

# **IMSANITY**

**January 15, 2011**

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## Tossups

- (1) **Roberts Rules of Order** outlines instructions for its use. One of these had silver plates bonded to it in order to prevent further damage, but it was broken nonetheless during a heated energy debate in the senate by President Nixon; its replacement now hails from India. Demeter's manual insists that its use is **optional after the** \* close of a vote; however, it should never be used to silence opposing members. Often wielded by a chair or preceding officer, FTP, name this device made of ivory, metal, or, more commonly, wood which is shaped like a small mallet.

**ANSWER:** gavel

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- (2) One class within this phylum, **Holothuroidea**, contains Cuvierian tubes, which are located in their digestive system and can be expelled to confuse predators. Another class within this phylum include **Crinoidea**, which possess stems composed of porous ossicles. In addition to the \* sea cucumbers and sea lilies, some members of this phylum have tube feet which are part of the water vascular system. FTP, name this phylum which contains animals with radial symmetry, such as starfish.

**ANSWER:** echinodermata or echinoderms

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- (3) One character in this work is surprised when she tastes a chili, since she thought that it looked cool and fresh. At the beginning of this work, the protagonist receives a copy of **Johnson's Dictionary**, which she proceeds to throw out the window. She then goes to stay at a friend's house, where she attempts to seduce \* Joseph Sedley. The extremely sweet heroine, Amelia Sedley, serves as a foil to the manipulative anti-heroine, Becky Sharp. Deriving its title from a location in Bunyan's *Pilgrim's Progress*, FTP, name this satiric novel by William Thackeray.

**ANSWER:** Vanity Fair: A Novel Without a Hero

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- (4) According to the Gospels, Jesus healed two beggars here, and the tax collector Zacchaeus climbed a tree here in order to get a better view of Jesus. In Deuteronomy, it is described as the “City of Palm Trees,” and it was abandoned twice, the second time due to Assyrian and Babylonian invasion. Its only residents to survive were \* Rahab and her family, as it was completely destroyed and cursed at the conclusion of its namesake battle. For ten points, name this city on the Jordan River, which after a seven-day siege, had its walls torn down by Joshua.

ANSWER: Jericho

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- (5) The sigma variety of this is the set of measurable events in a probability space. Ideals and modules are the subject of the commutative type, and vector spaces are the focus of the linear type. Deriving its name from a 9th century book by \* al-Khwarizmi about “balancing” and “restoration”, this word comes from the Arabic for “the method”. Groups, rings, and fields are studied in its abstract type, but in general it is concerned with the existence and determination of solutions of equations. FTP, name this branch of mathematics, the bane of many high school freshmen.

ANSWER: algebra

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- (6) He chronicled the life of Henry McCarty in ballet. A number of historical excerpts such as the Gettysburg Address accompanies his *Lincoln Portrait*. He adapted the folk tune “Bonaparte’s Retreat” for the \* “Hoe-Down” section of another one of his ballets. He honored American servicemen and workers in a short but powerful piece scored for brass and percussion, his *Fanfare for the Common Man*. In his most famous composition, he portrayed the pastoral landscape of the Adirondacks and their people with a set of variations on the Shaker hymn *Simple Gifts*. FTP name this “dean of American composers” who wrote *Billy the Kid*, *Rodeo*, and *Appalachian Spring*.

ANSWER: Aaron Copland

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- (7) **During his single term as a US legislator, he became unpopular by introducing the Spot Resolutions as a means of opposing the war in progress. This lawyer switched to the Republican Party for his second run at the US Senate, and although he lost, he became a national celebrity through a series of seven \* debates with eventual champion Stephen Douglas. This statesman was nominated for president two years later on the Republican ticket, and won a plurality in that 1860 election. FTP, name this US president who was assassinated by John Wilkes Booth after winning the Civil War.**

**ANSWER:** Abraham Lincoln

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- (8) **He went by the name Mrs. Nesbitt while drinking tea with Hannah, and the archenemy of the Galactic Alliance claims to be his father. He possesses retractable wings made of a terillium-carbonic alloy and a laser worn on his right arm, and he works in the \* Universe Protection Unit as a space ranger. Voiced by Tim Allen, FTP, name this foe of Zurg and companion to Sheriff Woody in the Toy Story franchise, famous for his tagline “To Infinity And Beyond!”**

**ANSWER:** Buzz Lightyear (accept either underlined part)

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- (9) **One short story by this author features a sailor, Frank, promising the title character a trip to Buenos Aires. In addition to “Eveline”, this author wrote about Irish politicians like Mat O’Connor in “Ivy Day in the Committee Room.” He wrote about the characters Shem, Shaun, and Issy as children of Humphrey Chimpden Earwicker in \* *Finnegan’s Wake*, while in his most famous work, which featured episodes titled “Telemachus”, “Nestor”, and “Proteus”, Leopold Bloom finds of June 16, 1904. FTP, name this Irish author of *A Portrait of the Artist as a Young Man* and *Ulysses*.**

**ANSWER:** James Joyce

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- (10) His paper *On the Mechanical Equivalent of Heat* discussed his experiment in which he used a falling weight to transfer energy to an insulated barrel of water. He names an effect in which a real gas cools as it expands with William Thomson, who later became Lord Kelvin. \* The unit he names is equivalent to a kilogram meter squared divided by seconds squared, or a newton meter, and a calorie is equivalent to 4.184 times the unit he names. FTP, name this scientist who lends his name to the SI unit of energy.

ANSWER: James Prescott Joule

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- (11) This country's official name declares it an Oriental Republic in reference to its easterly position. Its northernmost latitude is the southernmost on its continent. Most of the energy generated in this country is hydroelectric coming from dams on the Rio Negro. One of those dams at Paso de los Toros forms Lago de Rincon del Bonete, the largest artificial lake in \* South America. The Rio de la Plata and its eponymous river form its border with Argentina, although its only land border is with Brazil. FTP, name this country with capital at Montevideo.

ANSWER: Uruguay

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- (12) Some methods of attacking this problem involve looking for the largest interior angle or considering the convex hull. Dynamic programming techniques can solve this problem exactly in exponential time, but the Nearest Neighbor heuristic can find an approximate solution to this problem much faster. Cutting-plane methods to developed by Dantzig, Fulkerson, and Johnson to solve this on \* United State capitals. By a reduction of the Hamiltonian Cycle Problem, Richard Karp showed that this problem is NP-complete. Finding the cheapest of  $n$  factorial possible paths is, FTP, this problem which seeks the shortest possible route through  $n$  cities.

ANSWER: Traveling Salesman Problem

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- (13) This artist painted the backside of a naked man holding a staff in one hand in *The Spotted Man*. He also depicted a young George Washington holding an axe used to fell a cherry tree, in *Parson Weems' Fable*. Satirically, he placed three elderly women in front of Emmanuel Leutze's *Washington* \* *Crossing the Delaware* in his *Daughters of the Revolution*. He also depicted a man riding a horse past a tall church steeple at night in *The Midnight Ride of Paul Revere*. FTP, name this artist most famous for painting his younger sister and a local dentist in *American Gothic*.

ANSWER: Grant DeVolson Wood

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- (14) In this work, a character is told that she will be in trouble with the law before she is 20 when it is discovered that she was dancing by moonlight in the woods. Several characters claim to see a yellow bird attacking them to prevent another character from having a change of heart. One character is able to recite all but one of the Ten Commandments, forgetting \* adultery. Although historically she was 12, in this work, Abigail is 17 years old so that her affair with the protagonist of the play is more plausible. Abigail tries to seduce the protagonist, John Proctor, at the beginning of the play, but he rejects her advances, staying loyal to his wife Elizabeth. FTP, name this Arthur Miller play about the Salem Witch Trials.

ANSWER: The Crucible

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- (15) A Josephson junction is a system in which two of these are separated by a barrier, and the Josephson current crosses the barrier between these objects. One variety of these can only be copper- or iron-based, a notable example of which is cuprate-perovskite ceramics. They are described mathematically by the Ginzburg-Landau theory, and they can cause \* magnets to levitate due to the diamagnetism they exhibit in the Meissner effect. FTP, name these materials described by BCS theory, which, when cooled to their critical temperature, exhibit zero electrical resistance.

ANSWER: superconductors

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- (16) **He measured his brother's body lengths in order to build a custom trap, and upon trapping that brother, murdered and mutilated him and spread the remains in the Nile. He formed a rivalry with the son of the corpse of that brother, which ended in this god's castration as revenge for poking out the eye of that rival nephew,** \* Horus. In an effort to make peace, this god's father, Geb, split Egypt into two pieces, and giving Horus Lower Egypt and this god Upper Egypt. Brother to Osiris and Isis as well as to his wife Nepthys, this god is depicted with a curved snout and squared ears. FTP, name this evil Egyptian god of the desert and chaos.

**ANSWER:** Set (or Seth or Seteh or Sheth)

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- (17) **This can be defined for any two numbers in a Euclidean domain, including for polynomials, in which case its leading coefficient must be 1. For integers, it is the smallest positive number expressible as a linear combination of the two parameters. For integers  $a$  and  $b$ , this is one less than the number of points on the line segment from the origin to the point** \*  $(a, b)$  [ $a$  comma  $b$ ], but this is more easily computed using Euclid's algorithm. Two numbers are said to be coprime if this equals 1. Equal to their product divided by their least common multiple, FTP, identify the largest number by which two given numbers are divisible.

**ANSWER:** greatest common divisor or greatest common factor or gcd or gcf

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- (18) **Despite winning the Battle of Cabra, this man was exiled with only his horse Babieca for his unauthorized campaign. He served for al-Mutamin of Zaragoza, when he defeated Ramon Berenguer II. This noble officially ruled in the name of King Alfonso VI, but was practically independent after conquering** \* Valencia in 1094. His wife, Jimena, ruled that city for three years after his death until it fell to the siege of the Almoravids. Famous for leading a combined Christian and Moorish army, name this Castilian knight of the Reconquista, subject of the oldest surviving Spanish epic.

**ANSWER:** El Cid Campeador or Rodrigo Díaz de Vivar

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- (19) He won the Newdigate Prize for his poem “Ravenna,” and he also wrote a Socratic dialogue discussing Aestheticism in “The Decay of Lying.” He also wrote a collection of fairy tales that tell about the Young King dreaming of Death trying to bargain for a grain of corn. This author of *A House of Pomegranates* wrote a “tragedy in one act” about the titular stepdaughter of Herod Antipas. He also wrote about the title character’s husband being blackmailed by Mrs. Erlynne, which leads to her affair with Lord Darlington. \* FTP, name this author of *Salomé*, *Lady Windermere’s Fan*, and *The Picture of Dorian Gray*.

ANSWER: Oscar Wilde

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- (20) One of his works depicts a Syrian king demanding the seizing of treasure in the temple in Jerusalem, *The Expulsion of Heliodorus from the Temple*. He depicted Christ surrounded by the Virgin Mary, while theologians located on the side of an altar debate transubstantiation in *La Disputa*, and depicted the Virgin Mary holding Christ next to Saint Sixtus and Saint Barbara in \* *Sistine Madonna*. His most famous work depicts Hypatia in the lower left and Diogenes resting on the ground as well as Aristotle and Plato. FTP, name this Italian painter of *The School of Athens*.

ANSWER: Raphael OR Raffaello Sanzio da Urbino

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- (21) The object of the Chikyu Hakken mission was to explore this region, and its most common rocks are eclogite, peridotite, and kimberlite. The Gutenberg Discontinuity lies beneath this region, and its upper boundary was first theorized by a \* Croatian seismologist in 1909. This layer of the earth’s crust has a large magnesium-to-iron ratio. The asthenosphere and lithosphere comprise its upper portion, and the Mohorovic Discontinuity defines its border with the crust. FTP, convection currents occur in this thickest layer of the earth which surrounds the earth’s core.

ANSWER: mantle

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## Bonuses

(1) The 112th United States Congress began its two-year term on January 3, 2011. FTPE:

[10] Famous for passing out campaign contributions from tobacco companies on the House floor in 1995, Ohio Representative John Boehner followed Nancy Pelosi in this position.

**ANSWER:** Speaker of the House

[10] This Republican Minority Leader and senior senator from Kentucky is married to Elaine Chao, and Steven Colbert often compares him to a turtle.

**ANSWER:** Addison Mitchell “Mitch” McConnell

[10] This Senator from Hawaii holds the position of President pro tempore, making him the highest-ranking Asian-American politician in United States history.

**ANSWER:** Daniel Inouye

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(2) Because of this, raindrops do not kill people. FTPE:

[10] Name this opposing force on objects moving through fluids. It can be calculated as one-half times density times area times speed times velocity.

**ANSWER:** drag (prompt on “air resistance” or “wind resistance” or “fluid resistance”)

[10] At this speed, the thrust and drag of a moving object are in equilibrium. All objects in freefall will approach this speed.

**ANSWER:** terminal velocity or settling velocity

[10] As in Millikan’s oil-drop experiment, the drag exerted on a spherical body in a viscous fluid can be calculated using this eponymous Law as six pi times viscosity times radius times velocity.

**ANSWER:** Stokes’s Law

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(3) The title object is referred to as a “foster-child of Silence and slow Time,” and a “mysterious priest” leads some people to a “green altar” for a sacrifice. FTPE:

[10] Name this poem about an “unravish’d bride of quietness” which includes the line “beauty is truth, truth is beauty.”

**ANSWER:** Ode on a Grecian Urn

[10] This English Romantic poet included “Ode on a Grecian Urn” in his collection of odes, which also included “Ode on Indolence” and “Ode on Melancholy.”

**ANSWER:** John Keats

[10] In this Keats poem, the speaker asks “where are the songs of Spring? Ay, where are they?” while “barred clouds bloom the soft-dying day” and “hedge-cricket sing” in the titular season.

**ANSWER:** To Autumn

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(4) It was defined as “an individual’s escape from his self-imposed immaturity”. FTPE:

[10] Name this philosophical movement of the 18th century which grew out of the Age of Reason.

**ANSWER:** Age of Enlightenment

[10] This man defined the namesake philosophy in his essay “What is Enlightenment?” in addition to formulating the categorical imperative in *The Groundwork for the Metaphysics of Morals*.

**ANSWER:** Immanuel Kant

[10] This Enlightenment thinker and author of “Letter on the Blind for the Use of Those Who See” spent twenty years compiling *L’Encyclopédie* as its head editor.

**ANSWER:** Denis Diderot

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(5) This was exemplified by the short-lived “I Am Rich” iPhone app, which would display a gem on the screen for a cost of \$1000. FTPE:

[10] Identify this term, defined as the spending of money and resources in order to display wealth.

**ANSWER:** conspicuous consumption

[10] Conspicuous consumption creates demand for this type of good, for which demand increases as price increases.

**ANSWER:** Veblen good

[10] Veblen goods are named for Thorstein Veblen, who introduced the ideas of conspicuous consumption and conspicuous leisure in this 1899 book, which likened capitalist society to barbarism.

**ANSWER:** The Theory of the Leisure Class

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(6) Lets talk...Astrophysics! FTPE:

[10] This astronomer’s law states that the recessional velocity of galaxies is proportional to its distance from earth. A NASA space telescope named after him was carried into orbit in 1990.

**ANSWER:** Edwin Hubble

[10] This unit of length is often used in astrophysics calculations. It is equivalent to the parallax of one arcsecond, 19 trillion miles, as well as approximately 3.26 light years.

**ANSWER:** parsec or pc

[10] This law is often used in astronomy to determine the surface temperature of black bodies. It tells that there is an inverse relationship between the maximum wavelength of radiation emitted by a blackbody and that object’s temperature. Hot stars emit light in the blue wavelengths, while a cooler star emits red light.

**ANSWER:** Wien’s Displacement Law (accept equivalents, such as “Wien’s Distribution Law”)

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(7) This house is located above Bear Run Creek. FTPE:

[10] Name this house, located in Pennsylvania, designed by Frank Lloyd Wright, also named *The Kaufmann Residence*.

**ANSWER:** Fallingwater

[10] Frank Lloyd Wright also designed this structure in Japan, which survived the Great Kanto Earthquake of 1923. It features a reflecting pool and a copper roof.

**ANSWER:** Tokyo Imperial Hotel

[10] This Frank Lloyd Wright building stands across from the University of Chicago at 5757 Woodlawn Avenue. An epitome of the prairie style, it was listed on the National Register of Historic Places from the outset of the registry.

**ANSWER:** Robie House

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(8) Answer the following about events at the start of the 1870s FTPE:

[10] This war, fought from 1870 to 1871, was precipitated by the Ems telegram and encouraged by Chancellor Bismarck. It led to the unification of Germany and the annexation of Alsace-Lorraine.

**ANSWER:** Franco-Prussian War

[10] This French Emperor lost power after his crushing defeat in the Franco-Prussian War. His more famous uncle was a better general and conqueror, but this emperor made his attempts at reforming France.

**ANSWER:** Louis-Napoleon Bonaparte III (prompt on “Napoleon”)

[10] This Italian King entered Rome triumphantly in 1870, completing the unification of Italy after Napoleon III recalled his troops from the Papal States for the Franco-Prussian War.

**ANSWER:** King Victor Emmanuel II

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(9) Identify the following from analytic geometry FTPE:

[10] This family of curves is defined as the intersection of a plane and a double-napped cone. These curves are described by quadratic equations in two variables.

**ANSWER:** conic section

[10] This number is the ratio of the distances from a point on a conic section to the focus and to the directrix. Conic sections can be classified by comparing this number to one.

**ANSWER:** eccentricity

[10] This type of conic section results when the plane inducing it contains the apex of the cone.

**ANSWER:** degenerate

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(10) Its main characters consider hanging themselves, but decide not to since it would give them erections. FTPE:

[10] Name this play in which Vladimir and Estragon anticipate the titular figure, who never actually arrives.

**ANSWER:** Waiting for Godot or En Attendant Godot

[10] This Irish absurdist playwright wrote about a character who could not stand, Hamm, and his servant who could not sit, Cloy, in *Endgame* in addition for writing *Waiting for Godot*.

**ANSWER:** Samuel Beckett

[10] In *Waiting for Godot*, Vladimir and Estragon meet Pozzo and this character, Pozzo's slave.

**ANSWER:** Lucky

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(11) Like many other religions, Buddhism contains many different schools of thought. FTPE:

[10] This branch of Buddhism was spread by Bodhidharma and is known for its paradoxical and counterintuitive questions called koans.

**ANSWER:** Zen

[10] Zen is a branch of this larger school of Buddhism which holds wisdom to be as important as compassion, and whose name means "Great Vehicle".

**ANSWER:** Mahayana

[10] With the Pali Canon as its scripture, this other school of Buddhism was founded during the reign of Asoka in India and is regarded as being closest to early Buddhism.

**ANSWER:** Theravada

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(12) Identify the following Greek letters given their mathematical usage FTPE:

[10] The capital version of this letter is used to denote a summation or series.

**ANSWER:** sigma

[10] The capital version of this letter represents a change in a variable.

**ANSWER:** delta

[10] Euler's totient function is denoted by this lowercase letter.

**ANSWER:** phi

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(13) His first version of *The Art of Fugue* contains 12 fugues and 2 canons. FTPE:

[10] Name this composer who created a set of arias and 30 variations for harpsichord in his *Goldberg Variations* in addition to composing *The Well-Tempered Clavier*.

**ANSWER:** Johann Sebastian Bach

[10] Bach created this group of six works, which were presented to margrave Christian Ludwig. The fifth one of these works, BWV 1050, was written in D major and contains a long harpsichord solo.

**ANSWER:** Brandenburg concertos

[10] This second wife of Bach is the subject of two manuscript notebooks that Bach composed. One of them contains five keyboard suites.

**ANSWER:** Anna Magdalena

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(14) Bailey's family stops at the Tower, a restaurant owned by Red Sammy Butts, on their way to vacation in Florida. FTPE:

[10] Hiram and Bobby Lee aid the Misfit in killing the Grandmother and the rest of the family, showing that the title statement is true in this short story.

**ANSWER:** A Good Man is Hard to Find

[10] "A Good Man is Hard to Find" is a short story by this Southern author of *The Violent Bear It Away* in addition to short stories like "Good Country People" and "The Life You Save May Be Your Own."

**ANSWER:** Mary Flannery O'Connor

[10] In this other Flannery O'Connor short story, Julian constantly tries to demonstrate his understanding of African Americans, and in the end Julian's mother's attempt to give Carver a nickel results in Carver's mother striking her with a purse.

**ANSWER:** Everything That Rises Must Converge

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(15) Answer the following about sex FTPE:

[10] These are organisms that possess both male and female reproductive organs, although possibly not at the same time. Previously, this term had been applied to people with ambiguous genitalia, but the term “intersex” is now preferred.

**ANSWER:** Hermaphrodites

[10] This is asexual reproduction in female animals. Although it is not possible in humans, it has been frequently documented in fish and reptiles. It is a combination of the Greek words for virgin and birth.

**ANSWER:** Parthenogenesis

[10] This syndrome occurs in genetically male fetuses that, as a result of a defect in the androgen receptor, results in a phenotypically female individual.

**ANSWER:** Androgen Insensitivity Syndrome or AIS

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(16) Answer the following about Boolean algebra FTPE:

[10] This fundamental Boolean operator returns a value of “true” if and only if both of its arguments have a value of “true”. It stands in contrast to “or”.

**ANSWER:** and or conjunction

[10] This Boolean operator returns true if and only if its two arguments have opposite values.

**ANSWER:** Exclusive Or or XOR or EXOR or EOR

[10] This theorem gives relationships between the Boolean operators AND, OR, and NOT. One case of it states that NOT of P AND Q is NOT P OR NOT Q.

**ANSWER:** DeMorgan’s Laws

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(17) Answer the following about the founding of some American colonies FTPE:

[10] This Quaker’s “Holy Experiment” was his namesake colony where he allowed religious freedom. He also founded the city of Philadelphia.

**ANSWER:** William Penn

[10] This Catholic noble founded the colony of Avalon in Newfoundland and served as Secretary of State to King James I. A charter for the state of Maryland was granted to him five weeks after his death.

**ANSWER:** Cecilius Calvert, 2nd Baron Baltimore or Lord Baltimore

[10] This Member of Parliament chartered the State of Georgia with Lord Percival. When Georgia was invaded during the War of Jenkin’s Ear, this man defeated the Spanish at the Battle of Bloody Marsh.

**ANSWER:** James Oglethorpe

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(18) The title character lies in a treeless field in this painting. FTPE:

[10] Name this painting in which a woman whose lower body is paralyzed crawls towards a gray building in the distance.

**ANSWER:** Christina's World

[10] *Christina's World* was painted by this artist who also painted scenes of nature such as *Long Limb* and *Late Fall*.

**ANSWER:** Andrew Wyeth

[10] Wyeth depicted this neighbor of his in over 240 paintings and drawings over the course of fifteen years. Many in the series of paintings depicted her nude.

**ANSWER:** Helga Testorf (accept either underlined part)

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(19) Answer the following about African literature FTPE:

[10] In this book, the main character is exiled from Umuofia after he kills a man. Its title is taken from a William Butler Yeats poem.

**ANSWER:** Things Fall Apart

[10] This Igbo author wrote *Things Fall Apart* as well as *A Man of the People* and *Anthills of the Savannah*, the latter of which he considers to be a spiritual successor to the former.

**ANSWER:** Chinua Achebe

[10] This novel is a sequel to *Things Fall Apart*. It tells the story of Obi Okonkwo, the grandson of the protagonist of *Things Fall Apart*.

**ANSWER:** No Longer At Ease

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(20) Let's see what you know about modeling molecular structure. FTPE:

[10] His namesake dot structures show bonding in molecules along with lone pairs that exist. He introduced them in his article *The Atom and the Molecule*.

**ANSWER:** Gilbert Lewis

[10] Also called Gillespie-Nyholm theory, this theory of molecular structure predicts the shape of molecules in order to minimize electron-pair electrostatic repulsion.

**ANSWER:** Valence Shell Electron Pair Repulsion theory or VSEPR (sometimes pronounced as "vesper")

[10] This kind of orbital is created by mixing atomic orbitals. They come in many varieties, such as the *sp* and *sp<sup>2</sup>* varieties.

**ANSWER:** hybrid orbitals (accept word forms like "hybridization")

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(21) It was presented in the paper “A Theory of Human Motivation”. FTPE:

[10] This pyramidal structure proposes that human requirements can be broken into five categories, ranging from physiological, the most basic, to self-actualization, the most advanced.

**ANSWER:** Maslow’s Hierarchy of Needs (do not mention Maslow if it is not given)

[10] This American humanistic psychologist developed the Hierarchy of Needs.

**ANSWER:** Abraham Maslow

[10] This fourth category in Maslow’s Hierarchy of Needs, the second-most advanced, includes confidence and respect for and by others.

**ANSWER:** esteem

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