

1. This process was first carried out at a BASF plant in Oppau. A temperature and pressure of 800 kelvin and 250 atm are necessary for this reaction, which formerly used a uranium catalyst but today much more commonly uses enriched magnetite. This process also commonly involves a raw product called synthesis gas, and it is used to create products like fertilizer. For 10 points, identify this chemical procedure, that fixes nitrogen and hydrogen gases to produce ammonia.

ANSWER: **Haber**-Bosch process

032-09-2-02101

2. A precursor to this proclamation was the Colloquy at Poissy, which was sponsored by Michel de l'Hopital. The Peace of Vervins, signed only a few weeks later, achieved what this decree could not by ending a series of wars which lasted almost forty years. Pope Clement VII opposed this proclamation. This decree established 150 places of refuge, as well as the stronghold of Rochelle. Revoked by Louis XIV through the Edict of Fontainebleau, for 10 points, name this 1598 proclamation by Henry IV that guaranteed religious freedoms for Huguenots in France.

ANSWER: Edict of **Nantes**

035-09-2-02102

3. The protagonist of this novel bakes a rope ladder into a "witch pie" in an attempt to rescue another character. A pair of con men in this work put on the play "The Royal Nonsuch," and are discovered when they fail to describe a tattoo on the deceased Peter Wilks. The protagonist of this novel witnesses the feud between the Grangerfords and the Shepherdsons after escaping from his drunken father Pap. For 10 points, name this novel about a boy who escapes from the Widow Douglas with the slave Jim, a work by Mark Twain about the friend of Tom Sawyer.

ANSWER: *The Adventures of **Huckleberry Finn***

015-09-2-02103

4. In C++, the keyword "this" is a pointer stored in a data structure of this type. An overflow for named this type of data structure if the "call" one has its memory overused. The elements of it can be pushed and pop, and they operate under the "last in, first out" paradigm. For 10 points, name this "vertical" counterpart to the queue.

ANSWER: **stack**

033-09-2-02104

5. In this film, Sid Garner gives his daughter's fiancé a Mercedes to drive for a weekend. One character in this movie reads a prepared speech about how he is in a pack of lone wolves on top of his hotel. In this film, Ken Jeong plays the gangster Leslie Chow, who is found naked in the trunk of a car. Mike Tyson's tiger is stolen by the central group, which includes the dentist Stu and the teacher Phil. This film revolves around Doug's disappearance during his bachelor party. For 10 points, name this movie in which characters played by Justin Burtha, Bradley Cooper, and Zack Galfinakis all travel to Las Vegas.

ANSWER: *The **Hangover***

027-09-2-02105

6. This poem imagines reeling shadows of "indignant desert birds." This poem begins by describing "the widening gyre" created by the "turning and turning" in flight of a falcon that "cannot hear the falconer." One line of this poem notes "the best lack all conviction, while the worst are full of passionate intensity." This poem also notes that the "center cannot hold" before describing a "rough beast" that "slouches towards Bethlehem to be born." For 10 points, name this poem that claims "things fall apart," which was written by William Butler Yeats and titled after a Biblical apocalyptic event.

ANSWER: "The **Second Coming**"

033-09-2-02106

7. Damage to one component of this organelle may cause Leigh's disease or Leber optic atrophy, and its membrane contains a protein whose release triggers caspase nine and thereby induces apoptosis. That protein, called cytochrome c, is essential to a transport process that ends with ATP synthase. The electron transport chain, which takes place in this organelle, uses the redox potential of NADH and FADH₂ to generate ATP from fuel. For 10 points, identify these cellular power plants, whose cristae and matrix host glycolysis and the Krebs cycle.

ANSWER: **mitochondria**

022-09-2-02107

8. The narrator of this novel dedicates his commencement address to the title character's father, who may have been killed by Krajiek. The narrator of this work later sleeps in the title character's bed to protect her from Wick Cutter. This protagonist of this novel works for the Harling family, and is later impregnated and abandoned by Larry Donovan. The protagonist ends up in a happy marriage with Anton Cuzak in this novel, which is set in Black Hawk, Nebraska. For 10 points, name this novel in which Jim Burden reunites with the title Bohemian girl, a work by Willa Cather whose title character has the surname Shimerda.

ANSWER: My Antonia

034-09-2-02108

9. The value of this quantity for the change in volume of a gas is equivalent to the area under the curve on a P-V diagram, so at constant pressure this quantity equals "pressure times change in volume." The first law of thermodynamics sets change in internal energy equal to "heat added plus [this quantity]." Dividing this quantity by time yields power, and an important result of classical mechanics says that this quantity is equal to energy transferred. For 10 points, name this quantity measured in Joules and equal to force times distance.

ANSWER: work

028-09-2-02109

10. This composer wrote one of the earliest original film scores for the film *The Assassination of the Duke of Guise*. A massive fugue and forte C major chord for the titular instrument introduce this man's third symphony. Another work by this composer features a solo violin with its E string tuned down a half-step, and that piece's main theme is quoted in the "Fossils" movement of a piece that also contains movements like "Personages with Long Ears" and "The Swan." For 10 points, name this French composer of *Danse Macabre* and *Carnival of the Animals*.

ANSWER: Camille Saint-Saens

032-09-2-02110

11. This thinker argued that adherence to a "Doctrine of the Mean" between excess and deficiency was the ultimate expression of virtue in his *Nichomachean Ethics*. This thinker outlined the material, formal, efficient, and final causes of nature in one work. This man defined the genre of tragedy and stated that the aim of poetry and art is representation, or mimesis in another work. For 10 points, identify this ancient Greek philosopher, author of *Metaphysics*, *Rhetoric*, and *Poetics*, the most famous student of Plato.

ANSWER: Aristotles

005-09-2-02111

12. This man was the victorious commander at a battle that saw the bribing of the grain outpost commander at Clastidium and in which his half-brother Mago opened with an ambush. In addition to defeating Tiberius Sempronius Longus at Trebia, this man ambushed Gaius Flaminius and drove Roman forces into Lake Trasimene. This man's brother's head was thrown into his camp at one point. This man was victorious at Cannae before losing at Zama. For 10 points, name this commander during the Second Punic War, the Carthaginian brother of Hasdrubal and son of Hamilcar Barca.

ANSWER: Hannibal

026-09-2-02112

13. One composer from this country wrote a piece subtitled "An Oriental Fantasy." Another man composed a Black Mass Sonata and a White Mass Sonata. *The Scythian Suite* was composed by a man from here, as well as a piece in which Emperor Paul demands that Lieutenant Kije be brought to him. *Islamey* is a work by a composer from this country, which is also home to the composers of *In the Steppes of Central Asia* and a certain "Eastern Festival Overture." For 10 points, name this country home to Alexander Borodin and Nikolai Rimsky-Korsakov.

ANSWER: Russia

033-09-2-02113

14. Famous scientists who studied this phenomenon include Allen Pearson, who co-names the scale used to measure it. This phenomenon is divided into "wedge" and "stovepipe" varieties. They leave a so-called "hook echo" on radar and are associated with rear flank downdrafts in a supercell thunderstorm. Measured on the Fujita scale from 1 to 5, this phenomenon is common in an area called this phenomenon's "alley", which includes the Great Plains and Midwest. For 10 points, name this weather phenomenon that produces high winds and a funnel cloud.

ANSWER: Tornado or Twister

021-09-2-02114

15. The gamoroi government in this polity was broken by the defeat of this city by Hippocrates of Gela. Timoleon's oligarchy was overthrown by Agathocles here in 317 BCE. This city was defended against the Carthaginians by Dionysius I. It was settled by the Corinthian aristocrat Archias in 734 BCE, and this city's independence declined under the rule of Hieron II. For 10 points, name this Sicilian city that was defended against the Romans by the war machines of Archimedes.

ANSWER: Syracuse [or Siracusa]

030-09-2-02115

1A. What term refers to the hard outermost layer of Earth, including the crust and the upper mantle? It overlies the asthenosphere.
ANSWER: **lithosphere**

1B. Name the video game whose expansion was subtitled *The Rise of Rome*. The expansion to its first sequel was set during the Spanish conquest of Mexico.

ANSWER: **Age of Empires**

2A. What language underwent a 1996 spelling reform in which the *scharfes S* was replaced with a double S in many words?

ANSWER: **German** [or **Deutsch**]

2B. What American inventor is known for advocating the use of interchangeable parts in firearms, as well as creating the cotton gin?

ANSWER: Eli **Whitney**

3A. José Manuel Zelaya, the President of what Central American country, was ousted on June 28, 2009, after he ordered a non-binding opinion poll?

ANSWER: **Honduras**

3B. What cellular organelle digests macromolecules, including unneeded organelles?

ANSWER: **lysosome**

4A. This is a 10-second calculation question. What is the total mass of seven 25-kg weights and eleven 50-kg weights?

ANSWER: **725 kg**

4B. This is a 10-second calculation question. Given the formula velocity = distance divided by time, find the velocity of an object that travels 150 miles in 2.5 hours.

ANSWER: **60 mph**

5A. Named after a remark by a noted Russian playwright, give the term that refers to the introduction of an element into a story whose importance only becomes clear later on.

ANSWER: **Chekhov's gun**

5B. Name the literary genre that combines fantastic elements with realistic settings and is associated with Gabriel García Márquez and Isabel Allende.

ANSWER: **magical realism**

6A. This is a 20-second calculation question. If $a = -2$ and $b = 3$, evaluate $(4a+8b)/(2a+4b)$.

ANSWER: **2**

6B. This is a 20-second calculation question. A local bakery puts thirteen doughnuts into every box of doughnuts. How many boxes can be made from 312 doughnuts?

ANSWER: **24**

7A. This hip-hop group's breakout album was *Elephunk*. Name the group whose 2009 hit "Boom Boom Pow" topped the Billboard Hot 100 for twelve consecutive weeks.

ANSWER: **Black Eyed Peas**

7B. On June 24, 2009, what Governor of South Carolina resigned as chairman of the Republican Governors Association as a result of his affair with María Belén Chapur?

ANSWER: Mark **Sanford**

8A. Cities in what U.S. state include Minot, Grand Forks, and Fargo?

ANSWER: **North Dakota** [or **ND**]

8B. What ancient statue, once thought to be by Praxiteles, is housed in the Louvre and currently lacks arms?

ANSWER: **Venus de Milo** [or **Aphrodite of Milos**]

9A. This is a 30-second calculation question. How many ways are there to choose four players from a roster of twelve students?

ANSWER: **495**

9B. This is a 30-second calculation question. If theta is the counter-clockwise angle from the positive x-axis to the ray from the origin to (-2,-5), find cotangent of theta.

ANSWER: **2/5** [or **0.4**]

10A. In classical mechanics, name the quantity, symbolized by the Greek letter tau, that is the derivative of angular momentum with respect to time.

ANSWER: **torque** [or **moment** of force]

10B. What French political theorist wrote *The Old Regime and the Revolution* and *Democracy in America*?

ANSWER: Alexis de **Tocqueville**

024-09-2-02116

1. After the death of Meleager, this figure transformed his sisters into guinea hens. This deity accidentally killed the nymph Callisto after she had been turned into a bear. This deity was caught bathing and turned her gawker, Actaeon, into a hound. With her brother, this goddess killed the children of Niobe for offending this goddess's mother, Leto. For 10 points, name this Greek goddess of the moon and the hunt, the twin sister of Apollo.

ANSWER: Artemis

005-09-2-02117

2. One novel by an author from this nation tells of Steve Hart and Joe Byrne fighting the police with the title outlaw. Those novels by an author from this country are *Illywhacker* and *The True History of Kelly Gang*. Other novels written in this country include one in which the title explorer has imaginary communications with Laura Trevelyan, and a novel in which Oscar Schindler saves Polish Jews during the Holocaust. For 10 points, name the home country of Thomas Keneally, Peter Carey, and Patrick White, who often set novels in the Outback.

ANSWER: Commonwealth of Australia

034-09-2-02118

3. One figure on the far writes in a book balanced on his knee. The background of this work is dominated by huge vaulted arches and marble sculptures, and one figure sprawled across the central staircase in this painting may represent Diogenes of Sinope. The two central characters, one of whom holds a large book and one of whom points to the ceiling, wear red and blue drapes, and this work faces another work by its artist in the Stanza della Segnatura, the *Disputa*. For 10 points, name this fresco in the Palace of the Vatican depicting scholars like Aristotle and Plato, by Raphael.

ANSWER: *The School of Athens*

032-09-2-02119

4. Shortly after the Battle of Chippewa in this war, Winfield Scott was wounded during the indecisive battle fought at Lundy's Lane. One battle in this war was fought with help from Jean Lafitte. The Battle of Bladensburg was a major defeat for American forces in this war. Andrew Jackson won the Battle of New Orleans after this war had concluded. During this war, British troops were able to burn Washington, D.C., including the White House. For 10 points, name this war that re-established American independence from Great Britain, which was ended by the Treaty of Ghent.

ANSWER: War of 1812

023-09-2-02120

5. The title character of a novel by this man is an adopted son of Frederick Barbarossa searching for the legendary kingdom of Prester John. That character from Alessandria created by this author tells his story to Niketas in Constantinople in this author's *Baudolino*. This writer of *Art and Beauty in the Middle Ages* wrote about Adso of Melk and the Franciscan friar William of Baskerville trying to solve a series of murder cases in *The Name of the Rose*. For 10 points, name this Italian semiotician and author of *Foucault's Pendulum*.

ANSWER: Umberto Eco

034-09-2-02121

6. One ruler of this empire's constant drunkenness earned him the nickname "the Sot." Another ruler of this empire came to the throne after the Battle of Kosovo and received the nickname "the Thunderbolt." In addition to Selim II and Bayezid I, this empire had a ruler who laid siege to Vienna and finalized this empire's law code. That ruler received the nicknames "the Magnificent" and "the Lawgiver" in addition to being named Suleiman I. For 10 points, name this empire described as the "sick man of Europe" during its decline, which after World War I became the Republic of Turkey.

ANSWER: Ottoman Empire [prompt on Turkey]

023-09-2-02122

7. This structure features a "climbing fiber" system originating from its contralateral inferior olive. This structure's flocculonodular lobe is connected by Purkinje neurons to its vestibular nuclei. Though it is not the cerebrum, this structure's cortex is involved in motor learning. For 10 points, name this division of the brain that governs coordination and motor control, and whose name means "little brain."

ANSWER: cerebellum

022-09-2-02123

8. This ruler's minister Count Wenzel Anton von Kaunitz helped conduct the Diplomatic Revolution, which led to this leader becoming allied to France's Louis XV. That alliance came after this ruler lost a war in which the Battle of Mollwitz was fought and Silesia was ceded to Prussia, the War of the Austrian Succession. That war centered on this ruler's succeeding Charles VI to the throne. For 10 points, name this woman who fought two wars against Frederick the Great, the empress of Austria whose rule was guaranteed by the Pragmatic Sanction.

ANSWER: **Maria Theresa** of Austria

023-09-2-02124

9. This writer used the name Launcelot Langstaff to publish the periodical *Salmagundi*. This writer included "The Devil and Tom Walker" in his *Tales of a Traveler*. Another work by this author features a Halloween story about a Hessian trooper whose head is blown off by a cannon ball. That short story by this author ends when the horse Gunpowder returns without its rider and only a smashed pumpkin is found. For 10 points, name this author of *The Sketchbook of Geoffrey Crayon* who wrote about the bully Brom Bones and the schoolteacher Ichabod Crane in "The Legend of Sleepy Hollow."

ANSWER: Washington **Irving**

034-09-2-02125

10. This work discusses a group stranded on an island and forced to form a government. This work recommends a ceremony in which a crown is used to demonstrate that "law is king." Titled by Benjamin Rush, this work mentions the absurdity of an island ruling a continent. This work suggests that government is a "necessary evil." Written by the author of *The Rights of Man*, for 10 points, name this pamphlet written in 1776 by Thomas Paine.

ANSWER: **Common Sense**

038-09-2-02126

11. This is the number of ways to place two indistinguishable balls into three bins. This is the number of size two subsets of a set of four elements. Equivalently, this number is the coefficient of "x squared times y squared" in the expansion of "quantity x plus y to the fourth power." This number is the number of ways to order three distinct elements. This number is equal to four choose two, and it gives the number of possible meal combinations if you have two choices of entrée and three choices of dessert. For 10 points, name this number that is equal to three factorial.

ANSWER: **six**

028-09-2-02127

12. The speaker of this poem asks if the corpse Stetson has planted in a garden has begun to sprout, in a section of this poem set on London Bridge in the "Unreal City." Another section of this poem describes Tiresias as an "old man with wrinkled dug." That section, "The Fire Sermon," precedes a short section of this poem entitled "Death by Water." Its final section, "What the Thunder Said," ends with a repetition of the Sanskrit word "shantih." For 10 points, name this poem which begins "April is the cruellest month," written by T.S. Eliot.

ANSWER: "The **Waste Land**"

024-09-2-02128

13. In 1976, Taiwan did this action due to a spat over the country's name. Twenty-six African countries did this action to protest the New Zealand rugby team's visit to apartheid South Africa. While safety concerns were cited by the countries that did this action in 1984, the real reason was likely revenge against the Western countries who did this action in 1980 to protest the Soviet occupation of Afghanistan. For 10 points, identify this action which, in 1984, led to the U.S. running away with a medal count of 173.

ANSWER: **boycotting** the Summer **Olympics** [accept obvious equivalents]

019-09-2-02129

14. One of these works states that "love is not love" "which alters when it alteration finds." Another of these is addressed to a woman who has "black wires" on her head and whose "eyes are nothing like the sun." This group of works includes another that says death will not "brag thou wanderest in his shade," and some of these works are addressed to the Fair Youth, Dark Lady, and Rival Poet. One of them begins "Shall I compare thee to a summer's day?" For 10 points, name this group of fourteen-line poems by the author of *Titus Andronicus* and *Romeo and Juliet*.

ANSWER: **sonnets** by **Shakespeare** [prompt on **sonnets**; prompt on **poems** by **Shakespeare**]

032-09-2-02130

15. This country's southwest is the autonomous province of Ajaria. The northwestern extension of this country is another ethnic enclave called Abkhazia. The most recent area of contention in this country is a region in its central north centered on Tshkinvali, where forces from this country fought with Russian troops in the fall of 2008. This country, which claims control over the breakaway region of South Ossetia, is a Caucasian state that borders Azerbaijan, Armenia, Turkey, Russia, and the Black Sea. For 10 points, name this country that shares its name with a U.S. state.

ANSWER: Republic of **Georgia** [or **Sakartvelos** Respublika]

019-09-2-02131

1. This figure's father lost his speech until he gave this figure his name, and this figure "jumped for joy" within his mother after she saw her cousin. Like Jesus, one of this man's early followers was the disciple Andrew, and while preaching, this man dined on locusts and wild honey. This man was killed after Salome performed for her stepfather, and her mother, Herodias, requested this man's head on a platter. For 10 points, name this New Testament figure who preached from the desert about the coming of his cousin Jesus.

ANSWER: Saint **John** the **Baptist** [or Saint **John** the **Baptizer** or **Yahya** or **Yokhanan**]

005-09-2-02132

2. He introduced the Minimalist Program, a variant of the Principles and Parameters model which he formulated earlier. With Morris Halle, a fellow MIT faculty member, he wrote *The Sound Pattern of English*. The sentence "Colorless green ideas sleep furiously" appears in his book *Syntactic Structures*, which set out his theory of transformational grammar. For 10 points, name this champion of Universal Grammar and anarchism, an American linguist.

ANSWER: Noam **Chomsky**

024-09-2-02133

3. In 1920 Fritz Haber began a secret project to extract this element from seawater, after learning of Arrhenius's calculation that there must be eight million tons of it in the oceans. The pure form of this element is the most ductile and most malleable metal. Like platinum, it is most commonly dissolved using aqua regia. The amount of this metal in an alloy is expressed using units of karats. For 10 points, name this metal, which alchemists attempted to convert lead into.

ANSWER: **gold** [or **Au**]

003-09-2-02134

4. One character in this play produces a manuscript about the handicrafts of Brabant. That character, Eilert Lovberg, convinces Thea Elvsted to leave her husband in this play. Judge Brack threatens to reveal the title character's secret in this play. That title character plots to secure a "beautiful death" for Lovberg by burning his manuscript and giving him a pistol. For 10 points, name this play in which the titular wife of George Tesman commits suicide, by Henrik Ibsen.

ANSWER: **Hedda Gabler**

038-09-2-02135

5. Drugs like mefloquine and doxycyclin are used prophylactically to prevent this disease, which was first treated in the nineteenth century with drugs extracted from cinchona. Resistance to this illness is observed in carriers of another disease caused by the replacement of a glutamate by valine in hemoglobin; that disease is sickle cell anemia. This illness is caused by the destruction of red blood cells by the sporozoite form of a parasite of genus *Plasmodium*. For 10 points, name this disease that is transmitted by the *Anopheles* mosquito and treated with quinine.

ANSWER: **malaria**

032-09-2-02136