



1. The reproductive sites of these organisms can be found inside conceptacles. One member of this group can cause root and crown rot and was the causative agent of the Irish potato famine. Agar was found in the cell walls of one type of these organisms. Another type of them can exist in symbiotic relationships with fungi known as lichen. Overgrowth of these organisms can cause red tides in their namesake blooms. For 10 points, name these protists, which come in brown, red, and green types, and carry out photosynthesis.

ANSWER: algae

140-12-71-10101

2. This country's independence movement was targeted by the Council of Blood run by the Duke of Alba. This nation was home to the world's first stock exchange, and was briefly replaced by Napoleon's Batavian Republic. Founded after the Eighty Years' War, its heavily-Calvinist republic was composed of seven United Provinces that broke off under William I of Orange from Spanish Habsburg rule. For 10 points, name this nation whose trade empire offloaded goods in Rotterdam and Amsterdam.

ANSWER: Kingdom of the Netherlands [or Koninkrijk der Nederlanden]

104-12-71-10102

3. Bowden and Tabor explained the mechanisms of this force with the idea of asperities. The threshold of motion divides the amount of applied force needed to move between the static and kinetic types of this force. The value of this force on an object can be determined by taking its coefficient times the force perpendicular to the surface the object is on, also known as the normal force. For 10 points, name this force that resists the motion of objects across a surface.

ANSWER: friction

023-12-71-10103

4. In reviewing this piece, Leonard Bernstein admitted that it was composed by "the most inspired melodist since Tchaikovsky," but claimed that it wasn't really a composition. It premiered at a concert named *An Experiment in Modern Music*, was commissioned by Paul Whiteman, and was orchestrated by Ferde Grofe. Inspired by a train journey to Boston, this composition blends the rhythms of Charleston jazz dance with ragtime and opens with a memorable clarinet glissando. For 10 points, name this popular piece by George Gershwin.

ANSWER: Rhapsody in Blue

020-12-71-10104

5. In one of this author's novels, the schoolmaster Bartle Massey advises the protagonist to avoid marriage at any cost. That novel also sees a woman convicted and nearly executed for infanticide after she has fled her hometown of Hayslope. In another of this woman's works, the protagonist marries Will Ladislaw against the wishes of her first husband, Edward Casaubon. For 10 points, name this novelist who wrote about a village carpenter in *Adam Bede* and Dorothea Brooke in *Middlemarch*.

ANSWER: George Eliot [or Mary Ann Evans]

121-12-71-10105

6. This mythological figure wounded and healed Telephus. According to one prophecy, his son Neoptolemus had to be at Troy for it to fall. He was enraged by the death of Patroclus and dragged Hector's body around the dates of Troy after he killed him. His mother Thetis made him immortal by bathing him in the River Styx, but missed his heel. For 10 points, name this greatest Greek warrior in the *Iliad* who was killed by Paris.

ANSWER: **Achilles**

186-12-71-10106

7. Michael Grunwald's book *The New New Deal* argued that this program was an unheralded success. Its components included bringing broadband Internet access to rural areas, starting the energy research agency ARPA-E, and establishing the school-funding program Race to the Top. For 10 points, name this controversial infusion of 900 billion dollars into the U.S. economy, passed in 2009 and formally known as the American Recovery and Reinvestment Act.

ANSWER: the Obama **stimulus** [or the **American Recovery and Reinvestment** Act before it is read; or **ARRA** before it is read]

019-12-71-10107

8. The angle of this action can be considered in terms of what direction particles or waves move towards or away from the normal. One law that can be used to figure out the angle of this action includes the sine of the angle of incidence. By taking the speed of light in a vacuum over the speed of light in a medium, the index of this action in that medium can be found. For 10 points, name this bending of light that is featured in Snell's Law.

ANSWER: **refraction**

023-12-71-10108

9. In one of his books, Joseph Grand's perfectionism prevents him from completing the first sentence of a novel. That novel by this man follows Dr. Rieux's attempt to fight the titular disease and is entitled *The Plague*. An old man named Salamano abuses his dog and is despondent when that dog runs away in another novel by this man. That novel by this man includes a trial in which a man is condemned less for killing an Arab. For 10 points, name this French existentialist who created Meursault in *The Stranger*.

ANSWER: Albert **Camus** (al-BAIR kah-MOO)

030-12-71-10109

10. The Wild Wadi Water Park is located in this city, which contains a lighted fountain on top of a man-made lake that sprays water in time with performances of popular music. A supposedly "7-star" hotel in this city was designed in the shape of a sail. Adrian Smith drew on the shape of the *Hymenocallis* flower for the footprint of a skyscraper in this city, which is now the tallest in the world. This city is in the process of constructing a series of artificial islands shaped like palm trees. For 10 points, name this home of the Burj Khalifa, a city located on the coast of the United Arab Emirates.

ANSWER: **Dubai**

080-12-71-10110

11. One of these types of locations is described by "Doctor Leete" to the visitor Julian West. Examples of this type of location appear in William Morris' *News from Nowhere* and Edward Bellamy's *Looking Backward*. It names a work featuring the traveler Raphael Hythloday about a location in which criminals are weighed down with gold chains and there is no private ownership. For 10 points, name this word which titles a 1516 Sir Thomas More work and which refers to a perfect community.

ANSWER: **utopia**

052-12-71-10111

12. One wing of this party primarily based in Milwaukee received a nickname referring to the city's supposedly excellent sewer system. This party nominated Norman Thomas six times for the presidency. Another of its presidential candidates violated the Sedition Act with an anti-war speech. This party's 1920 presidential candidate ran while he was in prison and had previously led the Pullman Strike. For 10 points, name this leftist political party whose presidential candidates included Eugene Debs.

ANSWER: **Socialist** Party of America [or **SPA**]

052-12-71-10112

13. A cloned corpse of this character was used to create the Black Lantern Rings during Blackest Night. In the New 52, this character fought the Court of Owls. This character's contingency plans were used against his Justice League teammates after being stolen by Talia al'Ghul, the mother of his current sidekick, Damian. This man's other allies include Alfred Pennyworth and Commissioner Gordon. For 10 points, name this protector of Gotham City whose most famous enemy is the Joker.

ANSWER: **Batman** [or **Bruce Wayne**, either underlined]

153-12-71-10113

14. This man's political works include an essay explaining that charity only papers over structural problems, "The Soul of Man under Socialism." He wrote a novel in which a man referred to as "Prince Charming" is pursued by James Vane, who is killed in a hunting accident, and the chemist Alan Campbell is forced to destroy the body of painter Basil Hallward. In that novel by this man, a portrait absorbs all signs of age and debauchery. For 10 points, name this author of the novel *The Picture of Dorian Gray*.

ANSWER: Oscar **Wilde** [or Oscar Fingal O'Flahertie Wills **Wilde**]

019-12-71-10114

15. This man's assistant Jan Brunowski named one of the few Milky Way supernovae after him. He is also the namesake of a satellite launched in 2009 that has found sixty-one extrasolar planets. This first person to explain how eyeglasses worked noticed an 8-degree error in data he inherited as court mathematician to Rudolf II, and concluded that the orbit of Mars could not be a circle. For 10 points, name this successor to Tycho Brahe (TIE-co BRA-hay) who introduced the notion of elliptical orbits as part of his three laws of planetary motion.

ANSWER: Johannes **Kepler**

019-12-71-10115



1A. What Jewish ethnic group is made up of the descendants of those Iberian Jews who converted or were expelled in 1492?

ANSWER: Sephardi Jews [or Sephardic Jews]

1B. One form of this structure has a priority associated with each element. What is this first-in first-out data structure?

ANSWER: queues

2A. What sort of arc-shaped lake, known in Australia as a billabong, is formed when a loop of a meandering river is separated from the main stream?

ANSWER: oxbow lake

2B. What Austrian author of the study *The Neurotic Character* coined the phrase "inferiority complex"?

ANSWER: Alfred Adler

3A. Which queen was a lover of both Julius Caesar and Mark Antony before committing suicide in 30 BCE?

ANSWER: Cleopatra VII Thea Philopator

3B. What variant of the Chinese language is primarily spoken in the South in places like Guangdong and Hong Kong?

ANSWER: Cantonese [or Yue]

4A. This is a 20-second calculation question. What is the sine of an angle whose tangent is  $\frac{4}{3}$  and whose cosine is  $\frac{3}{5}$ ?

ANSWER:  $\frac{4}{5}$  [or 0.8; or 80%]

4B. This is a 20-second calculation question. Find the median of the set 4, 13, 7, 10, 8, 16.

ANSWER: 9

5A. What cynical Italian political philosopher wrote that it was preferable to be feared than love in *The Prince*?

ANSWER: Niccolo Machiavelli

5B. Dmitri is accused of murdering his father Fyodor in what final novel by Fyodor Dostoevsky?

ANSWER: *The Brothers Karamazov* [or *Brat'ya Karamazovy*]

6A. What director of the film *Sleep* is typified pop art by reproducing Campbell's soup cans?

ANSWER: Andy Warhol

6B. What brother of St. Peter is the patron saint of Russia and Scotland, whose cross adorns the Scottish flag?

ANSWER: St. Andrew

7A. Judge Hate-Good rules over Vanity Fair in what Christian allegory by John Bunyan?

ANSWER: *The Pilgrim's Progress*

7B. This is a 30-second calculation question. Find all solutions to the polynomial  $2x^3 + 3x^2 - 8x - 12$ .

ANSWER: 2, -2, and -3/2 [or 2, -2, and -1.5]

8A. This is a 30-second calculation question. A triangle has side lengths 6, 8, and 10. Find the area of the circle inscribed in the triangle.

ANSWER: **4 pi** [or **4 times pi**]

8B. What evolutionary mechanism occurs when heritable traits allow organisms to reproduce at a higher rate than others?

ANSWER: **natural selection**

9A. What politician was portrayed in one 2012 film by Benjamin Walker as a vampire hunter and was played by Daniel Day-Lewis in another 2012 film directed by Steven Spielberg?

ANSWER: Abraham **Lincoln**

9B. What kind of chemical substance is defined by Bronsted-Lowry as proton donors?

ANSWER: **acids**

10A. What physical value can be described either as force times velocity or current times voltage?

ANSWER: **power**

10B. What French composer arranged Modest Mussorgsky's *Pictures at an Exhibition* for orchestra and composed the World War I veterans' memorial piece *The Tomb of Couperin* and the repetitive *Bolero*?

ANSWER: Maurice **Ravel**



1. In college, this man took a job as a gas meter-reader in order to meet future voters in his district. He is often known as "the loach" after a fish he compares himself to. In September 2011, this man defeated Banri Kaieda in an election for leadership of the Democratic Party following the resignation of Naoto Kan; he subsequently announced plans to restart nuclear power plants that were closed after the Fukushima incident. For 10 points, name this current prime minister of Japan.

ANSWER: Yoshihiko Noda

019-12-71-10117

2. This school's football team recently discontinued its series with the University of Michigan due to a new commitment to playing five ACC teams every year. During World War II, this university was kept solvent by the US Navy, whose Academy football team snapped a 43-year losing streak against this team in 2007. The revenue from an exclusive TV contract with NBC obviates the need for this school's football team to join a conference. While down 6-0 to Army, this school's coach gave a halftime speech urging his team to "win just one for the Gipper." For 10 points, name this university in South Bend, Indiana whose football team plays its home games in "The House that Rockne Built."

ANSWER: University of Notre Dame

195-12-71-10118

3. This poem opens by describing spires rising "up from the meadows rich with corn, clear in the cool September morn." Set in Frederick town, this poem describes how "a shade of sadness, a blush of shame" overcomes a certain commander when the title character says, "Shoot, if you must, this old gray head, but spare your country's flag." For 10 points, name this Civil War poem about an elderly woman written by John Greenleaf Whittier.

ANSWER: "Barbara Frietchie"

014-12-71-10119

4. The expectation value of this operation applied to a random variable  $X$  minus this operation applied to the expectation value of  $X$  yields the variance. One of the simplest data fitting algorithms minimizes the sum of this function of the error. Every number can be represented by a sum of four of these according to a theorem of Lagrange's. A number is said to be this-free if it contains no repeated prime factors. For 10 points, identify this term that also applies to a shape with four equal orthogonal sides.

ANSWER: squares

066-12-71-10120

5. One ruler of this dynasty ordered the construction of the Marble Boat. This dynasty put down a rebellion led by Lin Qing, who renewed the challenge to the government posed by the White Lotus Rebellion. This dynasty signed the Treaty of Tientsin and the Treaty of Nanking to end the First and Second Opium Wars with Britain. This dynasty began with the Manchu takeover following the fall of the Ming Dynasty. For 10 points, name this final Chinese dynasty.

ANSWER: Qing Dynasty [or Ch'ing Dynasty; accept Manchu Dynasty before read]

014-12-71-10121

6. Joe Trace begins an affair with the younger Dorcas in one of this author's novels. That novel, *Jazz*, takes place in Harlem. Another novel by this author begins with a character attempting to fly across Lake Superior but instead plummeting to his death the day before Milkman Dead is born. For 10 points, name this author of the novels *Song of Solomon* and *Beloved*, the first African American woman to win the Nobel Prize in Literature.

ANSWER: Toni **Morrison** [or Chloe Anthony **Wofford**]

194-12-71-10122

7. This period included the publication of a manifesto called the "Two Thousand Words" written by Ludvik Vaculik. This period was followed by a "normalization" led by Gustav Husak. One leader initiated this period with his conception of "socialism with a human face." This period began in early 1968 and ended when Alexander Dubcek (DOOB-check) was deposed after a Soviet invasion. For 10 points, name this brief period of reform in Czechoslovakia named for the capital city and season in which it took place.

ANSWER: **Prague Spring**

014-12-71-10123

8. This city was where the Everleigh sisters bought a brothel and turned it into a high-class establishment. Entrepreneurs like Philip Armour contributed to the meat-packing industry centered in this city's Union Stock Yards. Four anarchists were hanged in this city after a bomb was thrown at police during a strike in Haymarket Square. In this city, an urban legend holds that Catherine O'Leary's cow kicked over a lamp, thus starting its "Great Fire" of 1871. For 10 points, name this "Windy City" in Illinois.

ANSWER: **Chicago**

080-12-71-10124

9. This man created the fictional country of Kangan, ruled by the dictator Sam. In another work, this man described Obi, an official arrested for bribery. Obi is the grandson of another of this man's characters, a warrior from the village of Umuofia, and appears in *No Longer at Ease*. Obi's father, Isaac, converts to Christianity after Ikemefuna is killed in this man's most famous novel, centering on Okonkwo. For 10 points, name this Nigerian author of *Things Fall Apart*.

ANSWER: Chinua **Achebe** [or Albert Chinualumogu **Achebe**]

191-12-71-10125

10. Sanderson defined this quantity as the ratio of atomic number to atomic volume, and the Mulliken method of calculating this quantity involves finding the arithmetic mean of ionization energy and electron affinity. According to the Pauling scale, francium has a value of 0.67 for this quantity, and cesium has a value of 0.659, while at 4.0, fluorine has the highest value. For 10 points, identify this property which is defined as an atom's tendency to attract electrons.

ANSWER: **electronegativity**

189-12-71-10126

11. This President rejected the Roosevelt Corollary to the Monroe Doctrine by releasing the Clark Memorandum, part of the policy of his Secretary of State, Henry Stimson. His Secretary of War, Patrick Hurley, ordered Douglas MacArthur to disperse the "Bonus Army." This President signed the draconian Smoot-Hawley Tariff and became the namesake of shantytowns used by the homeless. During his presidency on "Black Tuesday," the stock market crashed. For 10 points, name this President who served at the start of the Great Depression.

ANSWER: Herbert Clark **Hoover**

080-12-71-10127

12. In one work at this site, a heavily draped subject is shown adjusting her slipper. Another building at this site has a south side porch in which six caryatids, or maidens, serve as columns. The most famous building at this site was constructed by Iktinos and Kallikrates, has reliefs showing the battle between the Lapiths and centaurs, and had some marbles removed by Lord Elgin. The Erechtheum can be found at, for 10 points, what hill in Athens, home to a famous temple to Athena, the Parthenon?

ANSWER: **Acropolis** of Athens

020-12-71-10128

13. In this work, the author describes “a wicked dollar which by and by I shall have the manhood to withhold.” This work begins with the author recalling, “I read the other day some verses written by an eminent painter which were original and not conventional,” leading to the statement, “To believe your own thought...that is genius.” At this essay’s conclusion, the author states, “Nothing can bring you peace but yourself.” For 10 points, name this essay arguing against conformity written by Ralph Waldo Emerson.

ANSWER: “**Self-Reliance**”

014-12-71-10129

14. This city is the location of the rock cut tomb replica in its Rosicrucian Egyptian Museum. This city has taken steps to reduce light pollution due to the proximity of the Lick Observatory at nearby Mount Hamilton. This city’s oldest building is the Peralta Adobe, and this city was the original capital of its state. This city is located in Santa Clara Valley along the Guadalupe River and Coyote Creek. For 10 points, name this city that is the third largest city in California and is the hub of Silicon Valley.

ANSWER: **San Jose**

030-12-71-10130

15. In a work by this pair of men, one character explains how he "thought so little" that he became "the ruler of the Queen's Navy." That work by these men ends after Ralph Rackstraw and Captain Corcoran learn they were switched at birth. These two men also created a work in which Frederic is apprenticed to the title group for over 80 years because his birthday was on a Leap Day. For 10 points, name this pair who collaborated to create the comic operettas *H.M.S. Pinafore* and *The Pirates of Penzance*.

ANSWER: William Schwenk **Gilbert** and Arthur **Sullivan** [accept in either order]

023-12-71-10131



1. One element in this group becomes a superfluid when cooled below the lambda point, and another element in this group notably forms a square planar compound with four fluoride ions. This group also includes element 36, whose name means "hidden thing." A nucleus of an element from this group is equivalent to an alpha particle, and has electron configuration "one s two." For 10 points, identify this group in the periodic table which includes xenon, krypton, and helium.

ANSWER: **noble gases** [or **inert gases**; or Group **18**]

189-12-71-10132

2. This author's early works include a satire called *A History of New York* supposedly written by Diedrich Knickerbocker. He wrote *Bracebridge Hall* and *Tales of a Traveller* under the pseudonym Geoffrey Crayon. This author's characters include a man who falls asleep in the Catskills for twenty years and a schoolteacher named Ichabod Crane who is pursued by a demonic Hessian horseman. For 10 points, name this American author of "Rip Van Winkle" and "The Legend of Sleepy Hollow."

ANSWER: Washington **Irving**

014-12-71-10133

3. A mathematician with this word as his last name names a vector identity which relates a line integral around a curve C with a double integral in a plane region bounded by C. A fluorescent protein originally found in jellyfish glows this color, and Norman Borlaug has been called "the father of" a certain environmental revolution named after this color. For 10 points, identify this color which chlorophyll fails to absorb, accounting for the color of many healthy leaves.

ANSWER: **green** [accept an early buzz of **Green's** theorem]

189-12-71-10134

4. A club for the mutual improvement of this city's intellectuals was called the "Leather Apron Club," or "Junto." Dr. Benjamin Rush started his medical practice in this city, which is where Robert Morris designed his bank. The British took over this city after the Battles of Brandywine and Germantown. This city hosted both the Continental Congresses, and it served as capital of the United States while Washington, D.C., was being built. For 10 points, name this "city of brotherly love" in Pennsylvania that contains the Liberty Bell.

ANSWER: **Philadelphia**

080-12-71-10135

5. Diagnosis of this virus early in infection can be carried out by looking for the p24 protein on its capsid. Gene expression of this virus is regulated with its tat protein. This virus is the cause for the recent rise in the number of cases of Kaposi's sarcoma. The high mutation rates associated with this virus are mostly due to the low fidelity of its reverse transcriptase. This virus infects several white blood cells, especially helper T cells. For 10 points, name this retrovirus, which causes AIDS.

ANSWER: **HIV** [or **H**uman **I**mmunodeficiency **V**irus]

140-12-71-10136

This is a calculation question. What is the minimum number of people needed to guarantee that at least three of them have birthdays in the same month?

ANSWER: **25** people