GED Science Sample Test

Section: GED Science Exams • **Total Questions:** 10 • **Format:** Verified Q&A

1. Two people are standing at the edge of a high cliff. One person throws a rock horizontally off the cliff. Which uncontrolled part of this investigation can prevent the rocks from hitting the ground at the same time?

> *Salt water causes marine ecosystems to be very different from freshwater ecosystems. Organisms in both types of ecosystems are affected by the freezing and melting of ice. An experiment was conducted to test the hypothesis that ice melts faster in salt water than in fresh water. Ice cubes made of fresh water were placed into cups containing either fresh water or salt water. Various data were recorded, and the energy released by each melting ice cube was calculated from the data. The table shows the results for each cup.*

(A) gravity
(B) mass of the rocks
(C) air resistance
(D) strength of the person

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2. The equation for photosynthesis is often written as shown below. Based on this equation, what does the triangle symbol represent?

(A) oxygen
(B) chloroplast
(C) heat
(D) light

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3. Which statement correctly summarizes this information?

> *Mr. Scott has been diagnosed with hemochromatosis. He reads the following information on medical websites. Hereditary hemochromatosis is a genetic disease that alters the body's ability to regulate iron absorption. Common symptoms include tiredness, joint pain, abdominal pain, skin darkening, hair loss, and weakness.*
> *Hereditary hemochromatosis is usually caused by a common gene mutation known as C282Y. But other mutations that cause this disease have also been Identified, including one known as H63D.*
> *A child who inherits two copies of a mutated gene (one from each parent) is highly likely to develop the disease. However, not all people who have two mutated copies develop signs and symptoms of hereditary hemochromatosis.*
> *People who inherit only one copy of the mutated gene are carriers, but usually have no symptoms, or have very mild symptoms since one correct copy of the gene appears to adequately regulate iron absorption.*

(A) Hemochromatosis is a dominant genetic disease caused by a single mutation.
(B) Hemochromatosis is a recessive genetic disease, but is caused by a lack of iron.
(C) Hemochromatosis is a recessive genetic disease, but the expression differs in individuals.
(D) Hemochromatosis is a dominant genetic disease that can be caused by several different alleles.

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4. A scientist studying solubility increased the temperature of a constant volume of water and measured the amount of sugar that dissolved into solution... Which of the following describes the relationship between the independent and dependent variables?

(A) As the amount of dissolved sugar increased, the temperature of the water decreased.
(B) As the water temperature increased, the amount of dissolved sugar increased.
(C) As the amount of dissolved sugar increased, the amount of water remained constant.
(D) As the water temperature increased, the amount of water decreased.

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5. Limestone and marble are often used in buildings. Both types of rock contain calcium carbonate, which is sensitive to chemical weathering by acids. A scientist conducted an experiment to test the effect of acid strength on calcium carbonate... Which change would reduce the possibility of error in the experiment?

(A) performing the experiment with a different acid in the solution
(B) performing multiple trials for each solution pH
(C) using more of the acidic solution
(D) using a solution with a pH below 3.00

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6. The roller coaster diagram shows a set of cars moving downward from position 1 to position 2. As the cars travel from position 1 toward position 2, their...

(A) gravitational potential energy; total energy
(B) kinetic energy; gravitational potential energy
(C) total energy; kinetic energy
(D) gravitational potential energy; kinetic energy

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7. What natural process is required to connect the ice core data to the Tunguska Event?

> *In 1908, a huge explosion known as the Tunguska Event flattened trees for miles across a remote area of Russia. Scientists now think an asteroid or a comet entered Earth's atmosphere, causing the explosion. Ice core samples from an ice sheet in Greenland reveal signs of this enormous explosion: deposits of ammonia equal to 5 micrograms per square meter. But how exactly did these telltale molecules form?*
> *• Hypothesis 1: The Tunguska explosion started forest fires, known to produce ammonia. Data indicates that such fires would have deposited an amount of ammonia over the Northern Hemisphere equaling 0.1 micrograms per square meter.*
> *• Hypothesis 2: Up to 1% of the object's mass might have been ammonia, and this ammonia might have spread over the Northern Hemisphere. Approximately 0.00005 micrograms of ammonia per square meter are predicted by this hypothesis.*
> *• Hypothesis 3: Since many compounds form in the presence of high heat, the ammonia could have been produced as the falling object heated the atmosphere. However, heat alone is not sufficient to cause the formation of ammonia.*
> *• Hypothesis 4: As it passed through the atmosphere, the object pushed air in front of it at high pressure. Nitrogen and hydrogen combine to form ammonia under similar pressure. Considering the amount of hydrogen expected in a comet and the available nitrogen in Earth's atmosphere, approximately 5 micrograms of ammonia per square meter would have been deposited under this hypothesis.*

(A) the cycling of carbon in forest fires

(B) the interaction of comets with the solar wind

(C) the movement of glaciers due to gravity

(D) the constant mixing of the atmosphere

8. Scientists can indirectly observe temperatures and insolation (the Intensity or direct solar radiation) in the distant past by measuring oxygen isotope ratios in ice cores collected from polar ice. The graph presents data for the period from what ta200.000 years ago. What time period in the graph shows the greatest correlation between Milankovitch cycles and climate?

> *Various species of birds from the genus Agaporis possess differing behaviors. These behaviors differ in a way that can be used to infer how the species are related and how they have evolved over time.*
> *For example, the three lovebird species considered to be the most primitive all build simple nests in preexisting cavities. The three middle species all build elaborate nests with tops, and one even digs out a cavity for the nest. The four modern species build cuplike nests: These nests are more complex than those built by the primitive species but less complex than those built by the middle species.*
> *William Dilger conducted an investigation to show that the nest-building behaviors of these birds were genetic rather than learned behaviors. In his investigation, Dilger used two different species of lovebird that readily mate with each other-Fischer's lovebird and the peach-faced lovebird. Fischer's lovebird is a species of moder lovebird while the peach-faced lovebird is a slightly more primitive species.*
> *Fischer's lovebird carries small pieces of nesting material in its beak. The small size of the nesting material is the reason for the simpler cuplike nests of Fischer's lovebird. The peach-faced lovebird cuts long strips of nesting material, which is then tucked into the feathers on the back of the bird. These long strips of nesting material will often fall out of the bird's feathers. However, the long strips of material allow the peach-faced lovebird to build an elaborate nest.*
> *The hybrid offspring of these two species has difficulty building nests. The hybrid offspring will cut long strips of material like its peach-faced parent. However, the hybrid offspring will attempt to carry the material in its beak and have difficulty flying. If it does attempt to place the material in the feathers of its back, the material falls out because the bird does not properly secure the material in its feathers.*

(A) 140,000-160,000 years ago

(B) 120,000-140,000 years ago

(C) 100,000-120,000 years ago

(D) 160,000-180,000 years ago

9. A diagram of a PV cell being exposed to sunlight is shown below. Click on the labels you want to select and drag them into the boxes to show the components of the PV cell.

> *Solar panels capture sunlight and convert it to electricity, using photovoltaic (PV) cells. Each PV cell has several components, including two layers of silicon. One of these layers is injected with phosphorus, which creates an excess of electrons in the layer compared to pure silicon. The other layer is injected with boron, which causes the layer to have fewer electrons than pure silicon. When the two different silicon layers are put together, electrons move from the phosphorus-injected layer to the boron- Injected layer. This gives the boron-injected layer a negative charge where the two layers meet, creating an electric field at the junction of the layers. As sunlight hits a PV cell, electrons in each silicon layer become excited and move around the layer. When any electron reaches the junction between the two layers, the electric field pushes the electron toward metal conductor strips on the outside of the cell, generating electricity.*

(A) Phosphorus-injected layer

(B) Boron-injected layer

(C) Electric field

(D) Energy

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10. Which statement from the passage refutes Lavoisier's idea that heat is a fluid that leaves a hot substance and travels to a colder substance?

> *Read the brief passage about heat.*
> *After Benjamin Franklin argued that electricity was a fluid, the scientific community started discussing other phenomena as being related to fluids. In 1787, Lavoisier developed the idea that heat was an invisible fluid called a caloric fluid. This fluid would leave a hot substance and travel to a colder substance.*
> *Later, in 1783, Lavoisier demonstrated that oxygen was required for combustion. In 1798, Count Rumford observed that the process of boring out cannons from brass cylinders continuously produced heat. He also found the brass filings produced from the drilling process contained enough heat to boil water while retaining their weight.*
> *In the early 1940s, James Joule discovered that heat could be produced by moving a wire through a magnetic field.*

(A) He also found the brass filings produced from the drilling process contained enough heat to boil water while retaining their weight.

(B) James Joule discovered that heat could be produced by moving a wire through a magnetic field.

(C) Lavoisier demonstrated that oxygen was required for combustion.

(D) Count Rumford observed that the process of boring out cannons from brass cylinders continuously produced heat.
