. I only.
- b. II only.
- c. I and III only.
- d. I and II only.
- e. I, II, and III.

____ 10. Sustainable development would incorporate

- a. the development of alternative materials.
- b. efficient use of energy.
- c. replacement of nutrients in soil.
- d. evaluation of residential patterns.
- e. All of these answers are correct.

____ 11. Calculating ecological footprint involves consideration of

- a. the impact of activities on the resources of Earth.
- b. lifestyle.
- c. water usage for crops and direct consumption.
- d. food calories required for continuing normal activity.
- e. All of these answers are correct.

Passage 1-1

An experiment is set up to determine if wheat grows better when it is planted by itself or together with clover. The setup involves 3 pans of each treatment. Set-up A, B and C contain wheat alone. Set-ups D, E and F contain clover and wheat planted together, in rows alternating one seed of each type. One hundred seeds are planted in each pan. all treatments contain the same type of soil, are planted in the same size of pan, are exposed to the same amount of sunlight, and are maintained at the same temperature throughout the course of the experiment.

____ 12. Use Passage 1-1. The treatments planted with wheat alone are the
a. constant. b. controls. c. independent variable. d. dependent variable. e. replication.

____ 13. Use Passage 1-1. The following statement provides a hypothesis for this experiment :
a. Wheat grows taller when planted by itself than when it is alternated with clover.
b. Clover grows better when planted by itself
c. Wheat grows better when planted together with clover.
d. Clover grows better when planted together with wheat.
e. Both a and c are legitimate hypotheses for this experiment.

____ 14. Use Passage 1-1. Several setups of each treatment are prepared to fulfill a very important requirement of scientific experimentation, specifically the need for
a. replication. b. constants. c. a control. d. an independent variable. e. a dependent variable.

____ 15. Use Passage 1-1. Constants in this experiment are
a. the pan of wheat, temperature, soil type. b. temperature, number of seeds in each pan, sunlight.
c. number of seeds in each pan, sunlight, one pan of wheat and clover.
d. the pans of wheat alternated with clover. e. the same as the independent variable.

____ 16. Use Passage 1-1. The dependent variable in this experiment could be the
a. height of the clover. b. number of leaves on the clover.
c. height of the wheat. d. presence of nodules on the roots of the clover.
e. number of clover seeds that germinate.

____ 17. The study of environmental science differs from study of the natural sciences such as biology and chemistry because it
a. doesn't encourage critical thinking. b. isn't included in most institutions of higher learning.
c. involves politics, law and economics. d. eliminates the consideration of physics.
e. doesn't take into account the scientific process.

____ 18. Environmental justice is
a. the body of law that deals with environmental issues.
b. the type of legal system that environmental lawyers use to defend nature.
c. a social movement that works toward equal enforcement of environmental laws in poor communities.
d. a type of legal punishment for polluters.
e. not needed because pollution is equitably distributed around the world.

____ 19. Controlled experiments in nature are difficult because
a. it is impossible to determine what kind of conditions are needed for the experiment.
b. large amounts of land are sometimes required to produce natural conditions.
c. animals cannot be studied because they do not stay still.
d. scientists do not like to do the fieldwork required.
e. Both a and b.

____ 20. Matter is

- a. anything that has volume and mass.
- b. anything that has energy.
- c. anything that doesn't have mass.
- d. anything that doesn't have volume.
- e. None of these answers are correct.

____ 21. Electrons are

- a. negatively charged.
- b. positively charged.
- c. neutral.
- d. found in the nucleus of an atom.
- e. equal to the number of neutrons.

____ 22. Elements that gain or lose electrons to form compounds create

- a. ionic bonds.
- b. protons.
- c. covalent bonds.
- d. molecular bonds.
- e. isotopes.

____ 23. To produce sodium chloride, common table salt, a single electron in the outer shell of the sodium atom is transferred to the outer shell of the chlorine atom. This is an example of

- a. the formation of an ionic bond.
- b. the formation of a covalent bond.
- c. radioactive decay.
- d. the formation of a hydrogen bond.
- e. None of the above.

____ 24. The polarity of the water molecule is the result of

- a. the slight negative charge of the hydrogen atoms.
- b. shared electrons spending more time near the oxygen atom than near the hydrogen atoms.
- c. shared electrons spending more time near the hydrogen atoms than near the oxygen atom.
- d. boiling point.
- e. two positive sides repelling each other.

____ 25. Water is a good solvent. This statement explains which of the following phenomena?

- I. High concentrations of dissolved ions in seawater.
- II. Capacity of living organisms to store many types of molecules in solution in their cells.
- III. Easy transport of toxic substances through the environment.
- a. I only.
- b. II only
- c. I and II.
- d. I and III.
- e. I, II, and III.

____ 26. On the pH scale, ____ is neutral.

- a. 3
- b. 4
- c. 5
- d. 6
- e. 7

____ 27. A substance with a pH of 4 has ____ times the hydrogen ion concentration of a substance with a pH of 6.

- a. 2
- b. 5
- c. 10
- d. 100
- e. 1000

____ 28. According to the law of conservation of matter,

- I. matter can be created
- II. matter cannot be destroyed
- III. after a chemical reaction, the original atoms remain
- a. I only.
- b. II only.
- c. III only.
- d. I and II.
- e. II and III.

____ 29. Organic compounds may contain

- I. carbon-carbon bonds
- II. carbon-hydrogen bonds
- III. hydrogen-oxygen bonds
- a. I only
- b. II only
- c. III only
- d. I, II and III.
- e. I and III.

____ 30. DNA is

- a. formed by sugars that are responsible for protecting organisms from foreign substances.
- b. formed by proteins that is important for structural support.
- c. formed by long chains of nucleic acids.
- d. the genetic material organisms pass to their offspring.
- e. both c and d.

____ 31. The “ability to do work “ is called

- a. power b. joules c. energy. d. heat e. radiation.

____ 32. Most energy on Earth comes from

- a. the Sun. b. volcanoes. c. trees. d. water. e. fire.

____ 33. Energy conversion by living things is

- a. evident in animals producing food. b. not necessary because animals eat food.
c. a fundamental component of all environmental systems. d. the way electromagnetic radiation is produced.
e. None of the above.

____ 34. Energy is measured in

- a. hertz. b. joules or calories. c. kilowatts. d. wavelengths. e. watts.

____ 35. The difference between potential and kinetic energy is that

- a. potential energy has not yet been released. b. kinetic energy has not yet been released.
c. potential energy is measured in calories, whereas kinetic energy is measured in joules.
d. potential energy is measured in watts, whereas kinetic energy is measured in joules.
e. kinetic energy cannot be captured at a dam.

____ 36. The second law of thermodynamics states that

- a. in an energy conversion, no energy is lost. b. all systems move toward increased entropy.
c. new energy is available in all systems. d. matter can be neither created nor destroyed.
e. velocity increases as a dropped object nears the earth’s surface.

____ 37. A systems analysis of an ecosystem could involve

- I. inputs of nutrients. II. outputs of energy. III. evaporation.
a. I only b. II only c. III only d. I and II e. I, II, and III

____ 38. Greenhouse gases in the Earth’s atmosphere

- a. are in steady state. b. are decreasing. c. are increasing. d. cannot be measured.
e. prove that inputs are equal to outputs.

____ 39. A positive feedback loop

- a. is when feedback into a system increases a rate of response.
b. is when feedback into a system decreases a rate of response.
c. may be seen in some examples of population growth.
d. is when a system responds to a change by returning it to its original state.
e. Both a and c.

____ 40. A negative feedback loop is

- a. when feed back into the system increases the rate of progress.
b. seen in the example of increased greenhouse gases leading to global warming.
c. seen in the example of world population growth.
d. when a system responds to a change by returning it to its original state.
e. Both b and d.

____ 41. An example of a positive feedback loop is

I. warmer temperatures of Earth's surface decreasing the evaporation of water.

II. water evaporation creating low-altitude clouds reflecting sunlight back into clouds.

III. water evaporation creating high-altitude clouds absorbing terrestrial energy that would have escaped the atmosphere.

- a. I only b. II only c. III only d. I and II. e. I, II and III

____ 42. Extinctions of species can be the result of

a. natural systems changing.

b. introduction of invasive species.

c. systems that are not in steady state.

d. human inputs.

e. All of these answers are correct.

____ 43. If supply is down in the face of increasing demand, we would expect to witness:

a. boycotts

b. a product shortage

c. a product surplus

d. embargo pressure

e. decreased interest rates

____ 44. Types of spending that increase the gross domestic product include all of the following EXCEPT:

a. consumer spending

b. exports

c. government spending

d. imports

e. national investments

____ 45. The process of using resources to meet the needs of both current and future generations is referred to as:

a. NAFTA

b. sustainability

c. preservation

d. remediation

e. environmental conscience

____ 46. The essentials of human survival can only be satisfied with the adequate provision of:

a. environmental gratification

b. aesthetic value

c. intrinsic satisfaction

d. ecosystem services

e. monocultures

____ 47. Which of the following is the study of how humans allocate scarce resources?

a. psychology

b. biochemistry

c. economics

d. environmental science

e. geology

____ 48. Which type of economic asset includes human knowledge and abilities?

a. natural capital

b. human capital

c. manufactured capital

d. environmental economics

e. ecological economics

____ 49. Which type of economic asset includes all goods and services that humans produce?

a. manufactured capital

b. natural capital

c. ecological economics

d. environmental economics

e. human capital

____ 50. The cost of a good or service that is not included in the economic price is considered an:

a. supply anomaly

b. externality

c. demand equilibrium

d. price gouging

e. transaction cost