



1. This word describes a type of anucleated (EY-nook-lee-ate-ed) tube element used to transport carbohydrates through the phloem of vascular plants, as well as the plate that separates those tube elements. In chemistry, microporous alumino-silicates called zeolites (ZEE-oh-lites) act as a molecular type of this device. An ancient algorithm for finding (*) prime numbers by systematically crossing out multiples of primes is named for one of these things of Eratosthenes (air-uh-TOSS-thuh-nee-z). For 10 points, name this device that can be used to mechanically separate tiny solids from liquids.

ANSWER: sieve

245-14-102-03101

BONUS: Stairs and exits were found to be locked by owners, outraging the International Ladies Garment Workers Union, in the investigation of what deadly 1911 fire in a New York City factory?

ANSWER: Triangle Shirtwaist Factory fire

052-14-102-0310-11

2. A poem of this type states that "the art of losing isn't hard to master," and another poem of this type states, "I wake to sleep, and take my waking slow." This type of poem is exemplified by Elizabeth Bishop's "One Art" and Theodore Roethke's "The Waking." Another poem of this type urges the speaker's father to (*) "rage, rage against the dying of the light." For 10 points, name this highly structured type of nineteen-line poem, exemplified by Dylan Thomas's "Do Not Go Gentle Into That Good Night."

ANSWER: villanelles

126-14-102-03102

BONUS: What postmodernist wrote about a V-2 rocket labeled 00000, which Tyrone Slothrop attempts to find?

ANSWER: Thomas Pynchon

227-14-102-0310-11

3. A character in this novel creates forty-nine dumplings in the shape of human heads and throws them into a river. Another character in this novel blockades a group from crossing a bridge with his thunderous voice. A character in this novel summons the southeastern wind before the Battle of (*) Red Cliffs. This novel begins with the Oath of the Peach Garden, where Zhang (JUNG) Fei, Guan Yu, and Liu Bei become brothers. For 10 points, name this Chinese novel by Luo Guanzhong (gwan-JUNG) that recounts the struggle between the Wu, Wei, and Shu states.

ANSWER: Romance of the Three Kingdoms [or Sanguo Yanyi]

227-14-102-03103

BONUS: What language spoken in the canton of Grisons (GREE-zun) is one of the official languages of Switzerland along with French, Italian, and German?

ANSWER: Romansh language

015-14-102-0310-11

4. Calculations involving this force can be improved by using the Bouguer (boo-JAY) or free-air corrections. An equipotential surface for this force is the geoid (JEE-oyd), the shape the oceans would take if they covered the Earth. A constant used in calculations with this force is equal to (*) 6.67 times 10 to the minus 11. Because the Earth is an oblate spheroid, calculations involving this force deviate from Newton's law. For 10 points, name this attractive force that causes things to flow or fall towards the Earth's center.

ANSWER: gravity

066-14-102-03104

BONUS: What French novelist included *Pere Goriot* (PAIR GORE-ee-oh) in his series *The Human Comedy*?

ANSWER: Honore de Balzac

014-14-102-0310-11

5. One of these two divine characters sent a giant crab named Carcinus (car-KEEN-us) to attack the feet of the other. The Milky Way originated from the breast of one of these two characters after she angrily stopped suckling the other. One of these mythical beings tried to prevent the other's birth by tying up (*) Alcmene's (alk-MEE-neeZ) legs. When that failed, she dispatched two snakes to kill the other of these characters. For 10 points, name both the cow-eyed Greek goddess and the strongman she forced to perform twelve labors.

ANSWER: Hera and Heracles [or Juno and Hercules; or Hera and Hercules; or Juno and Heracles; any combination of acceptable answers may be given in either order, but do not accept or prompt if only one answer is given]

079-14-102-03105

BONUS: What rookie quarterback led the New York Jets to an 8-8 record in 2013 after leaving West Virginia University?

ANSWER: Geno Smith

015-14-102-0310-11

6. In a novel by this man, Richard Elster is the subject of a documentary by Jim Finley. This author of *Point Omega* wrote a novel in which Bill Gray travels to Beirut, entitled *Mao II*. This author of *Libra* wrote about waste management executive Nick Shay in his longest novel. In his most famous book, Jack Gladney is a professor of (*) Hitler Studies who must contend with an "airborne toxic event." For 10 points, name this postmodern American novelist of *Underworld* and *White Noise*.

ANSWER: Don DeLillo

127-14-102-03106

BONUS: What law states that the pressure of a gas is inversely proportional to the gas's volume?

ANSWER: Boyle's law

014-14-102-0310-11

7. In February 2010, this man declared his state was in fiscal emergency and on the same day eliminated the Department of the Public Advocate. On election day 2013, this man won re-election over Democratic challenger Barbara Buono. In 2012, he drew criticism from his own party after visiting areas affected by Hurricane (*) Sandy with Barack Obama. In January 2014, he was accused of conspiring to create traffic jams on the George Washington Bridge as retribution against Fort Lee Mayor Mark Sokolich. For 10 points, name this current governor of New Jersey.

ANSWER: Chris Christie

225-14-102-03107

BONUS: What French architect built the Villa Savoye and laid out the Five Points of Architecture in a famous treatise?

ANSWER: Le Corbusier

015-14-102-0310-11

8. During this period, the Action Programme implemented freedom of speech and the press. During this event, *The Two Thousand Words* manifesto was published by Ludvik Vaculik (VAH-choo-lik). Many of the leaders during this period later joined Charter 77. Gustav Husak (HOO-shock) undid most of the reforms passed during this event, which attempted to establish (*) "socialism with a human face." Leonid Brezhnev sent in troops provided by the Warsaw Pact to end this event. For 10 points, name this period of liberal reforms in Czechoslovakia, started by Alexander Dubcek (DOOB-check) in 1968.

ANSWER: Prague Spring [or Prazske jaro]

186-14-102-03108

BONUS: What type of sonnet is divided into an octave and a sestet by a volta, or turn?

ANSWER: Petrarchan sonnet [or Italian sonnet]

014-14-102-0310-11



SET A:

1. BONUS: What organelle uses acid hydrolases to digest compounds?

ANSWER: lysosome

014-14-102-0310-12

2. BONUS: This is a calculation question. If the sine of a first-quadrant angle is $\frac{3}{5}$, what is the tangent of that angle?

ANSWER: $\frac{3}{4}$

003-14-102-0310-12

3. BONUS: What brother of The Prophet was defeated by William Henry Harrison at the Battle of Tippecanoe?

ANSWER: Tecumseh

052-14-102-0310-12

4. BONUS: What bone of the human thigh is the longest in the body?

ANSWER: femur

014-14-102-0310-12

SET B:

1. BONUS: This is a 20-second calculation question. If A equals 6 and B equals 7, what is the value of the quantity $A^2 - 2AB + B^2$?

ANSWER: 1

003-14-102-0310-12

2. BONUS: What city was the departure point for the Lewis and Clark expedition and lies directly across the Mississippi River from the Cahokia Mounds site?

ANSWER: St. Louis

052-14-102-0310-12

3. BONUS: In what novel does Esther Greenwood work as an intern for *Ladies' Day* before being committed to an asylum following electric shock treatment from Doctor Gordon?

ANSWER: *The Bell Jar*

030-14-102-0310-12

4. BONUS: The Ohio city of Cleveland and the New York city of Buffalo lie on the shore of what lake?

ANSWER: Lake Erie

015-14-102-0310-12



9. A director in this country was assassinated in 2004 for his film *Submission*, criticizing Muslim society. The VVD party currently leads this country, despite conflict with Geert Wilders's PVV party in 2012. This country's Princess Margriet was born in Canada during World War II. Operation (*) Market Garden took place in Germany and this country, where the International Court of Justice and International Criminal Court are headquartered. Two days after World War II ended, Indonesia declared independence from this country. For 10 points, name this country where Queen Beatrix abdicated in 2013.
ANSWER: Kingdom of the Netherlands [or Holland; or Koninkrijk der Nederlanden]

190-14-102-03109

BONUS: Defects in tau protein may lead to the formation of neurofibrillary tangles and thus what disorder, which can be slowed by destroying beta-amyloid plaques in the brain?
ANSWER: Alzheimer's Disease [or AD]

190-14-102-0310-11

10. The head of this company attempted to create the South Improvement Company to control its shipments. Three ships belonging to this company were destroyed in the Panay incident. A political cartoon shows a baby Teddy Roosevelt wrestling with a snake representing this entity. A series of articles about this company published in (*) *McClure's* magazine were written by Ida Tarbell. This company was found to be in violation of the Sherman Antitrust Act, leading to its split into companies including Conoco and Chevron. For 10 points, name this company headed by John D. Rockefeller.
ANSWER: Standard Oil Company

048-14-102-03110

BONUS: What Shoshone (shuh-SHOW-nee) woman served as a translator and guide for the Lewis and Clark Expedition?
ANSWER: Sacajawea

015-14-102-0310-11

11. A crucial part of these devices is made by Nichols Electronics. Thomas Campbell and Joe Steele were convicted for their role in a 1980s Glasgow war, where these items were used to transport drugs. Michael Moore reads the PATRIOT Act from one of these things in *Fahrenheit 9/11*. Borat buys one of these conveyances, but then scares some children when his bear sticks its head out the (*) window. They often play songs like *The Entertainer* and *Turkey in the Straw* to attract customers. For 10 points, name these vehicles that sell frozen treats.
ANSWER: ice cream truck [or ice cream van]

001-14-102-03111

BONUS: What name is given to solutions, used to maintain a stable pH, that consist of a weak acid and the acid's conjugate base?
ANSWER: buffer

014-14-102-0310-11

12. In many countries, this subject is replaced by the "voseo" (voh-SAY-oh). In Spanish, affirmative commands with this subject connect the direct object to the end of the verb, and are usually conjugated with the third-person singular present tense. In the preterite (PRET-uh-rit), verbs with this subject end in (*) "-aste" (AH-stay) or "-iste" (EE-stay). This subject should be used instead of "usted" (oo-STED) only in informal situations. For 10 points, identify this second-person singular subject, the Spanish word for "you."

ANSWER: tú

190-14-102-03112

[100] Magua is shot at the conclusion of what James Fenimore Cooper book, in which Uncas is the title character and Natty Bumppo is known as Hawkeye?

ANSWER: *The Last of the Mohicans*

030-14-102-0310-11

13. A story by this man is named for a phrase used by Brooklyn Dodgers announcer Red Barber. That story of his features Erwin Martin's attempt to orchestrate the firing of Ulgine Barrows for upsetting office efficiency. This author of *My Life and Hard Times* and "The (*) Catbird Seat" wrote about a title character who daydreams that he is a surgeon, a marksman, and a fighter pilot. For 10 points, name this humorist who wrote "The Secret Life of Walter Mitty."

ANSWER: James Thurber

030-14-102-03113

BONUS: What leader of Israeli forces in the 1948 Arab-Israeli War served as the first prime minister of Israel?

ANSWER: David Ben-Gurion

015-14-102-0310-11

14. A location of this type features statues of Charity, Prudence, Justice, and Truth, the latter of which rests her foot on the location of England on a globe. Another location of this type was initially intended to be located in St. Peter's Basilica, but came to be placed in the church of San Pietro in Vincoli. Several of these monuments were situated in a namesake (*) crypt in the Catacomb of Callixtus, which is one of the Catacombs of Rome. For 10 points, identify these monuments, two of which were sculpted by Bernini and Michelangelo, for Alexander VII and Julius II.

ANSWER: tombs of Popes [or equivalents; prompt on partial answer]

189-14-102-03114

BONUS: This is a 20-second calculation question. I have a perfectly spherical scoop of ice cream, with radius 1 unit, that will be slowly melting into an ice cream cone, also with radius 1 unit. If the cone can contain the entire volume of melted ice cream, what is the minimum height of the cone?

ANSWER: 4 units

003-14-102-0310-11

15. The enzyme named after these things is absent in Cri du chat (CREE do sha) syndrome and was discovered in *Tetrahymena*. That enzyme, hTERT, adds TTAGGG to the ends of these things in humans, similar to what occurs in cancer cells. These things are subject to the end replication problem, and when very short, they lead to cellular (*) senescence (suh-NESS-unce). The discovery of these things by Elizabeth Blackburn explained Leonard Hayflick's theory that cells could only divide a finite number of times. For 10 points, identify these series of repeating nucleotides at the ends of chromosomes.

ANSWER: telomeres

233-14-102-03115

BONUS: What South Korean company has found success with its Galaxy line of phones but received mixed reviews for its Galaxy Gear watch?

ANSWER: Samsung

015-14-102-0310-11

16. This lake is the site of Northerly Island, once the home to Meigs Field airport. It is traversed by the *SS Badger*, which runs from Manitowoc to Ludington. This lake contains an island that was once a Mormon kingdom run by James Strang. The Sleeping Bear Dunes National Lakeshore is located on this lake, which contains (*) Beaver Island and is the only Great Lake located entirely within the U.S. For 10 points, name this lake that Chicago is found on, located to the west of its namesake state.

ANSWER: Lake Michigan

052-14-102-03116

BONUS: What Danish Christian philosopher wrote at length about Abraham's sacrifice of Isaac in *Fear and Trembling*?

ANSWER: Søren Aabye Kierkegaard [or Johannes de Silentio; or Victor Eremita; or William Afham; or Frater Taciturnus; or Constantine Constantius; or Vigilius Haufniensis; or Nicolaus Notabene; or A.B.C.D.E.F. Godthaab; or A.B.C.D.E.F. Rosenblad; or Inter et Inter; or Procul; or Captain Scipio; or Judge William; or A.F.; or Hilarius Bookbinder; or Johannes Climacus; or H.H.; or Anti-Climacus; prompt on A; prompt on B]

014-14-102-0310-11



17. This effect explains the results of the Rossi-Hall experiment, which measured muons reaching the surface of the Earth. By using the transverse Doppler Effect, the Ives-Stilwell experiment confirmed the existence of this effect, which is directly proportional to the Lorentz factor. This effect is the cause of a paradox in which a (*) twin in a near-light speed rocket ship can leave and return to Earth younger than a twin who never left Earth. For 10 points, name this consequence of special relativity that results in clocks "slowing" down at relativistic velocities.

ANSWER: time dilation [prompt on special relativity until it is read]

149-14-102-03117

BONUS: What composer of the serenade *Eine Kleine Nachtmusik* (EYE-nuh KLAI-nuh NOKT-myoo-zik) had his requiem finished by Franz Sussmayer after his death?

ANSWER: Wolfgang Amadeus Mozart

015-14-102-0310-11