



1. William Smith's study of these objects led him to posit the "principle of faunal succession." Edward Cope and Othniel Marsh entered an extremely competitive "war" to hunt for these things. These objects were used as evidence of "catastrophism" by one of the earliest people to study them, George Cuvier (COO-vee-ay). Studied in paleontology, they are sometimes captured in resin or created through the permineralization of bones. For 10 points, name these remains of plants and animals used to reconstruct extinct animals like dinosaurs.

ANSWER: **fossils** [or **fossil** layers; or **bones**]

080-12-70-06101

2. This region's flag displays a bauhinia flower with five petals, each with a star in the middle, against a red background. Its tourist attractions include the view from Victoria Peak and rides on the Star Ferry, which travels to Kowloon. This region's constitution, or Basic Law, allows it to maintain its capitalist system until 2047 under the "one country, two systems" policy. For 10 points, name this Special Administrative Region on the south coast of China, which was ceded to the PRC in 1997.

ANSWER: **Hong Kong**, China

080-12-70-06102

3. Aretes (ah-RETS) can be formed on the backwall where two of these objects meet. These objects can be found in bowl-shaped valleys called cirques. Unconsolidated debris found at the snout of these objects are called terminal moraines and mark their furthest advance. They can also deposit sediment in a tear-drop shape, which are known as drumlins. These objects can calve to form icebergs and they are the largest reservoir of freshwater on Earth. For 10 points, identify these large, persistent bodies of ice.

ANSWER: **glaciers**

066-12-70-06103

4. This country's leader Marcelo Caetano (kai-TAH-noh) was overthrown in the 1974 Carnation Revolution. Caetano had carried on the *Estado Novo* regime established in this country by Antonio Salazar. This country was led by Braganza and Aviz dynasties. One of its princes was nicknamed Henry the Navigator for his contributions to naval exploration. For 10 points, name this home country of explorers Bartolomeu Dias and Vasco da Gama that colonized Brazil.

ANSWER: **Portugal** [or **Portuguese Republic**; or **Republica Portuguesa**]

015-12-70-06104

5. The speaker of this poem tells the addressee, "An hundred years should go to praise thine eyes, and on thy forehead gaze." The second of this poem's three stanzas concludes, "The grave's a fine and private place, but none I think do there embrace." Concluding, "though we cannot make our sun stand still, yet we will make him run," this poem states that the addressee's reluctance to go to bed would not be problematic "had we but world enough, and time." For 10 points, name this seduction poem by Andrew Marvell.

ANSWER: "**To His Coy Mistress**"

014-12-70-06105

6. The phenomenon modeled by this law cannot maintain a stable equilibrium according to Earnshaw's theorem, and a screened version of its potential was developed by Yukawa. Integrating this law generates spherical equipotential surfaces. The constant in it is equal to one over four pi times the permittivity of free space. This law is an electric analogue of Newton's law of universal gravitation. For 10 points, identify this law that gives the force between two point charges as the product of the charges times a constant, k, over the square of the distance.

ANSWER: **Coulomb's** (COO-lawm's) law

048-12-70-06106

7. This goddess brought a statue of Galatea to life for the sculptor Pygmalion. She fought with Persephone over the beautiful Adonis. She became the mother of Aeneas after falling in love with Anchises. She won a golden apple after bribing Paris by offering him the most beautiful woman in the world, sparking the Trojan War. This wife of Hephaestus was born from the sea foam caused by the castration of Uranus. For 10 points, name this Greek goddess of love.

ANSWER: **Aphrodite** [or **Venus**]

015-12-70-06107

8. This man collaborated with George Johnston to push the Virginia Stamp Act Resolutions through the House of Burgesses in 1765. During the Revolutionary War, he served as the first governor of Virginia. This man's most famous action is relayed in an account by William Wirt and took place at St. John's Church in Richmond. For 10 points, name this revolutionary who declared "I know not what course others may take; but as for me, give me liberty or give me death!"

ANSWER: Patrick **Henry**

015-12-70-06108

9. Kimura gave primacy to the force of this effect in his "neutral theory." In this phenomenon, alleles can undergo "fixation" despite having deleterious effects. This phenomenon can occur due to a massive natural disaster in the "bottleneck effect," or when a smaller population separates from a larger population in the "founder effect." For 10 points, name this effect in which chance occurrences cause rapid evolution in a small population.

ANSWER: genetic **drift** [or the **founder effect** before it is read; or the **bottleneck effect** before it is read]

080-12-70-06109

10. This team acquired Wayne Gretzky from the Edmonton Oilers in 1988, the same season in which he won his ninth Hart Trophy as the league's Most Valuable Player. In 2012, this team defeated the top-seeded Vancouver Canucks in the opening playoff round and won the Western Conference championship for the second time in their history. After the season, this team re-signed its goalie, Jonathan Quick, to a ten-year contract. For 10 points, name this National Hockey League team in the Pacific division, which defeated the New Jersey Devils to win the 2012 Stanley Cup.

ANSWER: Los Angeles **Kings** [or **Los Angeles Kings** or **LA Kings**]

194-12-70-06110

11. The speaker of this poem prophesizes how "some hoary-headed swain" will say of him, "One morn I missed him on the customed hill," implying the speaker's death. After defending the merits of a rural lifestyle, the speaker notes, "Some mute inglorious Milton here may rest, some Cromwell guiltless of his country's blood." In this poem's first stanza, the world is left "to darkness and to me" as "the curfew tolls the knell of parting day" and the speaker sits in the title location. For 10 points, name this elegy by Thomas Gray.

ANSWER: "**Elegy Written in a Country Churchyard**"

014-12-70-06111

12. This man was stripped of command after implicating Ulysses Grant's brother Orville in a kickback scheme. He led the Michigan Brigade, or "Wolverines," in the Civil War despite finishing last in his class at West Point. As leader of the Seventh Cavalry Regiment, he divided his command with Marcus Reno and Frederick Benteen. In 1876, his forces were crushed by an army of Lakota Sioux under Sitting Bull and Crazy Horse. For 10 points, name this soldier who made his "Last Stand" at Little Big Horn.

ANSWER: George Armstrong **Custer**

015-12-70-06112

13. This man's name is used as an alternate name for the atomic mass unit, especially when describing proteins. According to one law of his, the masses of an element which go into forming two different compounds with another element will make a ratio of small whole numbers. This formulator of the law of multiple proportions also names a law for computing the total pressure of a system with multiple components. For 10 points, identify this namesake of a law of partial pressures, an English chemist who proposed the atomic theory.

ANSWER: John **Dalton**

132-12-70-06113

14. This author created a character who witnesses the suicide of the Jesuit Leo Naphta after an aborted duel and weeps upon seeing the ghost of his cousin Joachim Ziemssen. Another character created by this author obsesses over the Polish boy Tazio while vacationing in a city stricken with cholera. Those aforementioned characters are the engineer Hans Castorp and the writer Gustav von Aschenbach. For 10 points, name German novelist of *The Magic Mountain* and *Death in Venice*.

ANSWER: Thomas **Mann**

014-12-70-06114

15. In one ballet by this composer set at the Shrovetide Fair, the Moor hacks to death the title puppet, who was brought to life by his wizard owner. This composer of *Petrushka* also composed a ballet in which Kashchei the Immortal is defeated by Prince Ivan with the help of the title magical creature. This composer sparked riots with the premiere of his ballet in which a girl dances herself to death in a pagan ritual. For 10 points, name this 20th-century Russian composer of *The Firebird* and *The Rite of Spring*.

ANSWER: Igor **Stravinsky**

014-12-70-06115



1A. What author of *Bonfire of the Vanities* wrote about Ken Kesey and LSD in *The Electric Kool-Aid Acid Test*?

ANSWER: Tom **Wolfe** [or Thomas Kennerly **Wolfe**; do not accept "Thomas Wolfe"]

1B. What Canadian singer collaborated with Owl City on the 2012 hit "Good Time"?

ANSWER: Carly Rae **Jepsen**

2A. What wife of George Stieglitz is known for her suggestive paintings of dried bones and flowers?

ANSWER: Georgia **O'Keefe**

2B. The third law of thermodynamics concerns what lowest possible temperature, at which molecular kinetic energy is minimized?

ANSWER: **absolute zero** [or **zero Kelvins**]

3A. Not counting its constant multiples or zero, what is the only function to be equal to its own derivative?

ANSWER: **exponential** function [or **e to the** power of **x**]

3B. What Arabic word is used to name the pilgrimage to Mecca every able Muslim must take?

ANSWER: **Hajj**

4A. What Victor Hugo novel follows the ex-convict Jean Valjean, who raises Fantine's child Cosette as his own?

ANSWER: *Les* **Miserables** (LAY mee-zair-AHB) [or *The* **Miserable Ones**]

4B. The TATA box is commonly the site of what process in which mRNA is synthesized from DNA?

ANSWER: **transcription**

5A. This is a 20-second calculation question. Consider a triangle with angles of x , $3x$, and $5x$ degrees. What is the value of x ?

ANSWER: **20** degrees

5B. This is a 20-second calculation question. If a cube has surface area 54 square inches, what is its volume?

ANSWER: **27 cubic inches**

6A. What 20th-century Italian playwright wrote metatheatrical works such as *Tonight We Improvise* and *Six Characters in Search of an Author*?

ANSWER: Luigi **Pirandello**

6B. What Englishman's designs for "difference engines" are considered the precursors for modern computers, earning him the title "Father of the Computer"?

ANSWER: Charles **Babbage**

7A. This is a 30-second calculation question. Give the zeroes of the function $f(x) = x^3 + 2x^2 - 4x - 8$.

ANSWER: $x = \underline{2}$ and $x = \underline{-2}$ [or $x = \underline{2}$, $x = \underline{-2}$, and $x = \underline{-2}$]

7B. This is a 30-second calculation question. After taking four quizzes, a student's average score is 90 percent. Assuming the highest possible quiz grade is 100, what is her highest possible average after taking the fifth quiz?

ANSWER: **92** percent [or **0.92**]

8A. British singer Adele recorded the theme to what 2012 James Bond film?

ANSWER: **Skyfall**

8B. What country's military dictator Leopoldo Galtieri was overthrown following this country's loss to the UK in the Falklands War?

ANSWER: **Argentina** [or **Argentine Republic**; or Republica **Argentina**]

9A. What American state is the home of the cities Las Cruces, Carlsbad, and Alamogordo?

ANSWER: **New Mexico**

9B. What is the name of the massive world tree in Norse mythology?

ANSWER: **Yggdrasil**

10A. Name the Norwegian composer who included "In the Hall of the Mountain King" and "Morning Mood" in his incidental music to *Peer Gynt*.

ANSWER: Edvard **Grieg**

10B. What English physicist conducted a double-slit experiment demonstrating the wave-particle duality of light?

ANSWER: Thomas **Young**



1. This man met his business partner, Phineas Miller, after coming to live at Mulberry Grove, the plantation of Nathanael Greene's widow. This man earned one contract by disassembling and assembling ten guns in front of Congress, demonstrating the effectiveness of interchangeable parts. His most significant invention used hooks and a grid to separate seeds from fibers. For 10 points, name this man who contributed to the growth of slavery by inventing the cotton gin.

ANSWER: Eli **Whitney**

015-12-70-06117

2. A character in Paul Auster's *The Brooklyn Follies* tries to forge the first page of this novel. In it, Governor Bellingham is unaware that his sister Mistress Hibbins engages the occult. One character in it is told that she was plucked from the rose bush that grew by the prison door. Before Roger Chillingworth is revealed to be alive, the protagonist of this novel is imprisoned for having the illegitimate child Pearl with the minister Arthur Dimmesdale. For 10 points, name this Nathaniel Hawthorne novel about the adultery of Hester Prynne.

ANSWER: *The **Scarlet Letter***

015-12-70-06118

3. This politician's two main contributions to his party's ideology have been the Scientific Development Concept and the Harmonious Socialist Society, both of which augment his predecessor's *Three Represents*. Xi (SHE) Jinping will likely succeed this former leader of his country's Communist Youth League at the 18th Party Congress at the same time as Li Keqiang (kuh-CHANG) replaces this man's head of government, Wen Jiabao. For 10 points, name this successor to Jiang Zemin (JANG tsu-min) and current President of China.

ANSWER: **Hu** Jintao

153-12-70-06119

4. These languages have, in addition to "voiced" and "voiceless" consonants, "emphatic" consonants pronounced deep in the throat. Verbs and nouns in these languages are formed by inserting vowels into roots of three consonants. The only language in this group written in the Latin script is Maltese. The second most-spoken language in this group is the official language of Ethiopia, Amharic; it also includes the dead languages Akkadian, Phoenician, and Aramaic. For 10 points, name this set of languages that includes Hebrew and Arabic.

ANSWER: **Semitic** languages [prompt on **Afro-Asiatic** languages]

080-12-70-06120

5. This is the fraction of intensity of unpolarized light transferred through an ideal linear polarizer. In a double-slit experiment, this number is added to the integer n and the quantity is multiplied by λ to find the condition for destructive interference. Multiplying this number by the radius of curvature of a spherical lens gives the focal length. A medium of refractive index 2 would have light travelling through it at this fraction of c . For 10 points, name this figure, which is also multiplied by $m v$ squared to give kinetic energy.

ANSWER: **1/2** [or **one-half** or **0.5** or **50%**]

048-12-70-06121

6. One of these compounds is abbreviated IPA. Consumption of the simplest of these compounds can result in blindness after it is metabolized to formaldehyde and then formic acid. They can come in primary, secondary and tertiary types and are characterized by a hydroxyl group attached to a hydrocarbon. An anaerobic fermentation done by yeast produces one of these compounds. For 10 points, identify this group of compounds whose simplest examples are methanol and ethanol.

ANSWER: **alcohols**

066-12-70-06122

7. Spencer Tucker called this country "The Neutral Ally" for its close relations with the UK during World War I. During World War II, this country was occupied by Germany, and some of its citizens wore an "H7" to support their exiled king, Haakon VII. Hitler placed Vidkun Quisling in charge of this country, which at various times has been united with Iceland, Denmark, and Sweden. For 10 points, name this Scandinavian country where Bill Clinton helped mediate the Oslo Accords.

ANSWER: Kingdom of **Norway** [or Kongeriket **Norge**]

015-12-70-06123

8. For an electron, the ratio of the coefficient of this process and mobility is equal to that of holes as a result of Einstein's relation. The simplest model of this process is Brownian motion. The flux of this process is related to the concentration gradient by Fick's first law. When this process occurs over a semipermeable membrane it is called osmosis. For 10 points, identify this passive transport process that occurs via random thermal motion, resulting in no bulk motion.

ANSWER: **diffusion**

066-12-70-06124

9. This man lost to Jesse Jackson and Michael Dukakis in the Democratic primaries of 1988. His wife Tipper has led campaigns against obscenity in music. This politician lost one election after Katherine Harris' decision not to recount was upheld by the Supreme Court. He served as Vice President from 1993 to 2001. This Nobel Peace Prize-winner was the subject of *An Inconvenient Truth*. For 10 points, name this Democrat who lost to George Bush in 2000.

ANSWER: Al **Gore** [or Albert Arnold **Gore**, Jr.]

015-12-70-06125

10. This song was the basis for Germany's first national anthem, Norway's royal anthem, and Lichtenstein's current national anthem. This song's lyrics declare, "Confound their politics, frustrate their knavish tricks" after a request to "scatter her enemies;" it also expresses desire that the title character be "happy and glorious, long to reign over us." Samuel Smith used its music as the tune for "My Country 'Tis of Thee." For 10 points, name this national anthem of the United Kingdom, which requests a blessing on Elizabeth II.

ANSWER: "**God Save the Queen**" [or "**God Save the King**"]

080-12-70-06126

11. This sculptor used a single block of marble to carve a rectangular depiction of two figures embracing, and another of his works consists of a stack of seventeen rhomboidal units. This sculptor of *The Endless Column* made seven marble copies and nine bronze copies of an abstract sculpture of which the smooth and elongated form represents the motion of the title animal. For 10 points, name this Romanian sculptor of *Bird in Space*.

ANSWER: Constantin **Brancusi**

014-12-70-06127

12. This thinker studied the mixture of features from patrilineal and matrilineal cultures, along with the practice of potlatch, in the Kwakiutl tribes. He attacked pseudoscientific theories of racial superiority and advocated the methodology of cultural relativism in his book *The Mind of Primitive Man*. He founded the anthropology department at Columbia University, where he taught Margaret Mead and Ruth Benedict. For 10 points, name this German-born “Father of American Anthropology.”

ANSWER: Franz **Boas**

014-12-70-06128

13. The protagonist of this work believes that he is still a man because he “performed his mistakes in the dark.” That protagonist finds a dead body in a forest soon after throwing a pine cone at a squirrel. One group in this novel compared to a bunch of mule drivers. Wilson, Jim Conklin, and the “tattered soldier” are members of the 304th in this novel, which follows Henry Fleming’s shameful retreat and then his redemption. For 10 points, name this Stephen Crane novel about the American Civil War.

ANSWER: *The **Red Badge of Courage***

015-12-70-06129

14. This state's independently-elected Lieutenant Governor is president of its Senate and thus more powerful than its actual governor. Abigail Fisher's lawsuit against the affirmative action policy of one of its universities will be heard by the Supreme Court in October. 234 executions in this state have been approved by its current governor, who voiced his distaste for gays serving in the military in the "Strong" ad. For 10 points, name this state whose governors have included Rick Perry and George W. Bush.

ANSWER: **Texas**

080-12-70-06130

15. This poet described a woman who “will be false, ere I come, to two, or three” in a song beginning, “Go and catch a falling star.” One of his poems tells the addressee, “Thou’rt slave to Fate, chance, kings, and desperate men, and dost with poison, war, and sickness dwell,” insisting, “though some have called thee mighty and dreadful...thou art not so.” For 10 points, name this metaphysical poet, one of whose *Holy Sonnets* begins, “Death, be not proud.”

ANSWER: John **Donne**

014-12-70-06131



1. This country was led by the ten-year-old female "king" Jadwiga (yahd-VEE-guh), who descended from its Piast Dynasty. In the late eighteenth century, this country was partitioned three times by surrounding powers. From 1569 to 1795, this country formed a commonwealth with Lithuania. On September 1, 1939, Germany invaded this country in a move soon bolstered by a simultaneous Soviet attack. For 10 points, name this country that was the location of the 1943 Warsaw ghetto uprising.

ANSWER: Republic of **Poland** [or Rzeczpospolita **Polska**]

015-12-70-06132

2. The protagonist of this play exclaims, "See, see where Christ's blood streams in the firmament!" in his final soliloquy. The protagonist declares, "O, thou art fairer than the evening air clad in the beauty of a thousand stars" and asks, "Was this the face that launched a thousand ships?" upon meeting Helen of Troy, after which he is dragged to hell. For 10 points, name this Elizabethan tragedy in which a scholar sells his soul to Mephistopheles, a work by Christopher Marlowe.

ANSWER: ***Doctor Faustus***

014-12-70-06133

3. These compounds are characterized by a structure of seventeen carbon atoms in four rings, forming a namesake "nucleus" of gonane, which is the simplest of these compounds. Some of these compounds are used to reduce inflammation and suppress the immune system, which can treat rheumatoid arthritis; examples include prednisone and cortisone. Hormonal examples of them include estradiol, an estrogen, and testosterone, an androgen. For 10 points, tissue and muscle growth can be stimulated by the anabolic form of what compounds?

ANSWER: **steroids**

066-12-70-06134

4. In bacteria, this organelle binds to the Shine-Delgarno sequence. The elongation factor EF-Tu brings molecules to this organelle, which contains the A, P, and E sites. In eukaryotes, this organelle is composed of a large 60S subunit and a small 40S subunit. These structures can be "free" in the cytosol or "bound" to the surface of the rough endoplasmic reticulum. For 10 points, name these complexes made of RNA, the organelles responsible for protein synthesis.

ANSWER: **ribosomes**

080-12-70-06135

5. The characters in this story believe their possessions would make King Solomon and the Queen of Sheba jealous. One of its characters worries that she will look like a Coney Island chorus girl after visiting Madame Sofronie's shop. One of the stories in *The Four Million*, this work is set at the Dillingham Young apartment. This story ends with the realization that Jim has sold his watch to Della combs while Della has sold her hair to buy Jim a watch chain. For 10 points, name this Christmas story by O. Henry.

ANSWER: "The ***Gift of the Magi***"

015-12-70-06136

This is a calculation question. Using a double angle identity or any other method, calculate $2\sin(75)\cos(75)$ (2 times the sine of 75 degrees times the cosine of 75 degrees).

ANSWER: **1/2** [or **0.5**]

In economics, price is determined by the intersection of the upward and downward-sloping curves representing what pair of concepts?

ANSWER: **supply** and **demand**