

1. **This figure is shown seated and bare-chested, holding a sword in his left hand and pointing his right hand to the sky, in a statue by Horatio Greenough. The larger-than-life statue of this man at Federal Hall in Wall Street was executed by John Quincy Adams Ward. To the viewer, he is the (*) leftmost of the figures in another statue, in which he is the only one with visible lapels. For 10 points, name this man who was depicted as the leftmost of the four presidents on Mount Rushmore, the first president.**

ANSWER: George Washington

026-09-10-07102

2. **This company offered a namesake million dollar prize for any group that improved its rating algorithm by ten percent or more. This company was accused of "throttling" for its practice of delaying services to its most active customers. This company uses Microsoft Silverlight for its (*) "Watch Instantly" feature, and recently expanded to the Xbox 360 and Playstation 3. For 10 points, name this company that allows customers to rent DVDs through the mail by paying a monthly fee.**

ANSWER: Netflix

045-09-10-07103

3. **This man wrote about a conscientious objector who "was more brave than me, more blond than you" in his poem "i sing of Olaf glad and big." Zulu and the jester Surplice (sur-PLLEECE) are among the characters in La Ferte Mace (fert MOSS) concentration camp in this author's autobiographical novel (*) *The Enormous Room*. Another poem by this man begins "anyone lived in a pretty how town." For 10 points, name this American poet who often shunned traditional punctuation and capitalization.**

ANSWER: Edward Estlin Cummings

030-09-10-07104

4. **Johann Lambert names a model of the diffuse form of this phenomenon. None of this phenomenon occurs when the angle of incidence with a boundary is Brewster's angle. Its "specular" form involves only one (*) incoming and outgoing direction. Its "total internal" form occurs in fiber-optic materials and occurs at angles above the critical angle from the normal. Its "retro" form can be achieved by using three perpendicular mirrors. For 10 points, name this phenomenon, in which light hits a surface and rebounds in the other direction.**

ANSWER: reflection

022-09-10-07105

5. **An attempt to solve the "problem of demarcation" that defines this field was advanced in a book that set out the "falsification" principle, called "the logic of" this kind of "discovery," which was written by Karl Popper. Later, a sociological analysis of this field's development, which claims that it proceeds through "paradigm (*) shifts," was written under the title "the structure of" this kind of "revolutions," by Thomas Kuhn. For 10 points, identify this intellectual pursuit, which abides by a hypothesis-centered "method" advanced by Francis Bacon.**

ANSWER: science [or scientific; or other word forms]

019-09-10-07106

6. **This series of conflicts began with a dispute over the town of Messana. In the second of these conflicts, Hasdrubal met defeat at Metaurus River. In the buildup to the last of these wars, Cato the Elder ended every speech by advocating the complete (*) destruction of the enemy.** Battles in these wars included Lake Trasimene (trah-SIM-eh-nee), Cannae, and Zama, where Scipio defeated Hannibal. For 10 points, name this three-war struggle for control of the Mediterranean between the Romans and Carthaginians.

ANSWER: Punic Wars

063-09-10-07107

7. **Some chenopods (KEE-no-pods) exhibit a unique mechanism for this process. This mechanism's central reaction forms oxaloacetate (ox-AL-oh-ASS-uh-TATE) and is catalyzed by PEP carboxylase (car-BOX-uh-laze). This mechanism uses (*) spatial separation to prevent photorespiration (FO-tow-RES-pur-AY-shun), and it is often named for its discoverers, Hatch and Slack.** For 10 points, name this carbon fixation mechanism named for the additional atom in the initial fixation product.

ANSWER: C4 photosynthesis [or Hatch-Slack pathway before it is read]

022-09-10-07108

8. **This man made a thirty-minute televised speech called "A Time for Choosing" in support of Barry Goldwater. This man was criticized for testing a live radio microphone with the joking statement "I've just signed legislation outlawing (*) Russia forever. The bombing begins in five minutes."** He fired thousands of striking air traffic controllers early in his Presidency, and he was shot by John Hinckley. For 10 points, name this politician, who defeated Jimmy Carter to win the presidency in 1980.

ANSWER: Ronald Wilson Reagan

030-09-10-07109

9. **Wavefunctions of the particle in a box use this function because it can be made to meet the boundary conditions. The Gibbs phenomenon occurs in a method that approximates any function using this function and its derivative, which is called a Fourier (FOR-ee-ay) series. The magnitude of a (*) cross-product is proportional to this function of the angle between the vectors. This function's law is the equality, for a triangle, of each side's ratio to this function of the side's angle. Its reciprocal is the cosecant.** For 10 points, name this function, equal in trigonometry to the ratio of the opposite side to the hypotenuse.

ANSWER: sine

022-09-10-07110

10. **In his best-known work, this economist argued that sports such as football result in a "one-sided return to barbarism." He wrote a work on "the conduct of universities by business men" titled *The Higher Learning In America*. He also wrote about the (*) "captains of industry" in *The Theory of Business Enterprise*. For 10 points, name this Norwegian-American economist who coined the term "conspicuous consumption" in *The Theory of the Leisure Class*.**

ANSWER: Thorstein Veblen

024-09-10-07111

11. **This woman was the mother of Henry VIII's first wife, the hard-to-divorce Catherine. This queen's private confessor forced Marranos (mah-RAHN-os) and Moriscos (more-EES-cos) to undergo an auto-da-fe (auto-dah-fey). She worked with her husband to capture (*) Grenada and complete the Reconquista (reh-con-KEE-stuh). Torquemada (TOR-kay-MAH-dah) revived the Inquisition under her rule, which also saw the unification of the two largest Spanish kingdoms. For 10 points, name this queen of Castile who created modern Spain by marrying the king of Aragon, Ferdinand.**

ANSWER: Isabella I of Castile [or Isabella of Castile; or Isabella the Catholic; or Isabel la Catolica]

027-09-10-07112

12. **This value for a substance can be obtained using the Baumé scale or a hydrometer. For an ideal gas, it is equal to the ratio of the product of molar mass and pressure to the gas constant times temperature. It is symbolized by rho. Among the natural elements, (*) osmium and iridium have the highest value of this. Though this quantity typically increases upon freezing, its decrease when water freezes explains why ice floats. For 10 points, name this ratio of mass to density, which, for water, is about one gram per milliliter.**

ANSWER: density [or specific gravity]

001-09-10-07113

13. **This author's political pamphlets, including *The Shortest Way with the Dissenters*, landed him in Newgate in 1702. One of his characters so annoys a ship with preaching that he is put ashore in China. Another of this author's protagonists was based on Alexander (*) Selkirk and is assisted by Friday. For 10 points, name this Englishman who wrote *Moll Flanders*, *A Journal of the Plague Year*, and a tale of a man deserted on an island, *Robinson Crusoe*.**

ANSWER: Daniel Defoe [or Daniel Foe]

062-09-10-07114

14. **Unusually for a Spanish-speaking South American nation, this country is less than fifty percent Catholic. Part of this country's border with Brazil runs through Lake Mirim, and this country is itself bisected east to west by the Rio Negro. Its capital sits on the north side of the estuary separating it from (*) Argentina, the Rio de la Plata. For 10 points, identify this country in the southeastern part of South America, whose capital has a name meaning "I see a mountain," Montevideo.**

ANSWER: Oriental Republic of Uruguay [or Republica Oriental del Uruguay]

019-09-10-07115

15. **One character in this novel is obsessed with a shoe that belonged to her adopted daughter Agnes as a baby. In this book, Clopin is a king of the vagabonds who tries to hang the poet Pierre Gringoire (grin-WAR). Another character has a pet goat named Djali (JAH-lee). In this novel, (*) Phoebus is a captain of the King's Archers who is stabbed by the villain Archdeacon Frollo. For 10 points, name this Victor Hugo novel in which the gypsy Esmeralda is loved by the deformed bell ringer Quasimodo.**

ANSWER: *The Hunchback of Notre Dame* [or *Notre-Dame de Paris*]

015-09-10-07116

16. **This musician quoted the hymn *Gaudeamus Igitur* (GOW-dee-ah-muhs ih-gih-tour) in a work written in response to an honorary doctorate this man received from Breslau. This man created a work in imitation of a Catholic mass using texts from the Luther Bible titled *A German Requiem*. He composed the (*) *Tragic* and *Academic Festival* overtures. His first symphony was nicknamed "Beethoven's Tenth." For 10 points, name this German composer known for his *Lullaby*.**

ANSWER: Johannes Brahms

023-09-10-07117

17. **Three star pairs within this constellation are visualized as gazelle tracks. In medieval Arab culture, eyesight was tested by the ability to see this constellation's visual doubles, Alcor and Mizar. Two stars in it, Merak and Dubhe, are known as the "pointers," because a line through them points to (*) another constellation's Polaris. Muscida forms the "snout" of its namesake animal. For 10 points, name this constellation, which is the location of the seven-star asterism called the Big Dipper, and takes its name from the Latin for "great bear."**

ANSWER: Ursa Major [accept Great Bear before it is read; prompt on partial answer; do not accept or prompt on "Big Dipper"]

019-09-10-07118

18. **This person signaled his support for a loosening of censorship in his speech "On the Correct Handling of Contradictions Among the People." This man's third wife became a key figure in the Gang of Four, which helped this man organize the Red Guards in support of the (*) Cultural Revolution.** Earlier, this man was a key figure in the Long March, which allowed his party to come to power and launch such programs as the Great Leap Forward. For 10 points, name this politician who died in 1976 after twenty-seven years as the Communist leader of China.

ANSWER: Mao Zedong [or Mao Tse-tung]

019-09-10-07119

19. **This man painted a woman dressed in black holding the hand of a bedridden girl, in a work based on the death of his sister. This painter of *The Sick Child* created a work showing a red-haired woman comforting a man, called *Love and Pain*. That work has mistakenly become called *Vampire*, and is part of this man's (*) *Frieze of Life* series.** Another of his works from that series shows two figures on the left under a red sky, behind a face-grabbing central figure with his mouth agape. For 10 points, name this Norwegian painter of *The Scream*.

ANSWER: Edvard Munch

023-09-10-07120

20. **While bathing on Cithaeron (kith-AY-er-on), this goddess turned a spying hunter into a stag, who was then devoured by his own hounds. She turned the mother of Arcas into a bear and killed a hunter who tried to seduce her follower Opis. One woman insulted this goddess's mother by boasting of her own (*) fourteen children.** This slayer of Actaeon (ACK-tay-on) and of Niobe's (nye-OH-beez) children was born on a floating island to Leto along with her twin brother. For 10 points, name this daughter of Zeus and sister of Apollo who was the Greek goddess of fertility and the hunt.

ANSWER: Artemis [accept Diana before "Greek" is read]

060-09-10-07121

21. **This poet lamented the loss of "that store...counted best" that now "in ashes lie" in one poem. Another poem by this writer claims that "friends, less wise than true" "snatcht" "the ill-formed offspring of [this poet's] feeble brain." Those works by this poet are titled "Upon the Burning of Our House" and "The (*) Author to Her Book."** Some of this woman's works were published without her knowledge by her brother-in-law in England. For 10 points, name this seventeenth century American female poet of *The Tenth Muse Lately Sprung Up in America*.

ANSWER: Anne Bradstreet

023-09-10-07122

1. His tone poems include *Till Eulenspiegel's (OY-len-shpee-gul) Merry Pranks* and *The Hero's Tale*. For 10 points each:

[10] Name this composer who also wrote a tone poem based on a Friedrich Nietzsche work.

ANSWER: Richard **Strauss** [do not accept or prompt on "Johann Strauss"]

[10] Name that tone poem with movements like "The Convalescent" and "Song of the Night-Wanderer." Stanley Kubrick used its first movement in the movie *2001: A Space Odyssey*.

ANSWER: **Also Sprach Zarathustra** [or **Thus Spoke Zarathustra**]

[10] This opera by Richard Strauss was based on an Oscar Wilde play about John the Baptist's beheading. It includes a "dance of the seven veils."

ANSWER: **Salome**

032-09-10-07201

2. Smedley Butler allegedly uncovered the "Business Plot" to assassinate this president. For 10 points each: [10] Name this president of the United States who presided over the New Deal served during most of World War II.

ANSWER: Franklin Delano **Roosevelt** [or **FDR**]

[10] Franklin Roosevelt was governor of this state where he had earlier helped Alfred Smith's campaign in 1922.

ANSWER: **New York**

[10] This New Deal legislation was ruled unconstitutional in *United States v. Butler*. It attempted to curb crop surpluses by subsidizing farmers for leaving some of their fields untilled.

ANSWER: **AAA** [or **Agricultural Adjustment Act**]

015-09-10-07202

3. During the late 1950s, musicians in this country pioneered the bossa nova style. For 10 points each:

[10] Name this South American country that annually celebrates the festival of Carnival in its major cities, which include Sao Paulo and Rio de Janeiro.

ANSWER: **Brazil**

[10] Parades during Carnival feature schools devoted to this Brazilian dance in two-four time. It evolved from urban Brazilian dances and dances performed by African slaves.

ANSWER: **samba**

[10] From 2004 to 2009, Brazil increased its tourism revenue by over two billion dollars thanks to the devaluation of the U.S. dollar against this Brazilian currency.

ANSWER: **real** [or **reais**]

004-09-10-07203

4. After accidentally killing his son, Bob Slocum replaces Andy Kagle as head of the "Sales Department" in this man's novel *Something Happened*. For 10 points each:

[10] Name this author, who continued his most successful novel with the sequel *Closing Time*.

ANSWER: Joseph **Heller**

[10] *Closing Time* followed this Heller novel about Captain Yossarian's attempt to avoid going on bombing runs from Pianosa during World War II.

ANSWER: **Catch-22**

[10] In *Catch-22*, this character, who was promoted to his current rank by a computer error, frequently jumps out of windows or forges Washington Irving's name to avoid any responsibility.

ANSWER: Major Major Major **Major**

019-09-10-07204

5. The titular character is condemned from her Buddhist uncle after becoming Christian to marry a lieutenant on the ship *Abraham Lincoln*. For 10 points each:

[10] Name this opera set in Nagasaki, whose title character believes that her husband will return “one beautiful day” despite warnings of Sharpless and Suzuki.

ANSWER: **Madame Butterfly** [or **Madama Butterfly**; do not accept Cio-Cio San]

[10] This Italian operatic composer wrote *Madame Butterfly*, in addition to other famous works like *La Bohème* (bow-EM) and *Turandot*.

ANSWER: Giacomo Antonio Domenico Michele Secondo Maria **Puccini**

[10] This faithless American, who returns to Nagasaki with his new wife Kate, is the tenor whom Cio-Cio (Cho Cho) San is married to. He sings about his insatiable desire to conquer women in the aria “Dovunque (doh-VOON-kay) al mondo.”

ANSWER: Lieutenant B. F. **Pinkerton**

034-09-10-07205

6. Governor Ross Barnett's opposition to this institution's integration led to riots in which two people died. For 10 points each:

[10] Name this Southern university that resisted the admission of James Meredith in 1962.

ANSWER: University of **Mississippi** [or **Ole Miss**]

[10] This 1968 candidate for the American Independent Party symbolically stood in front of the schoolhouse door of the University of Alabama to oppose that school's integration in 1963.

ANSWER: George **Wallace**

[10] This northern city's violent protests against a 1977 busing plan to speed integration produced the iconic photograph of black lawyer Theodore Landsmark being attacked by a white teenager with an American flag.

ANSWER: **Boston**

030-09-10-07206

7. Volatile substances have a high value of this quantity. For 10 points each:

[10] Name this measure of the force per area exerted by evaporated liquid over the liquid in a closed container.

ANSWER: **vapor pressure** [prompt on **pressure**; prompt on **vapor**]

[10] This law named for a Frenchman gives the total vapor pressure in terms of the sum of the products of each component's mole fraction and its own vapor pressure.

ANSWER: **Raoult's Law**

[10] This measure of the tendency of a gas to escape equals the pressure for an ideal gas. The difference in real and ideal chemical potential is equal to RT times the natural log of this quantity over standard pressure.

ANSWER: **fugacity**

001-09-10-07207

8. Identify the following about Egyptian creator gods, for 10 points each:

[10] Set helped protect this god from the serpent Apep during this god's nightly trip through the underworld on the solar barque (BARK). His cult was chiefly centered at Heliopolis.

ANSWER: **Ra**

[10] This god, like the similar Tatenen, was the deification of the primordial mound. Primarily worshipped in Memphis, he was said to have created the world by speaking it.

ANSWER: **Ptah**

[10] An early god named Khnum was said to have created humans on his potter's wheel. He was also said to be the deification of the source of this body of water, a major Egyptian landmark.

ANSWER: the **Nile River**

005-09-10-07208

9. They can be described as spiral, elliptical, or irregular. For 10 points each:

[10] Name these large gravitationally bound groups of stars that include the Sombrero and Triangulum.

ANSWER: **galaxy**

[10] This closest spiral galaxy to the Milky Way, designated M31, will eventually collide with the Milky Way.

ANSWER: **Andromeda**

[10] These are galaxies undergoing intense and rapid star formation. Nearby examples include the Silver Coin Galaxy and M82, known as the Cigar galaxy.

ANSWER: **starburst** galaxy

001-09-10-07209

10. One character in this work, Unferth, presents the title character with the sword Hrunting. For 10 points each:

[10] Name this Old English epic poem, translated recently by Seamus Heaney.

ANSWER: **Beowulf**

[10] This character is the builder of the hall Heorot. This character requests Beowulf's help in getting rid of Grendel.

ANSWER: **Hrothgar**

[10] This warrior is the only man who stays to fight with Beowulf after the dragon wounds him.

ANSWER: **Wiglaf**

022-09-10-07210

11. Giotto used this technique to paint the allegories of the vices and virtues in the Arena Chapel. For 10 points each:

[10] Name this technique, in which an artist paints using shades of gray to give the illusion of statues in relief.

ANSWER: **grisaille**

[10] This Italian artist created the illusion of three-dimensional reliefs in his *Feast of Herod*. He also sculpted the first freestanding nude since antiquity, a youthful bronze *David*.

ANSWER: **Donatello** [or **Donato** di Niccolò di Betto Bardi]

[10] Giotto and Donatello helped revolutionize Italian art by using the linear and atmospheric kinds of this technique, which portrays the illusion of three-dimensional space on a two-dimensional plane.

ANSWER: **perspective**

004-09-10-07211

12. It tells of the Kaurava (core-AH-vuh) and Pandava (pon-DAH-vuh) brothers, who fight a war that is interrupted by the "song of God." For 10 points each:

[10] Name this epic poem, which includes Krishna's delivery of the *Bhagavad Gita*.

ANSWER: the **Mahabharata** (mah-hah-BRA-tuh)

[10] The *Mahabharata* is an epic from this present-day country, whose ancient Sanskrit literature also includes the plays of Kalidasa.

ANSWER: Republic of **India** [or **Bharatiya** Ganarajya]

[10] This other Indian epic is about a king of Ayodhya who is aided by the monkey god Hanuman in reclaiming his wife Sita from the demon Ravana (ruv-VAH-nuh).

ANSWER: the **Ramayana** (rahm-eye-AH-nuh)

019-09-10-07212

13. One period of this man's rule is sometimes called the "Eleven Years Tyranny." For 10 points each:
[10] Name this son of James I who lost the English Civil War to Oliver Cromwell before being executed.

ANSWER: **Charles I** [prompt on "Charles"]

[10] Charles I led a group of royalists usually given this name which has been appended to a group of poets. They opposed the parliamentary Roundheads.

ANSWER: **Cavaliers**

[10] Open opposition to Charles I was expressed as early as 1628 with this Parliamentary document, which listed taxation without consent and forced loans amongst other grievances.

ANSWER: **Petition of Right**

015-09-10-07213

14. Members of this group included Atlas, Prometheus, and Cronos. For 10 points each:

[10] Name this race of Greek gods, who were overthrown by Zeus and the Olympians.

ANSWER: **Titans**

[10] Among the Titans was Mnemosyne (neh-MAH-zuh-nee), the mother of this group that included Calliope (cuh-LIE-oh-pee), Urania, and Clio, among others.

ANSWER: the **Muses**

[10] The Titans came to power when Cronos castrated Uranus with a sickle made of this material.

ANSWER: **diamond** [or **adamantine**; prompt on **flint**]

019-09-10-07214

15. Its inverse is the period. For 10 points each:

[10] Name this measure of the number of events per unit time, which is measured in hertz.

ANSWER: **frequency**

[10] The nth of these is n times the fundamental frequency.

ANSWER: **harmonic**

[10] Overtones are examples of these frequencies that easily excite a system and are natural free oscillation frequencies.

ANSWER: **resonance** frequency

001-09-10-07215

16. This man developed the labor theory of value in his work *Principles of Political Economy and Taxation*. For 10 points each:

[10] Name this British economist who also developed the theory of comparative advantage.

ANSWER: David **Ricardo**

[10] Ricardo's *Essay on the Influence of a Low Price of Corn on the Profits of Stock* was a rebuttal to a work by this other economist. This author of *Essay on Population* declined Ricardo's advice to invest in bonds before Waterloo.

ANSWER: Thomas **Malthus**

[10] Though he did not discover it, Ricardo is credited with popularizing this economic law, which explains why an increase in a single factor of production will not result in a proportional increase in output.

ANSWER: law of **diminishing returns** [or law of **diminishing marginal returns**]

003-09-10-07216

17. This act can be divided into Müllerian and Batesian types. For 10 points each:

[10] Name this occurrence when one species resembles another to gain an advantage.

ANSWER: **mimicry**

[10] A harmful species uses colors and patterns to warn off predators in this kind of coloration.

ANSWER: **aposematic** coloration [or **aposematism**; prompt on **warning** coloration]

[10] Cryptic coloration is an example of this other defense mechanism, in which an organism attempts to escape detection by blending into the background of its environment.

ANSWER: **camouflage**

001-09-10-07217

18. This ruler's Paladins were defeated at the Battle of Roncevaux Pass. For 10 points each:

[10] Name this man crowned emperor by Pope Leo III on Christmas Day A.D. 800

ANSWER: **Charlemagne**

[10] After the death of Charlemagne's son Louis the Pious, this 843 treaty, which was extended by the 870 Treaty of Meerssen, divided the Carolingian Kingdom between Louis's three sons.

ANSWER: Treaty of **Verdun**

[10] The Treaty of Verdun made this man, the brother of Lothair and Louis the German, the emperor of the Western Frankish kingdom.

ANSWER: **Charles the Bald** [accept **Charles II**]

064-09-10-07218

19. Examples of their use include representations of the Traveling Salesman Problem, For 10 points each,

[10] Name these mathematical constructs which feature interconnected nodes

ANSWER: **graphs**

[10] Leonhard Euler presented the solution to this problem, wherein a citizen tried to cross all of the eponymous constructs without recrossing any of them.

ANSWER: **Bridges of Konigsburg**

[10] A graph has this property if all its edges can be made to not cross each other. The only graphs that cannot have this property have a $k(3,3)$ (k three three) or $k(5)$ (k five) subgroup.

ANSWER: **planarity**

002-09-10-07219

20. The protagonist of this novel visits her brother Stiva after his wife Dolly discovers he is cheating on her. For 10 points each:

[10] Name this novel in which the title character cheats on her husband with a count before throwing herself under a train.

ANSWER: **Anna Karenina**

[10] This author of *War and Peace* wrote *Anna Karenina*.

ANSWER: Leo **Tolstoy**

[10] Anna runs off to Europe with this lover of hers, a military officer who leaves to fight in a Serbian rebellion after her death.

ANSWER: Count Alexei Kirillovich **Vronsky**

015-09-10-07220

21. Milton Obote was twice ousted as leader of this country. For 10 points each:

[10] Name this country, which was once ruled by a dictator that kicked all Asians out of this country.

ANSWER: Republic of **Uganda**

[10] Name that dictator and possible cannibal, who led his country into a disastrous war with Tanzania and was finally overthrown at the end of that war.

ANSWER: Idi **Amin** Dada

[10] Idi Amin allowed a hijacked Air France plane to land in this Ugandan city in 1976. Three hostages and one soldier died in the subsequent Israeli rescue operation.

ANSWER: **Entebbe** [or **Entebbe** Raid; or Operation **Entebbe**]

003-09-10-07221