

IMSANITY

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Tossups

- (1) **This faith's festival of Hola Mohalla occurs on the first day of the lunar month of Chet, and the name for followers of this faith means "disciple". This faith's second leader invented the Gurmukhi script, and its founder coined the phrase "Ik Onkar" for "one god". This religion's single deity is named * Waheguru, and its holiest site is the Golden Temple, where its holy text, the Guru Granth Sahib, is housed. Its adherents wear the Five Ks, which include uncut hair and a dagger. FTP, name this Indian religion last led by Guru Gobind Singh and founded in the Punjab by Guru Nanak.**

ANSWER: Sikhism

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- (2) **This can be initiated via an extracellular pathway, mediated by CD8 positive T-cells utilize tumor necrosis factor and the Fas ligand/receptor to initiate the caspase cascade. However, it can also be initiated by the intracellular pathway is focused on creating mitochondrial pores for the release of cytochrome C which allows for the formation of the apoptosome, which then creates the effector caspases. This * process is required for digit differentiation in fetuses, as cells between digits must die. Research on this phenomenon has intensified since the 1990s as it has been linked with a number of diseases, most notably cancer. FTP, name this organized process of programmed cell death, which is contrasted with necrosis.**

ANSWER: apoptosis

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- (3) **In December 2005, Google hired the creator of this programming language, Guido van Rossum, who serves as this language's Benevolent Dictator For Life. This language uses duck typing, so the expression "Ni!" times 2 evaluates to "Ni!Ni!". It stresses * readability, exemplified by its use of whitespace to delimit blocks of code. A popular development environment for this language is named IDLE, which can run in either a compiling or on-the-fly mode. Including the data types of lists, dictionaries, and tuples, FTP, name this object-oriented and scripting language named for a British comedy troupe.**

ANSWER: Python

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- (4) John Maynard Keynes began his Civil Service career in this nation's namesake office, and his first book was entitled *[This Nation's] Currency and Finance*. John Kenneth Galbraith served as the United States ambassador to this nation during the Kennedy administration and for that work won that nation's second-highest civilian honor. This nation is also home to the man who 1998 Nobel Laureate in Economic Sciences "for his contributions to welfare economics", * Amartya Sen, who had been inspired to study the causes of poverty when he, as a young boy, witnessed a famine in Bengal. FTP, name this nation whose Padma Vibushan was bestowed upon John Galbraith in 2001 by its president Kocharil Raman Narayanan.

ANSWER: India

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- (5) A gradual crescendo and diminuendo represent a passing ox-drawn cart in the "Bydlo" movement. Another movement uses augmented seconds to depict the rich and poor Jews "Samuel Goldenberg und Schmuyle" arguing in the Warsaw ghetto. The ninth movement has a scherzo evoking the whirlwind sounds of being chased and fleeing from the "Hut on Fowl's Legs" and the Baba-Yag. Alternating 6/4 and 5/4 meters represent * walking off-balance in the promenades that connect each movement. In the finale, the promenade theme is broadened in a grand depiction of the "Great Gate at Kiev." FTP, name this ten-movement piano piece by Modest Mussorgsky.

ANSWER: Pictures at an Exhibition

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- (6) One author with this surname wrote that "beneath the wave, wide from this ledge" there were "the dice of drowned men's bones" in his poem "At Melville's Tomb", while another author of this surname wrote about the death of the oiler and the survival of the captain, cook, and correspondent in "The * Open Boat". One work of the first author contains the sections "The Tunnel" and "Quaker Hill" and a third section about a tall man "in South Street" with "eyes pressed through green glass" and is titled "Cutty Sark." FTP, give this surname shared by the writer of *The Bridge* and the creator of the character Henry Fleming in *The Red Badge of Courage*, respectively named Hart and Stephen.

ANSWER: Crane

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- (7) Powers of this number, equal to twice the cosine of $\pi/5$ radians, were used by John Conway to show that in the game of Desert Solitaire, no armies can advance more than five units. Contrary to popular belief, some historians now believe that this number, as opposed to the square root of two, to be the first number ever proved to be irrational. Research has discredited theories about the * aesthetic value of this number, which can be obtained as the limit of the quotient of consecutive Fibonacci numbers. FTP, name this number which exceeds its reciprocal by 1.

ANSWER: golden mean or golden section or golden ratio or one plus the square root of five over two (accept equivalent forms, prompt on “phi”)

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- (8) In one of these entitled “World Without Zinc”, Jimmy begs the titular element to “Come back!”, and another causes Ralph to reconsider his college options. Another of these features Democratic Presidential hopeful Adlai Stevenson and informs that “The moon belongs to America, and anxiously awaits the arrival of our astromen.” A fourth reminds its viewers who enjoy hourglasses, walks on beaches, or producing low-grade windshields to think of where they would be without the titular material - sand. Including *Meat and You: Partners in Freedom* and *Alice’s Adventures Through the Windshield Glass*, * Troy McClure often appears in, FTP, these educational media presentations from a long-running primetime cartoon.

ANSWER: filmstrips in The Simpsons (accept clear knowledge equivalents)

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- (9) **One case arising from this event was McGrain v. Daugherty, in which the Supreme Court upheld the Senate's right to compel testimony. Robert LaFollette Sr. allowed an investigation by Thomas Walsh into this event, which discovered a \$100,000 loan from Edward * Doheny. Doheny was later acquitted of bribery, but Henry Sinclair went to jail for jury tampering. Secretary of the Navy Edwin Denby lost his job in this scandal, while Secretary of the Interior Albert Fall went to jail for accepting bribes. FTP, name this scandal in which the rights to a public oil field in Wyoming were leased without competitive bidding in exchange for gifts, a disaster for the Harding administration.**

ANSWER: Teapot Dome Scandal

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- (10) **In an experiment involving the hydrolysis of cane sugar, this item was used in relation to the velocities of the reaction. Though Jöns Jacob Berzelius coined the term in 1835, it was found in the aforementioned experiment that the use of acids increased the velocity of the * reaction and later, it was found that the strength of the acid was proportional to the rate. Platinum is a common example of this entity and is used in reactions such as the electrolysis of water. Though they are not consumed in the reaction, they are often necessary to start a reaction. FTP, identify these reagents responsible for lowering the activation energy of a reaction.**

ANSWER: catalyst

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- (11) **In one scene of this work, a character claims to have fallen from the moon and goes on to explain six ways to get to Earth from the moon. In another scene, a character says that a set of cadets are extremely blue-blooded and seduce men's wives. One subplot involves * Ligniere escaping assassins sent by the Count de Guiche. In one scene, Roxane scolds Christian because he cannot tell her anything more eloquent than "I love you". She wants his speech to be as eloquent as the letters he sends her, which are actually written by the titular character. FTP, name this play by Edmond Rostand about a Frenchman with a very large nose.**

ANSWER: Cyrano de Bergerac

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- (12) One proponent of this school argued that the scientific method was superior to the methods of authority, a priori, and tenacity in the essay, “The Fixation of Belief.” Another member supported discussed self-fulfilling beliefs in his lecture *The Will to Believe*. This school’s theory of meaning is illustrated by a man following a * squirrel around a tree and positing, “does the man go round the squirrel or not?” One member who applied this philosophy to education wrote *Democracy and Education*, and it was founded by the author of “How to Make Our Ideas Clear.” FTP, name this school of thought, whose members include John Dewey, C.S. Peirce, and William James.

ANSWER: pragmatism

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- (13) The American Museum of Natural History owes much of their gall wasp collection to this man, who studied them for his doctoral research. Attributed to him is the estimate that ten percent of Americans is homosexual, although he only claimed that ten percent had at times during their adult lives been ranked mostly homosexual on his namesake * scale, which ranked people from 0, for totally heterosexual, to 6, for totally homosexual. That scale was first published in his *Sexual Behavior in the Human Male*, which, along with its female counterpart, makes up his namesake reports. FTP, name this Indiana University zoologist, the father of sexology.

ANSWER: Alfred Kinsey

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- (14) One of this artist’s works features a virgin holding a baby being crowned by a hovering angel and is called *The Madonna of Chancellor Rolin*. Many believe that one of his works is a self-portrait. In addition to *Man in a Red Turban*, this man depicted the worship of the titular animal next to a cross in * *The Adoration of the Lamb*, which is featured in his *Ghent Altarpiece*. In his most famous work, he depicted a wealthy couple in a room underneath a massive brass chandelier. FTP, name this Flemish artist who created *The Arnolfini Wedding*.

ANSWER: Jan van Eyck

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- (15) **This country is home to the Miklos Schweitzer Competition, a 10-day mathematics contest for undergraduates, which is sponsored by the Janos Bolyai society. With the exception of the USSR and China, this country has won the International Mathematics Olympiad more than any other. This country's eponymous algorithm was developed by Kuhn to solve the assignment problem. One mathematician from this country worked with Morganstern to write * *Theory of Games and Economic Behavior*. In addition to John von Neumann, this country is home to a mathematician with a namesake distance measuring collaboration. FTP, name this European country, the home of Paul Erdős.**

ANSWER: Hungary

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- (16) **The five different types of this can be classified as Type I, Type II, or Heterotic. Originally applied only to bosons, this predicted the existence of unobserved tachyons as well as the lack of fermions; the latter of these issues was resolved by employing supersymmetry. * By incorporating higher-dimensional membranes and an eleventh spacetime dimension, the five versions of this can be combined into a single framework known as M-theory. While it has failed to make testable predictions, it remains a consistent attempt to unify gravity and quantum mechanics. FTP, name this physical theory which posits that all particles are realized as vibrations of one-dimensional objects.**

ANSWER: string theory or superstring theory

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- (17) **The character of Ray Kinsella from *Shoeless Joe* shares his name with the protagonist of this writer's "A Young Girl in 1941 with No Waist at All". This author of "For Esmé - with Love and Squalor" wrote of a character who elopes with Muriel and then shoots himself while she sleeps next to him in "A Perfect * Day for Bananafish". That character is Seymour, whose titular siblings, members of the Glass family, appear in *Franny and Zooey*. His most famous work features the protagonist reminiscing about love interest Jane Gallagher after failing out of Pencey Prep. FTP, name this author who wrote about Phoebe and Holden Caulfield in *The Catcher in the Rye*.**

ANSWER: Jerome David Salinger

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- (18) **During a short tour of Europe, Maurice Ravel once said to this composer, “You should give me lessons.” He found his first national success writing for Tin Pan Alley, especially with his hit song “Swanee”, popularized by Al Jolson. Caribbean rhythms and percussion characterize one of his concert overtures written while on holiday in Havana. That piece is known today as his * “Cuban Overture”. His stay in France inspired one of his better-known works with a notable instrumentation featuring a celesta, saxophone, and automobile horns. *An American in Paris* embodies his unique style of symphonic jazz, portrayed most famously in a piece that opens with a bluesy clarinet glissando. FTP, name this American composer of *Rhapsody in Blue*.**

ANSWER: George Gershwin

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- (19) **He wrote of his interest in the process of death and that he believes suicide isn’t a sin in his suicide note *A Note to a Certain Old Friend*. In addition to *Autumn Mountain*, he also wrote of a Buddhist priest who is laughed at after he boils the title body part to decrease its length in “The * Nose”. Trying to decide between starving and thieving, a servant encounters an old lady stealing hair from the dead, which results in him robbing her clothes in another work. In another story by this man, Tajomaru rapes Masago at the titular location after stuffing her husband Takehiro’s mouth with leaves. FTP, name this author of “Rashomon” and “In a Grove”.**

ANSWER: Ryunosuke Akutagawa (accept in either order)

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- (20) **This man quelled the revolts of Taxshila and Ujjain, and killed his older brother Susheema to rise to the throne. This man attacked a kingdom where he had earlier been exiled by Bindusara in a bloody war that eventually resulted in the conquest of that kingdom, * Kalinga. This emperor sent missionaries to Sri Lanka, Burma, China, and Greece at the Third Buddhist Council, and he also describes the spread of the “dhamma” that characterized his reign in his namesake edicts. FTP, name this Indian Emperor of the Mauryan dynasty who after the conquest of Kalinga converted to Buddhism and became a pacifist.**

ANSWER: Asoka the Great or Ashoka

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- (21) **One object in this constellation is an H II region known as De Mairan's Nebula, or M43. Earth's passing through dust left by Halley's Comet in late October results in a namesake meteor * shower.** It contains a namesake molecular cloud complex, which contains Barnard's Loop. The Trapezium cluster, a dark nebula, and the horsehead nebula are all located inside this constellation. FTP, name this constellation which contains Rigel and Betelgeuse, and is host to the stars Mintaka, Alnilam, and Alnitak, which make up its namesake belt.

ANSWER: Orion

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Bonuses

(1) Unferth mocks the title character for his loss to Breca in a swimming match. FTPE:

[10] Name this Old English epic in which the title character wields the sword Hrunting and slays Grendel, Grendel's mother, and a dragon before he dies himself.

ANSWER: Beowulf

[10] This king of the Danes rewards Beowulf with many treasures after he kills Grendel. His queen is Wealhtheow, and he ordered the mead hall Heorot to be built.

ANSWER: Hrothgar

[10] This Irish poet who won the 1995 Nobel Prize in Literature produced the most famous translation of Beowulf, in addition to writing the poems "Death of a Naturalist" and "Station Island".

ANSWER: Seamus Heaney

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(2) Answer the following about a Cold War crisis FTPE:

[10] The 1961 Bay of Pigs invasion failed to topple communism in this Caribbean nation led by Fidel Castro.

ANSWER: Republic of Cuba

[10] This president during the Cuban Missile Crisis claimed during his election campaign that the Russians had opened up a "missile gap" over the United States.

ANSWER: John Fitzgerald Kennedy

[10] After the United States discovered Soviet nuclear missiles on Cuba, this Secretary of Defense advised President Kennedy to quarantine the island. He later served as head of the World Bank.

ANSWER: Robert McNamara

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(3) Spike Jonze directs really cool music videos. FTPE:

[10] Jonze directed one version of this band's "Island in the Sun" video eight years after their first collaboration, which included the band performing their hit "Buddy Holly" in Arnold's Drive-In for the likes of Richie Cunningham, Potsie, and the Fonz.

ANSWER: Weezer

[10] The video for this 1994 Beastie Boys track won a 2009 MTV Video Music Award for best video that had not previously won. It spoofed a number of 1970's police dramas.

ANSWER: Sabotage

[10] The music video for this artist's "Praise You" featured a fictional community dance group led by Jonze delivering an impromptu performance outside a movie theater. That song joined "Rockafeller Skank" on his *You've Come a Long Way, Baby* album.

ANSWER: Fatboy Slim

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(4) It featured both men and women bathing in two pools in the center. FTPE:

[10] Name this triptych which depicts wordly pleasures, the Garden of Eden, and Hell.

ANSWER: The Garden of Earthly Delights

[10] This creator of *The Garden of Earthly Delights* also depicted the titular saint during his time in Egypt in *The Temptation of St. Anthony*.

ANSWER: Hieronymous Bosch

[10] This Bosch work depicts the title figures wasting away their time while traveling aimlessly on the titular sea vesicle.

ANSWER: Ship of Fools

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(5) Name these psychological tests FTPE:

[10] This test is a series of ten cards created by its namesake Swiss psychologist. One of the cards in the set is known as the father card, and each card features an "inkblot".

ANSWER: Rorschach Test

[10] This test measures cognitive flexibility by writing the names of colors in sometimes-contradictory colors.

ANSWER: Stroop Test

[10] Both the Wechsler Scale and the Stanford-Binet Scale are used to assess this measure of cognitive ability.

ANSWER: intelligence quotient or IQ

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(6) This property allows chemical elements to exist in different forms. FTPE:

[10] Name this property, exemplified by boron existing in both crystalline and amorphous forms.

ANSWER: allotropy (accept word forms like “allotropism”)

[10] This element has many allotropes, including fullerenes, diamonds, and its namesake nanotubes.

ANSWER: carbon (accept C)

[10] This element has white, red, and black allotropes, among others. Its white variety is used in smoke and incendiary weapons.

ANSWER: phosphorous (accept P)

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(7) This work uses anthropomorphism to depict different races and nationalities. FTPE:

[10] Name this graphic novel in which Jews are depicted as mice and Germans as cats while following Vladek, the author’s father, as he survives life in a concentration camp.

ANSWER: Maus: A Survivor’s Tale

[10] *Maus* was written by this man, who was awarded a special Pulitzer Prize for the work in 1992.

ANSWER: Art Spiegelman

[10] Spiegelman also authored this work about the September 11th attacks on the World Trade Center, which he claims helped him cope with the post-traumatic stress he suffered in their aftermath.

ANSWER: In The Shadow of No Towers

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(8) This philosophy seeks to optimize the living standards of all conscious creatures. FTPE:

[10] Name of this ethical philosophy, which promotes the greatest good for the greatest number.

ANSWER: utilitarianism

[10] This British philosopher advanced his greatest-happiness principle in his 1861 essay entitled *Utilitarianism*.

ANSWER: John Stuart Mill

[10] This man attempted to apply utilitarian ideals to the legal code in his *Principles of Morals and Legislation*, and he developed the felicific calculus to compute the total utility of an action. He is sometimes considered the founder of utilitarianism.

ANSWER: Jeremy Bentham

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(9) In the local dialect it is called the June Fourth Incident. FTPE:

[10] Name this location in Beijing, adjacent to the Forbidden City, which played host to protests in 1989 in which the Chinese army was called to disperse.

ANSWER: Tiananmen Square

[10] This widely-recognized photograph was taken by Jeff Widener during the Incident. It features a lone male blocking the advance of armored fighting vehicle.

ANSWER: Tank Man or Unknown Rebel

[10] The 2010 Nobel Peace Prize went to this man for his struggles for human rights in China, including his participation in the Tiananmen Square Incident.

ANSWER: Liu Xiaobo

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(10) Answer the following about the Earth's atmosphere FTPE:

[10] This lowest layer of the Earth's atmosphere ranges from approximately 7 kilometers to 17 kilometers in width and holds about eighty percent of the atmosphere's mass.

ANSWER: troposphere

[10] The tropopause sits between the troposphere and this layer. Unlike the troposphere, the temperature in this layer increases with height.

ANSWER: stratosphere

[10] This layer of the atmosphere, located in the lower portion of the stratosphere, absorbs most solar UV radiation. It was discovered by Charles Fabry and Henry Buisson in 1913.

ANSWER: ozone layer

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(11) Answer the following about systems of linear equations FTPE:

[10] A system of linear equations can be described by this type of matrix in which all coefficients appear to the left of a vertical bar and the constant terms appear to the right.

ANSWER: augmented matrix

[10] The augmented matrix can be put into reduced row echelon form using this type of operations, which include multiplying rows by constants, adding rows, and swapping rows.

ANSWER: elementary row operations

[10] A systems of equations with no solution can be described by this word, which indicates that the system implies a contradiction.

ANSWER: inconsistent

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(12) Hopefully you know your Russian literature. FTPE:

[10] This author of the long poem “Prussian Nights” and the novella *Matryona’s Place* wrote about the Soviet concentration camp system in *The Gulag Archipelago*.

ANSWER: Alexander Solzhenitsyn

[10] One scene in this Alexandr Pushkin poem sees Evgenii, the lover of Parasha, sitting alone in Peter’s Square while the title statue looks down on him.

ANSWER: The Bronze Horseman

[10] This author of *The White Guard* and *The Fatal Eggs* wrote of Satan disguised as Woland in his most famous work, *The Master and Margarita*.

ANSWER: Mikhail Bulgakov

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(13) FTPE, name these things about a composer’s works.

[10] This suite contains movements such as “The Tortoise” and “Characters with Long Ears,” but is more known for a movement that features two cellos and a piano, “The Swan.”

ANSWER: The Carnival of the Animals or Le Carnivale des Animaux

[10] This French composer wrote *The Carnival of the Animals*.

ANSWER: Camille de Saint-Saens

[10] This art song by Saint-Saens features a xylophone which is used to imitate the rattling of bones, and the E flat and A tritone is called the “Devil’s Chord.”

ANSWER: Danse Macabre

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(14) Answer the following about non-Cartesian coordinate systems FTPE:

[10] This two-dimensional coordinate system describes each point in terms of its distance to the origin and an angle. It is effective for graphing spirals, cardioids, lemniscates, and limaçons.

ANSWER: polar coordinates

[10] This three-dimensional coordinate system describes each point using one distance and two angles. It is named for the shape whose equation in this system is rho equals 1.

ANSWER: spherical coordinates

[10] This determinant of an eponymous matrix of partial derivatives is often used to compute multiple integrals in non-Cartesian systems. In polar coordinates, it is equal to r .

ANSWER: Jacobian

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(15) In this story, the main character becomes incapacitated while hanging curtains. FTPE:

[10] Name this novella in which the titular character realizes he has earned his suffering through selfish living as he copes with his final days.

ANSWER: Death of Ivan Ilyich

[10] This author of *Kreutzer Sonata* and *The Cossacks* wrote *Death of Ivan Ilyich*.

ANSWER: Leo Tolstoy (or Lyev Nikolayevich Tolstoy)

[10] In this Tolstoy novel, this titular lover of Count Vronsky commits suicide by throwing herself in front of a train.

ANSWER: Anna Karenina

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(16) Answer these questions about neurons FTPE:

[10] Name the long, thin protoplasmic extension from a neuron which carries action potential away from the soma and toward the target cell.

ANSWER: axon

[10] This substance composed of lipid and protein, usually in a 4 to 1 ratio, acts as an insulating layer along the axon and allows for saltatory conduction. Diseases associated with a malfunction of this substance include multiple sclerosis, Guillain-Barré Syndrome, and CMT disease.

ANSWER: myelin

[10] These one micrometer gaps in the myelin sheath aid in action potential conduction across the axon. They are named after a French physician and pathologist who also gives his name to a type of skin cell.

ANSWER: nodes of Ranvier

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(17) Identify the following Kings who later became Saints FTPE:

[10] This patron saint of Hungary converted his country to Christianity, and the crown of Hungary is named after him.

ANSWER: Saint King Stephen I

[10] This canonized King of France led the Seventh crusade, but was defeated at Mansura. During the Eighth crusade, he died of the plague while sieging Tunis and was replaced by his brother, Charles of Anjou.

ANSWER: Saint King Louis IX of France

[10] This King of England was the last of the House of Wessex. William the Conqueror claimed that this King had promised to make him heir, but later took the crown from Harold Godwinson in the last successful invasion of England.

ANSWER: Saint King Edward the Confessor

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(18) Answer the following about a urinal FTPE:

[10] One work by this French Dadaist was a sideways urinal signed “R. Mutt 1917”. Earlier works by this artist include *Nude Descending a Staircase, No. 2*.

ANSWER: Marcel Duchamp

[10] This is the name of Duchamp’s signed urinal piece.

ANSWER: Fountain

[10] *Fountain* is an example of this type of Duchamp work in which preexisting objects were displayed with a message painted on them. Other examples include a snow shovel entitled *In Advance of the Broken Arm* and a bottle entitled *50 cc of Paris Air*.

ANSWER: readymades

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(19) This experiment was based on a suggestion by George Fitzgerald. FTPE:

[10] Identify this doubly-eponymous experiment, conducted from 1901 to 1903, in which a charged parallel plate capacitor was observed to see if it would orient itself perpendicularly to its motion through luminiferous aether.

ANSWER: Trouton-Noble experiment (accept with names reversed)

[10] The Trouton-Noble experiment was based on this 1887 experiment, in which the apparatus, rotating on top of a pool of mercury, consisted of a device that sent a single beam of white light through a half-silvered mirror.

ANSWER: Michelson-Morley experiment

[10] Luminiferous aether, the target of both the Trouton-Noble and Michelson-Morley experiments, had been proposed as a medium for this wave, whose speed is typically symbolized by the lowercase letter c.

ANSWER: light (or really anything with electromagnetic radiation or electromagnetic wave, but nothing with “spectrum”, prompt on “radiation”)

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(20) A man named Panini, who lived in modern day Pakistan, developed a system of grammar for a common dialect. FTPE:

[10] Identify this archaic language in the Indo-European language family, in which the Vedas and most Hindu and Buddhist texts were written.

ANSWER: Sanskrit

[10] This Sanskrit epic contains 24,000 verses and details the life of an avatar of Vishnu who rescues his wife Sita from the demon Ravanna with the help of the monkey Hanuman.

ANSWER: Ramayana

[10] The Bhagavadh Gita is narrated to Arjuna before battle in this other Sanskrit epic, which details the lives of the Pandava brothers and their relationship with Lord Krishna.

ANSWER: Mahabharata

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(21) Answer the following about a certain kind of probability FTPE:

[10] This adjective describes the probability of event A given that event B occurs. Provided the denominator is nonzero, it can be computed as the probability of both A and B divided by the probability of B .

ANSWER: conditional probability

[10] This term describes events A and B such that the probability of both A and B is zero.

ANSWER: mutually exclusive

[10] This eponymic theorem says that the probability of A given B equals the probability of B given A times the probability of A divided by the probability of B .

ANSWER: Bayes's Theorem

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