GED Science

1. Many scientists believe that early in Earth's history, life began in water, aided by the energy from sunlight. Dissolved molecules probably bonded chemically with each other to produce increasingly complex organic molecules called "heterotroph aggregates." These molecules eventually developed the ability to reproduce.
Why are heterotroph aggregates not found on Earth's Moon?

A. The effect of Earth's gravity on the Moon is too weak.

B. The Moon is composed of elements not found on Earth.

C. There is no energy from sunlight on the Moon.

D. There is no liquid water on the Moon.

E. The Moon is composed of inorganic molecules.

Answer(s): D

---

2. A steel ball fits exactly into a hole in a wooden block. If the steel ball is heated, which of the following will occur?

A. The ball will be too large to fit in the hole.

B. The ball will become oval shaped.

C. The ball will shrink and be loose in the hole.

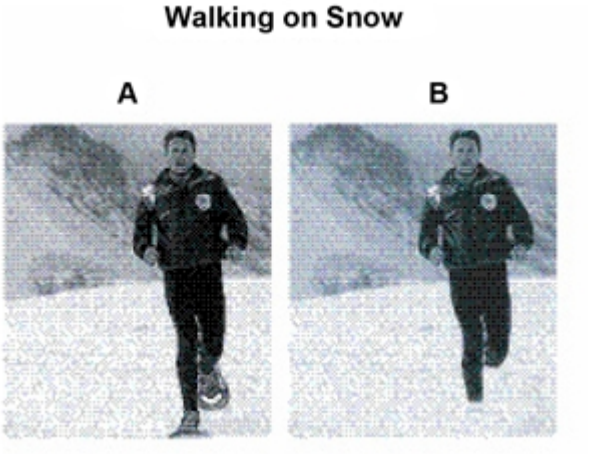
D. The ball will crack into two equal parts.

E. The ball will still fit exactly into the hole.

Answer(s): A

---

3. Pressure is explained as the force (a push or a pull) applied on a surface, divided by the total area over which the force is applied. For example, more pressure is exerted under Abby's heel wearing spiked heel shoes than under Abby's heel wearing flat heeled shoes.
In figure A, the man is walking in snow with snowshoes and does not sink into the deep snow. In figure B, the man has no snowshoes on and immediately sinks into the deep snow.



What would cause the man in figure A to sink less deeply into the snow than the man in figure B?

A. The man in figure B is much heavier than the man in figure

B. The man in figure A is much heavier than the man in figure

C. The man in figure A has his weight spread out over the area covered by the snowshoe, which lessens the pressure.

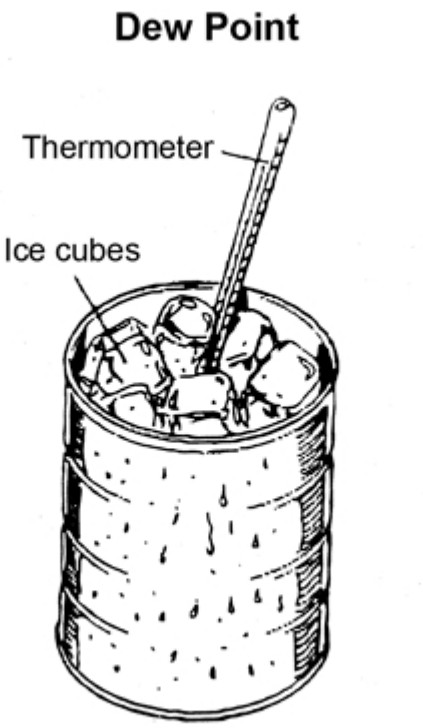
D. The man in figure B has his weight spread out over the small area covered by his running shoes, which lessens the pressure.

E. The man in figure A has his weight spread out over the area covered by the snowshoe, which increases the pressure.

Answer(s): C

---

4. Air is a mixture of gases, mostly nitrogen and oxygen, but it also contains a small amount of water vapor. Depending on its temperature, water can exist in any of the three states of matter. In the diagram at the left, water droplets have formed on the outside of the can, and the can contains pieces of ice.



Based on the information and diagram, which statement regarding the droplets on the outside of the can is the most accurate?

A. The can leaked water from the ice cubes as they melted.

B. The ice in the can cooled the air around the can, causing the water droplet formation.

C. Liquid on the can is CO2 from the exhaled air of the observers of the demonstration.

D. Many more droplets would have appeared if a styrofoam cup had been substituted for the tin can.

E. Many more droplets will form on the outside of the can on a windy day, when the air is less humid.

Answer(s): B

---

5. Sugar is produced in the sugar beet's leaves through photosynthesis and then is transported to the root. The root of a sugar beet weighs from 1.5 to 3 pounds.
For what purpose is the root of the sugar beet adapted?

A. storage of water

B. storage of sugar

C. photosynthesis

D. transport of sugar

E. production of sugar

Answer(s): B

---

6. Scientific information is always tentative and subject to further checking for accuracy. Which choice is the best way to check data obtained from a specific experiment?

A. Do research on the Internet.

B. Contact government agencies.

C. Consult with experts.

D. Repeat the experiment.

E. Do another related study.

Answer(s): D

---

7. A cell, the basic unit of living things, contains microscopic structures called organelles. A group of specialized cells of the same type forms a tissue, such as muscle or nerve tissue. An organ such as the liver is composed of different kinds of tissues that contribute to its overall function. A group of related organs form an organ system, such as the digestive system. A living organism may contain a number of organ systems working together to carry on the life functions.
Based on the information, in which category does the human heart belong?

A. cell

B. tissue

C. organ

D. organ system

E. organelle

Answer(s): C

---

8. Vertebrates, animals with backbones, are divided into the following five major groups: fish, reptiles, amphibians, birds, and mammals. Some characteristics of these groups are given in the table below.
Which statement is true if an animal lives in water, does not lay eggs, and is warm- blooded?
Exhibit:

A. a fish

B. a reptile

C. a mammal

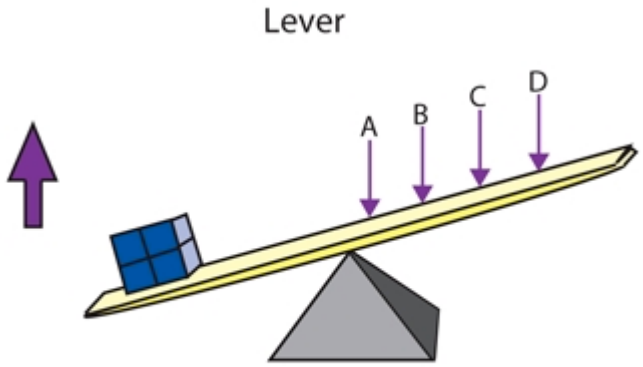
D. an amphibian

E. a bird

Answer(s): C

---

9. Simple machines reduce the amount of force needed to do work such as lifting an object. The simple machine shown below is a lever. A downward force on one end of a lever moves the other end up. A playground seesaw or a crowbar are common examples of levers.
The amount of force needed to raise the box sitting on the lever depends on where the force is applied. The more distance between the weight and the force, the smaller the force that is needed.



Source: A. Zeman and K.Kelly, *Everything You Need to Know about Science Homework* (New York: An Erving Place Press Book, 1994), 106.

In the diagram on the left, where would the LEAST amount of force be needed to move the weighted box?

A. at point A

B. at point B

C. at point C

D. at point D

E. next to the box

Answer(s): D

---

10. If 1970--1997 trends continue, which statement could be predicted from the bar graph?

A. Use of oil for energy production will decrease.

B. Use of hydroelectric energy will increase.

C. Use of coal for energy production will increase.

D. Use of nuclear power will remain the same.

E. Total energy use will decrease in the future.

Answer(s): C

---

11. Uma wanted to test her hypothesis that fescue grass grows best under red light. Independent variables, such as size of fescue grass plants, soil type, number of plants, and length of exposure to light were kept identical for both the experimental and control groups. Uma exposed the experimental group to red, green, and blue light and the control group only to sunlight. She took daily measurements of plant height for the next three weeks.
During the second week, Uma noticed that 8 of the 10 plants that she had exposed to red light looked a little wilted. She increased the daily water amount for these 8 plants. At the end of the experiment, she concluded that fescue grass grows best under red light.
What is a possible flaw in Uma's experiment?

A. keep track of plant growth under each treatment

B. plant all samples in the same type of soil

C. plant an equal number of plants under each treatment

D. monitor the plants in the control group

E. give equal amounts of water to all plants

Answer(s): E

---

12. A study in Florida has revealed that the sex characteristic of an alligator is determined by temperature. Alligator eggs incubated at 30° C (86° F) hatched into female offspring. Eggs incubated at 34° C (93° F) resulted in male offspring. At the latter temperature, androgenic hormones are produced inside the eggs, resulting in the formation of male sex organs. At a temperature of 30° C, estrogenic hormones are produced, leading to the formation of female sex organs.
Based on the information above, which statement is most correct?

A. If the eggs are laid in a nest that is 4° C warmer than the ideal temperature for estrogen production, the offspring will be male.

B. When the eggs are laid in the open where sunlight can bake them, the offspring will be female.

C. Warmer temperatures are required to produce hormones for female characteristics than to produce hormones for male characteristics.

D. If the eggs are laid in a cool, shady place, the offspring will be male.

E. Males hatch only when the Sun is shining.

Answer(s): A

---

13. The disposal of solid wastes is a growing problem. One solution is to bury waste between layers of earth to build up low-lying land. Another solution is to burn waste to produce energy. Which information is needed most to select the best method for maintaining a clean environment?

A. the cost of recycling materials instead of burning

B. the amount of solid waste disposal each year

C. the amount of pollutants produced by each procedure

D. the length of time each procedure takes to complete

E. the laws pertaining to each procedure

Answer(s): C

---

14. Work is done on an object when a force is applied, causing the object to move.

Plant Transpiration Rate

Plants	Liters/day
Cactus	0.02
Rose bush	1.30
Dogwood	21.00

Which example best illustrates this scientific idea?

A. hitting a ball with a bat

B. sitting on a chair

C. standing in place

D. holding a box

E. pushing against a wall

Answer(s): A

---

15. Which statement correctly describes distilled water?

A. is the same as spring water

B. has no home use

C. is the same as hard water

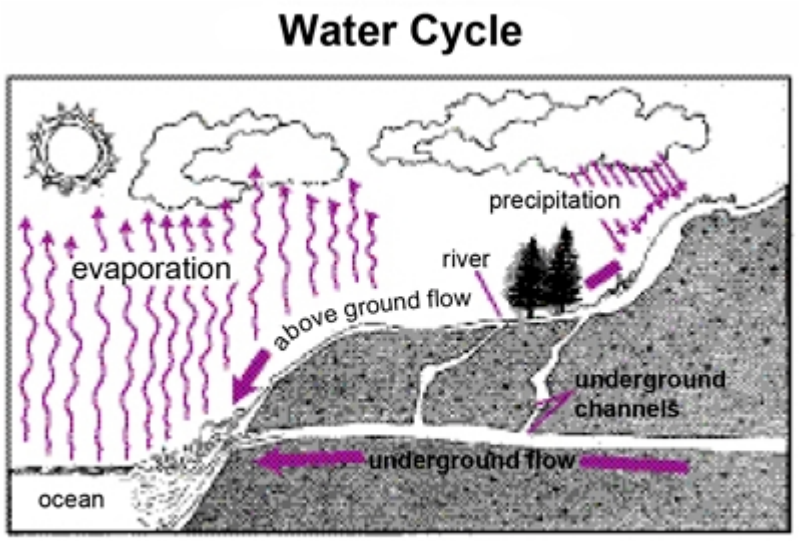
D. is the same as tap water

E. consists primarily of water molecules

Answer(s): E

---

16. Water on Earth is found in many places. It is found in the atmosphere, the ground, oceans, lakes, rivers, and in the polar ice caps. The continuous movement of water from the atmosphere to Earth's surface and back to the atmosphere, called the water cycle, has four stages: storage on Earth, evaporation from Earth, precipitation from the atmosphere, and runoff on the surface of Earth.



Source: Sharing the Earth (ISIS, Ginn and Company, 1980), 26.

Based on the information and diagram, where would most of the storage of water on Earth occur?

A. rocks

B. ocean

C. trees

D. top layer of sandy soil

E. ground cover

Answer(s): B

---

17. Scientists' studies have revealed that health is tied very closely to diet. Health organizations estimate that more than one-third of all cancer is caused by food and drink. The health of the heart and circulatory system is linked to these factors and to the amount of cholesterol in the bloodstream.
Cholesterol is a fatty, waxy substance. Although a certain amount is required for good health, excessive amounts of cholesterol cause arteries to clog.
Which meal and beverage is best for a person who is trying to reduce his or her cholesterol level?

A. cheese sticks, pears, salad, milk

B. hamburger, french fries, cola

C. pinto beans, plain baked potato, apples, tea

D. steak, green beans, rice, coffee

E. pepperoni pizza, salad, fruit cocktail, cola

Answer(s): C

---

18. Exhibit:

Individuals today are heirs to a host of inherited imperfections. It has been estimated that each individual carries between 5 and 10 potentially harmful genes in his or her cells. These DNA errors can be passed on to a person's offspring along with other traits, such as hair color or ear shape.

The worst genetic mistakes are eliminated naturally before birth. This usually occurs because the abnormal fertilized egg is prevented from developing in the uterus. However, as many as 5 out of every 100 babies born have some genetic defect. The most obvious deformities result from chromosomal abnormalities.

Most people are unaware that they are carrying a defective gene. They may learn about it only after they have a child who suffers from the disease. In the future, the medical science community hopes to develop techniques for repairing the imperfect genes.

According to the article, about 5 percent of all children born have genes containing which component?

A. harmful viruses that produce disease

B. information that came from one parent only

C. no genetic information

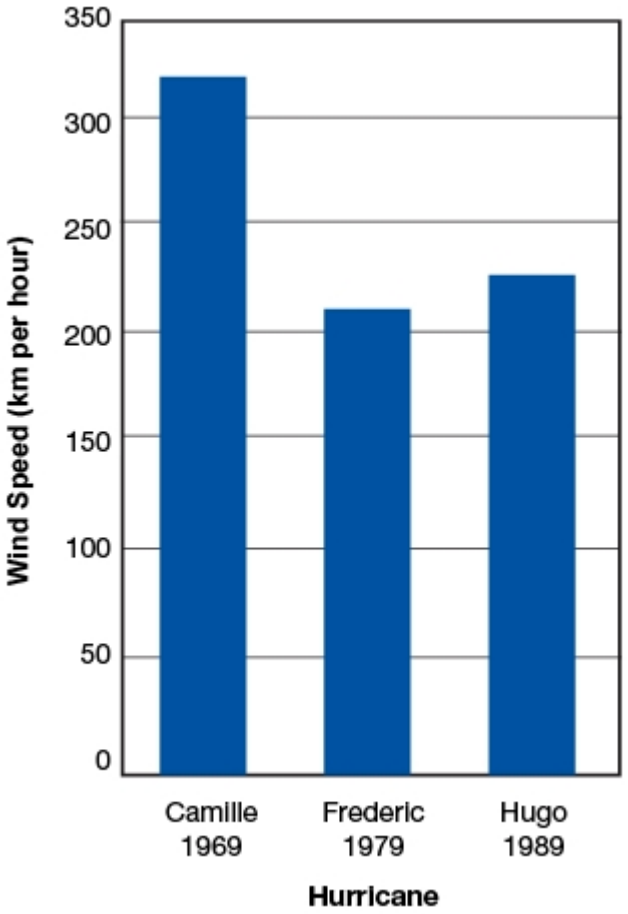
D. information for red hair

E. errors that have produced abnormalities

Answer(s): E

---

19. Hurricanes are huge storms that form over a warm ocean. The center of a hurricane is the calmest region and is called the "eye." The strongest winds and heaviest rains are in an areacalled the "eye wall." The graph at the left represents the top wind speeds in the eye wall of three hurricanes that hit the United States.



Which statement is the best interpretation of the graph?

A. Hurricane Camille had the capacity to do the most damage.

B. The combined wind speeds of Hurricanes Frederic and Hugo were less than Hurricane Camille's top wind speed.

C. The eye wall of Hurricane Hugo had lower recorded wind speeds than Hurricane Frederic.

D. Hurricane Frederic may have formed in the Atlantic Ocean.

E. Hurricane Frederic was the second hurricane of the season.

Answer(s): A

20. Scientists who study the inheritance of characteristics from one generation to the next have used organisms such as peas, fruit flies, mold, and mice. These organisms were chosen because they all share some common features, such as being small, producing many offspring, and maturing rather quickly.
Which of the following organisms would be the BEST choice for a controlled study of inheritance from generation to generation?

A. elephants

B. corn

C. deer

D. elm trees

E. whales

Answer(s): B