



1. One of this author's characters is infuriated to lose a literary competition to the incompetent poet Carlos Daneri. In another story, this author imagined a building containing every permutation of twenty-two characters arranged into 3,200 characters per page, with 410 pages per book. Yu Tsun narrates a story by this author that philosophizes about a labyrinth where each path represents the potential outcomes from a decision. For 10 points, name this Argentinian author who wrote "The Library of Babel" and "The Garden of Forking Paths."

ANSWER: Jorge Luis **Borges**

190-13-97-03101

2. This philosopher discussed the painting "A Pair of Shoes" by van Gogh in his article *The Origin of the Work of Art*. He examined another German philosopher in *Kant and the Problem of Metaphysics*. In another book, he introduces the idea of a "hermeneutic circle" and discusses the relationship that human perception creates with the world, composed of the words for "to be" and "there." For 10 points, name this German philosopher who explained "dasein" (DAH-sine) in *Being and Time* and attracted controversy for his Nazi sympathies.

ANSWER: Martin **Heidegger**

127-13-97-03102

3. This poet asserted, "death is the mother of beauty," in a poem that describes the "green freedom of the cockatoo upon a rug." That poem by this man describes a "casual flock of pigeons" and the "complacencies of the peignoir." In another poem, he wrote of a woman who sings "beyond the genius of the sea." This author of "Sunday Morning" and "The Idea of Order at Key West" wrote the collection *Harmonium*. For 10 points, name this modernist American poet of "The Emperor of Ice-Cream."

ANSWER: Wallace **Stevens**

079-13-97-03103

4. Allan Maxam and Walter Gilbert developed a method for performing this process in 1977. Frederick Sanger won his second Nobel Prize for devising the "chain-termination method" for performing this action, which uses ddNTPs (d-d-N-T-Ps). Craig Venter's Celera used the "shotgun" method of performing this action to accomplish it much faster than the Human Genome Project could. For 10 points, name this procedure that determines the order of nucleotides in the molecule that encodes genetic data.

ANSWER: **DNA sequencing**

080-13-97-03104

5. A character in this novel tries to make a patchwork violin from a ukelele. That character in this novel, Mick, gets a job at Woolworth's and vows to save up for a piano. In this novel, Mick's little brother, Bubber, shoots Baby Wilson with a BB gun and is found trying to run away to Atlanta. The deaf-mute John Singer's suicide following the death of his friend Antonapoulos shocks the townspeople depicted in this novel. For 10 points, name this novel by Carson McCullers.

ANSWER: *The **Heart Is a Lonely Hunter***

194-13-97-03105

6. This statement will be tested in late 2014 by the French project MICROSCOPE, which intends to set even lower limits on the Eotvos (ET-vish) parameter. One version of this statement includes local Lorentz invariance and local positional invariance. A less rigorous version of it holds that the ratio of mass to weight is locally constant, and includes the universality of free fall. For 10 points, name this principle stating that uniform acceleration and the effects of a gravitational field are indistinguishable.

ANSWER: **equivalence** principle [or weak **equivalence** principle; or strong **equivalence** principle; or Galilean-Newtonian **equivalence** principle; or Einstein **equivalence** principle; or **universality of free fall** until it is read]

003-13-97-03106

7. The "picker-up of learning's crumbs" narrates a poem by this man that describes a meeting with Lazarus. This author of "Karshish, the Arab Physician" wrote another poem in the voice of a man who blows a slug-horn after reaching a building he learned about from a "hoary cripple." In another of his dramatic monologues, the speaker speculates what Fra Pandolf might have said to the title person, who had a heart "too soon made glad." For 10 points, name this author of "Childe Roland to the Dark Tower Came" and "My Last Duchess."

ANSWER: Robert **Browning** [or "**Karshish**, the Arab Physician" until it is read]

121-13-97-03107

8. 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**]

190-13-97-03108

9. A 1957 concert by this man and his band at Harlem's Apollo Theater is dramatized in a biopic starring Gary Busey as this singer. One of his songs states that, "Love like yours will surely come my way, A hey, a hey hey," and is "Everyday." This man makes use of the Bo Diddley Beat in "Not Fade Away." He played in a band called The Crickets, and his hits included "That'll Be the Day" and "Peggy Sue." For 10 points, name this rock and roll pioneer who died in a 1959 plane crash with the Big Bopper and Richie Valens.

ANSWER: Charles "Buddy" **Holly**

030-13-97-03109

10. This city was the original site of the company that makes CaramelCrisp popcorn, Garrett Popcorn Shops. This city is home to the three-million-gallon Abbott Oceanarium, inside its Shedd Aquarium. The Lurie Garden and Crown Fountain are both located in a park in this city, where Anish Kapoor's sculpture *Cloud Gate* sits. The Smith Museum of Stained Glass Windows and a Ferris wheel can be found on this city's Navy Pier. For 10 points, name this Midwestern city where Millennium Park is home to a stainless-steel, bean-shaped sculpture.

ANSWER: **Chicago**

023-13-97-03110

11. A theorem regarding these objects deals with the presence of singularities in tangent vector fields defined on their surfaces. The volume of an n-dimensional version of these objects is inversely proportional to the gamma function of one-half. Triangles in a form of geometry named for these objects can have three right angles. The coordinate system named for these objects uses the coordinates r, theta, and phi. These objects have a surface area to volume ratio of three r. For 10 points, identify these objects that are the set of points equidistant from a given point in three dimensions.

ANSWER: **spheres** [or 2-**sphere**; or n-**sphere**; or **ball**; or **circles**]

234-13-97-03111

12. This event inspired Leo Ryan to spend a week as a substitute teacher. Former CIA director John McCone chaired a namesake commission after this event. This event, which occurred after the passage of Proposition 13, was instigated by Lee Minikus pulling over a car containing Donald and Marquette Frye. Police Chief William Parker compared its participants to "monkeys in the zoo" and called in the National Guard. The city where this event took place was later hit by the similar Rodney King Riots. For 10 points, name this 1965 riot in Los Angeles.

ANSWER: **Watts** riot [do not accept or prompt on "Los Angeles riots"]

048-13-97-03112

13. One of this author's characters is mentored by a church organist named Pistorius and frequently obsesses about his friend's mother, Frau Eva. In another of this author's novels, the protagonist spends his days listening to a river, eventually becoming a ferryman, after his lover Kamala dies from a snakebite. This author wrote a novel set in Castalia about Joseph Knecht, who strives to become a Magister Ludi, or master of *The Glass Bead Game*. For 10 points, name this German author of *Demian* and *Siddhartha*.

ANSWER: Hermann **Hesse**

190-13-97-03113

14. Hannah Hoch painted the "Cut of a Kitchen Knife" from this art movement through a "Beer Belly Cultural Epoch." Jean Arp, also known as Hans Arp, was a member of this movement. Tristan Tzara's manifestos laid its groundwork. Another artist in this movement wrote "R. Mutt" on a urinal and titled it *Fountain*, an example of one of his readymades. According to one theory, this artistic movement got its name randomly from the French word for "hobbyhorse." For 10 points, name this anti-art movement embraced by Marcel Duchamp.

ANSWER: **Dadaism**

190-13-97-03114

15. A theory that attempts to explain this phenomenon argues the substantial gelatinosa in the dorsal horn of the spinal cord contains a "gate" that controls it. Although it is not fever, drugs that suppress this phenomenon include ketobemidone (KEY-toh-bem-EH-doan) and paracetamol (PAIR-uh-CEET-uh-mall). It is caused by contact between the medial epicondyle (EH-puh-CON-dial) of the humerus and the ulnar nerve. This sense is removed by the chemicals lidocaine and novocaine, which are both anesthetics. For 10 points, identify this feeling which may accompany burns or broken bones.

ANSWER: **pain** [or **nociception**; prompt on **touch**; prompt on **suffering**]

239-13-97-03115



1A. What instrument was played by Mstislav (MIS-tee-slav) Rostropovich and is still played by Yo-Yo Ma?

ANSWER: cello

1B. What animal phylum is comprised of flatworms?

ANSWER: Platyhelminthes

2A. What term is used to describe the relative liquidity and mobility of the constituents of the lipid bilayer of the plasma membrane?

ANSWER: fluid mosaic

2B. What NBA team made the 2013 Eastern Conference Finals through strong performances from Paul George and Roy Hibbert?

ANSWER: Indiana Pacers [or Indiana Pacers]

3A. This is a 20-second calculation question. Give all the values of x between zero and π , inclusive, where the tangent of quantity x over π radians is undefined.

ANSWER: 1/2, 3/2, and 5/2 [do not accept or prompt on fewer or more answers]

3B. This is a 20-second calculation question. If the cosine of A is $2/7$, what is the cosine of $2A$?

ANSWER: -41/49

4A. What Italian demonstrated his mastery of tenebrism (TEN-uh-briz-um) with the paintings *The Calling of St. Matthew* and *The Conversion of St. Paul*?

ANSWER: Caravaggio [or Michelangelo Merisi o Amerighi da Caravaggio]

4B. What 2013 Disney film concerns the princess Elsa, who uses her powers to animate a snowman and create an eternal winter?

ANSWER: Frozen

5A. What kind of bond formed between metals and nonmetals involves the complete transfer of one or more electrons from one atom to another?

ANSWER: ionic

5B. What highest mountain in Canada is located in the Yukon Territory's St. Elias Range?

ANSWER: Mount Logan

6A. What frequent Supreme Court swing voter wrote the opinion that invalidated the Defense of Marriage Act in *U.S. v. Windsor*?

ANSWER: Anthony Kennedy

6B. What Arab nationalist ideology names the party that controlled Iraq under Saddam Hussein and Syria since the rise of the Assad family?

ANSWER: Ba'athism [or Ba'ath Party]

7A. What first-in-first-out data structure comes in a "priority" variety?

ANSWER: queue

7B. What process that takes place at convergent tectonic plate boundaries occurs when one plate slides under another?

ANSWER: subduction

8A. What Greek letter denotes electrostatic potential in physics and the golden ratio in mathematics?

ANSWER: **phi** [do not accept "pi"]

8B. The sun is part of what populous branch of the Hertzsprung-Russell diagram that stretches from the bottom-right to the top-left?

ANSWER: **main sequence**

9A. This is a 30-second calculation question. If test scores are normally distributed with mean 50 and standard deviation 10, then, to the nearest percent, what percentage of students scored 40 or better?

ANSWER: **84** percent

9B. This is a 30-second calculation question. Triangle ACF is an isosceles right triangle with leg length 8 units. What is the distance between the circumcenter and the orthocenter of ACF? Express your answer in simplest radical form.

ANSWER: **4** square **root** of **2** units

10A. What type of sonnet is divided into an octave and a sestet by a volta, or turn?

ANSWER: **Petrarchan** sonnet [or **Italian** sonnet]

10B. What Roman emperor created the tetrarchy (TETCH-rah-kee) by appointing Maximian, Galerius, and Constantius co-emperors?

ANSWER: **Diocletian**



1. Periodic diffraction gratings were found to alter this phenomenon by Smith and Purcell, whose research led to the development of free electron lasers. The IceTop array at the IceCube Observatory uses this phenomenon to detect neutrinos. Analogous to a sonic boom, it causes the emission of a characteristic blue glow, which is often seen in nuclear reactors. It results when a charged particle travels through a medium faster than the speed of light in the medium. For 10 points, identify this phenomenon named for a Russian physicist.

ANSWER: Vavilov-Cherenkov radiation [or Vavilov-Cherenkov effect]

079-13-97-03117

2. In this novel, Arina, a member of the aristocracy, devotedly believes in superstitions, while the feminist Kukshina plays host to Sitnikov and his two friends. The former lover of Princess X, Paul, questions the upcoming liberation of the serfs, and his brother Nikolai marries Fenechka (fuh-NESH-kuh) at this novel's end. This novel's protagonists are a young student from St. Petersburg and his friend, the first literary nihilist. For 10 points, name this novel about Arkady Kirsanov and Bazarov, written by Ivan Turgenev (tur-GAIN-ev).

ANSWER: Fathers and Sons [or Otcy i Deti]

192-13-97-03118

3. The skin of organisms in this phylum is embedded with small calcareous (CAL-suh-riss) ossicles. The mouth of a group of organisms in this phylum was described by Aristotle and is known as his namesake "lantern". A madreporite (MAD-rep-ore-ite) allows fluid into a structure characteristic to this phylum, which then runs through the stone canal. Connected tube feet make up this phylum's water vascular system, enabling members to move across the ocean floor. For 10 points, identify this phylum of "spiny-skinned" marine animals such as starfish and sea urchins.

ANSWER: echinodermata [or echinoderms]

233-13-97-03119

4. One of this author's novels was adapted into a wildly successful Broadway play by Jack Kirkland. This man collaborated with photographer Margaret Bourke-White on the book *You Have Seen Their Faces*. Characters in his most famous novel include Ellie May, a girl with a cleft lip, and Grandma Lester, whom Dude runs over with his car. For 10 points, name this Southern novelist of *God's Little Acre* and *Tobacco Road*.

ANSWER: Erskine Caldwell

014-13-97-03120

5. The influence of this group increased when Peter Porter took over the House Committee on Foreign Affairs and Langdon Cheves became the chairman of the House Ways and Means Committee. John Randolph coined this term, which denoted a group of politicians from Southern and Western states. Some elements of this faction, led by Henry Clay, agitated for an invasion of Canada. For 10 points, identify these Democratic-Republicans who convinced James Madison to enter a conflict with Britain in 1812.

ANSWER: war hawks

020-13-97-03121

6. This politician has children with the author of a book criticizing Japanese cartoons called *The Channel-Surfing Kids Are Fed-Up*. This man was romantically involved with a journalist named Valerie Trierweiler (tree-EH-vee-LOR). The magazine *Closer* claimed in January 2014 that he was having an affair with actress Julie Gayet (GUY-yay). This man, a former partner of fellow politician Segolene Royal, was nominated for the presidency after Dominique Strauss-Kahn's arrest. This Socialist Party leader defeated Nicolas Sarkozy in May 2012. For 10 points, name this president of France.

ANSWER: Francois **Hollande**

052-13-97-03122

7. A scene in this book depicts an Ethiopian eunuch reading the book of Isaiah in his chariot. This book describes a council held in Jerusalem where James the Just decrees that some groups may be excluded from circumcision. It recounts the descent of the Holy Spirit on Pentecost. This book is thought to have been written by the author of the Gospel of Luke. Matthias replaces Judas near the beginning of this book. For 10 points, name this fifth book of the New Testament, which describes what the apostles did after the Resurrection.

ANSWER: **Acts** of the Apostles [prompt on the **New Testament** until "Luke" is read; prompt on the **Bible** until "Luke" is read]

014-13-97-03123

8. A portrait of this monarch was painted by Jean Clouet (cloo-EY). He was criticized for allying his country with the Ottoman Empire, the first European to do so. This king successfully invaded Italy by defeating Swiss pikemen at the Battle of Marignano (MAH-rin-YAH-no), but he was captured ten years later at Pavia (pah-VEE-uh). This monarch failed to strike an alliance with Henry VIII at the Field of the Cloth of Gold, but was successful in cultivating the French Renaissance. For 10 points, name this Valois (val-WAH) King of France who often fought against Holy Roman Emperor Charles V.

ANSWER: **Francis I** [prompt on **Francis**]

140-13-97-03124

9. In Spanish, this construction may be introduced with forms of the verbs "sostener," (sohs-ten-AIR), "explicar" (ecks-plee-KAR), or "añadir" (ahn-yah-DEER). When the tense of a Spanish sentence's main verb is in the future, verbs in this kind of construction use the conditional forms. The German "special" or "newspaper" subjunctive is used to form this construction, which uses infinitive verbs plus accusative nouns in Latin. For 10 points, identify this construction which communicates what another person said, and is accomplished in English with phrases such as "she said that he is guilty."

ANSWER: **indirect** speech [or **indirect** statement]

019-13-97-03125

10. As this character dies, he says farewell to his servant Strato before telling a dead man that "I killed not thee with half so good a will." During a funeral oration, another character continually, if sarcastically, says that this person is an "honorable man." After this man's wife Portia kills herself, he sees a ghost telling him "thou shalt see me at Philippi." He is proclaimed "the noblest Roman of them all" by Mark Antony. For 10 points, name this man who conspires with Cassius to assassinate the title character in *Julius Caesar*.

ANSWER: Marcus Junius **Brutus**

052-13-97-03126

11. A type of protein secondary structure denoted by this letter requires four amino acids, one of which must be a proline residue. This letter denotes the ratio of an object's speed to the speed of light. The carnitine shuttle is used to prime the breakdown of fatty acids in this type of oxidation. This letter and lactam denote the class of antibiotics including penicillin. The breakdown of a particle resulting in emission of either an electron or positron is this type of radioactive decay. For 10 points, name this Greek letter that denotes radiation intermediate in strength between alpha and gamma.

ANSWER: **beta**

245-13-97-03127

12. This man headed a federal commission on water quality and twice defeated Socialist Labor candidate Eric Hass. He rose to his executive position by defeating millionaire W. Averell Harriman. This man passed a series of namesake tough drug laws and once raised his middle finger at a reporter on the campaign trail. He controversially married a divorcee named "Happy" and stated "that's life" after thirty-nine people died in the Attica prison riots. For 10 points, name this governor of New York and Vice President under Gerald Ford, who was the grandson of John D.

ANSWER: Nelson **Rockefeller**

048-13-97-03128

13. This man posited a theory of behavior that acknowledges the influence of both social factors and the environment, reciprocal determinism. His best-known experiment focused on a similar area as his work *Adolescent Aggression*. The experiment he designed involved adult collaborators who punched the objects which name the experiment, causing the study's subjects to imitate them while yelling "sockaroo!" For 10 points, name this Canadian psychologist who performed the "bobo doll" experiment.

ANSWER: Albert **Bandura**

081-13-97-03129

14. A domed stadium in this city known as the "Big Egg" was, until 2004, the home field of a team called the Ham Fighters. It suffered numerous casualties in Operation Meetinghouse, which resulted in over 100,000 people's ashes being interred in Sumida Ward. In 1995, this city, which has the tallest freestanding tower in the world, had its subway system victimized by a terrorist attack perpetrated by the cult Aum Shinrikyo. The Imperial Hotel here survived the 1923 Great Kanto Earthquake. This is the largest city on the island of Honshu. For 10 points, name this capital of Japan.

ANSWER: **Tokyo**

052-13-97-03130

15. A character in this poem is swallowed by Vipunen (VEE-poo-nen), from whom he extorts the magic words necessary to build a boat without using his hands. The earth is created at the beginning of this poem when a bird's nest falls off the knee of Ilmatar (ILL-ma-tar), who was impregnated by the wind and becomes the mother of Vainamoinen (VINE-a-MOY-nen). Later in this poem, Ilmarinen (ILL-ma-ree-nen) forges the Sampo. For 10 points, name this national epic of Finland.

ANSWER: the **Kalevala** (KAH-leh-VAH-lah)

142-13-97-03131



1. The MV Transpacific was responsible for transferring this substance to the Johnson Atoll as part of Operation Pacer IVY. A class-action lawsuit concerning this substance was spearheaded by Hy Mayerson and Victor Yannacone on behalf of Charles E. Hartz. This substance, which was used extensively during Operation Ranch Hand, consisted of equal parts of 2,4,5-T and 2,4-D and got its name from the stripes on the barrels containing it. For 10 points, name this dangerous herbicide that was sprayed during the Vietnam War.

ANSWER: Agent Orange

048-13-97-03132

2. The tat protein in HIV patients greatly increases the rate of this process, which is also enhanced in the presence of acetyl transferases. Although not methylation, this process is initiated from CpG islands in some eukaryotes. This process does not occur from Barr bodies because they have been highly methylated. The product of this process is capped with methyl-guanosine and gets a poly-A tail. Retroviruses can do this process in reverse. This process is initiated at a promoter and is mostly catalyzed by RNA polymerase. For 10 points, name this process of making messenger RNAs from DNA.

ANSWER: transcription [do not accept "translation"]

190-13-97-03133

3. This poem was inspired by the poet's reflections on crossing a natural feature on his way to Mexico City in 1920. It alludes to Abraham Lincoln's trip to New Orleans, as well as the raising of the pyramids upon the Nile. It speaks of bathing "in the Euphrates when dawns were young" and knowing things "ancient as the world and older than the flow of human blood in human veins." For 10 points, name this Langston Hughes poem in which the speaker's "soul has grown deep" like the title bodies of water.

ANSWER: "The Negro Speaks of Rivers"

147-13-97-03134

4. Murray Gell-Mann originally theorized the existence of this many quarks. The active ingredient of Eskalith contains the carbonate of the element with this atomic number, which is used to treat manic disorders. Phosphorus pentachloride has this many equatorial atoms. It is the bond order of the carbon carbon bond acetylene, since it is the number of carbon-carbon bonds in alkynes (al-KINEZ). The law of thermodynamics with this number says it is impossible to cool a system to absolute zero. For 10 points, give the number of hydrogen atoms in ammonia.

ANSWER: three

239-13-97-03135

5. The protagonist of a novel by this author convinces Captain Anderson to allow James Colley to perform a religious service on Anderson's ship. In another of his novels, Christopher Martin recounts his life as he dies in the North Atlantic. This author of *Rites of Passage* and *Pincher Martin* described how a dead parachutist frightens a group of boys, who mistake the body for "the Beast" that haunts the island on which they have been stranded. For 10 points, name this British novelist of *Lord of the Flies*.

ANSWER: William Golding

121-13-97-03136

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: $\frac{3}{4}$

What instrument was primarily played by Thelonious Monk, Count Basie, and Fats Waller?

ANSWER: **piano**