1. The E4 allele of the ApoE gene is the largest genetic risk factor for this disease. According to one theory it is caused by abnormalities in tau proteins. Another theory states it is caused by beta amyloid deposits which would relate this disease to $\left(^{*}\right.$ ) prion related disorders like Creutzfeld-Jakob disease. Another hypothesis states that it is caused by decreased production of acetylcholine. Patients of this disease exhibit plagues and tangles in their brains along with a loss of long term memory. For 10 points, name this most common form of dementia, named for a German psychiatrist.
ANSWER: Alzheimer's disease [prompt on $\underline{\text { AD }}$; prompt on dementia]
2. In one sense, this term denotes the best known astika besides Vedanta, and in another sense, it has sub-forms that have endgoals of perfection, knowledge, and attainment of oneness with Vishnu. Those forms are the Karma, Jnana, and Bhakti forms of this discipline, which is most commonly known for its use of asanas, such as the seated (*) lotus form with feet resting on opposite knees. For 10 points, identify this Indic devotional discipline associated in the west with exercise and alternative medicine.
ANSWER: yoga
3. In September 2010, Dennis Mackrell replaced Bill Hughes as the leader of the band originally founded by this man. That band's 'Second Testament' relied on arrangers such as Quincy Jones. He started in Bennie Moten's band and exemplified the Kansas City style of swing with a band that included tenor saxophonist Lester Young. That band played hits such as (*) "Taxi War Dance," "Jumpin' at the Woodside," and "One O’Clock Jump." For 10 points, name this pianist that, like Duke Ellington, led a successful big band and, like Ellington, had a noble nickname.
ANSWER: (William) "Count" Basie
4. In one work, this philosopher notes that people who fence off land are the founders of "civil society." Another of his works was censured for its inclusion of the "Profession of the Savoyard Priest" and for its mention of Sophie, the title character's bride-to-be. His best known work describes the relinquishing of sovereignty in the title (*) agreement and proclaims "Man is born free, and everywhere he is in chains." For 10 points, identify this French philosopher who penned Discourse on Inequality, Emile, and The Social Contract.
ANSWER: Jean-Jacques Rousseau
5. This instrument was the subject of a treatise by Johann Quantz, and its fingering was standardized in the 19th century by Theobald Boehm (BOME). Edgar Varese (vuh-REESE) wrote a piece for one of these instruments unaccompanied, Density 21.5. It has the opening solo in Debussy's Prelude To The Afternoon Of A Faun, and its virtuosi include (*) Jean-Pierre Rampal and James Galway. For 10 points, name this transverse woodwind instrument whose small version is a piccolo.
ANSWER: flute
6. This author criticized the Negritude movement with the line, "A tiger does not proclaim its tigritude." In the preface to one work, this author claims that Europeans "have no respect for what [they] do not understand" in a conversation between Olunde and Jane Pilkings. In addition to that play focusing on Elesin's death ritual, this author depicted the seduction of Sidi by the impotent chief
${ }^{(*)}$ Baroka in another play. For 10 points, name this author of Death and the King's Horseman and The Lion and the Jewel.
ANSWER: Wole Soyinka [or Akinwande Oluwole Soyinka]
7. Early on in this battle, the Union hoped to capture the hilltop Dunker Church. Like many other Civil War battles, a 'sunken road" was a focal point for fighting, though this one earned the nickname "Bloody Lane." The tide in this battle turned when A.P. Hill arrived from Harpers Ferry and pushed back Burnside's advance. Though it was not a Union victory, this battle allowed (*) Abraham Lincoln to issue the Emancipation Proclamation. For 10 points, name this Civil War battle in Maryland that was the bloodiest single day of fighting in U.S. history.
ANSWER: Battle of Antietam [or Battle of Sharpsburg]
8. One line from a song by this musical act about seeking medical attention notes, "Golf and alcohol don't mix, and that's why I don't drink and drive." Other projects its central member has been involved with include Sky Sailing and Swimming with Dolphins. In 2009 this "band" released a self-titled album, the cover for which features a picture of the Burj Al-Arab, and includes such songs as "Dental Care" and (*) "Vanilla Twilight." Consisting of Adam Young, for 10 points, name this indie pop outfit whose songs include "Hello Seattle" and "Fireflies."
ANSWER: Owl City [accept Adam Young before it is read]
084-10-19-03109
9. This country's extinct Mt. Gambier forms four crater lakes and it is bounded to the north by the Arafura Sea. A treeless limestone plateau called Nullarbor Plain lies on its large southern bight. The Bass Strait separates an island state from its mainland, and this country's Cape Yorke Peninsula serves as a border to the Gulf of (*) Carpentaria and as the northern terminus of the Great Dividing Range. Other features of it include Lake Eyre and the Great Sandy Desert. Tasmania lies to the south of, for 10 points, what island nation whose largest city is Sydney?
ANSWER: Commonwealth of Australia
10. In this work, we learn that title character's father, Mr. Leeford, was in an unhappy marriage with the mother of a man who destroys a locket that belonged to the title character's mother. That man, Monks, conspires with another character who lives at Saffron Hill in this novel. When Nancy's plan to inform the Sowberrys is revealed, she is brutally killed by Bill (*) Sikes. Jack Dawkins, better known as the Artful Dodger, leads the title character to Fagin in, for 10 points, what novel about a young boy who pleads "Please sir, I want some more," by Charles Dickens?
ANSWER: Oliver Twist
11. Sula Wolff discovered that Russian neurologist Ewa Ssucharewa (EV-uh SOOCH-uh-REV-uh) had described this disease as early as 1926, seventeen years before Leo Kanner published his landmark report on children with this disease. Until 1964, the prevailing hypothesis was that this disease was caused by 'refrigerator mothers." In 2010, The Lancet retracted Andrew Wakefield's paper claiming that this disease was caused by the MMR (*) vaccine. Hans Asperger also studied, for 10 points, what "pervasive developmental disorder" characterized by repetitive, stereotyped motions and difficulties with social interaction and communication?
ANSWER: autism spectrum disorder
003-10-19-03112
12. This man came to power after his forces' victory in the Boshin War. This ruler put down a revolt led by Saigo Takamuri called the Satsuma Rebellion. During his rule, his country formulated a new constitution in 1890 and fought a war with Russia that was ended by the Treaty of Portsmouth, which was mediated by Theodore Roosevelt. The Charter Oath laid down the (*) Westernizing goals of his reign, which was preceded by the Tokugawa Shogunate. For 10 points, name this emperor of Japan who led a modernization known as his namesake restoration.
ANSWER: Mutsuhito Meiji [or Mutsuhito Meiji; or Meiji the Great]
079-10-19-03113
13. One byproduct of this type of reaction can be trapped in a 'blanket' structure; that particular reaction of this type is known as the " $D-T$ " reaction. The word denoting this type of reaction is sometimes also used as a synonym for "melting." It requires high-temperature plasmas, though Stanley Pons and Martin Fleischmann erroneously claimed to have invented a (*) "cold" version of this reaction. For 10 points, name this type of reaction in which the nuclei of light atoms are joined together, a reaction whose opposite is fission.
ANSWER: nuclear fusion [do not accept "fission"]
003-10-19-03114
14. One ruler of this name pursued a policy called narodnost, which resulted in the persecution of ethnic minorities and Jews. One ruler of this name asked Mikhail Speranski to draft proposals for a constitution. That ruler of this name signed the Treaty of Tilsit following defeat at the Battle of Austerlitz and created the Holy Alliance. Another ruler of this name oversaw the sale of (*) Alaska and was assassinated with a bomb by a member of People's Will. For 10 points, give the name shared by three tsars of Russia, the second of whom abolished serfdom in 1861.
ANSWER: Alexander
030-10-19-03115
15. A number of this author's essays, such as "Kleist's Amphitryon" and "Freud and the Future," are collected in Essays of Three Decades. In one work, this author takes a more sympathetic view of a character from a Goethe novel, depicting her return in Lotte in Weimar. In another work by this author, Hans (*) Castorp visits a sanatorium at the title location. He also created Adrian Leverkuhn and the Buddenbrooks family. For 10 points, name this German novelist of The Magic Mountain.
ANSWER: Thomas Mann
16. The protagonist of this novel falls in love with Katje, whom he saves from an octopus attack. The protagonist of this novel is sent to the Hermann Goering Casino, where he learns about an object with a serial number consisting of five zeroes. In this novel, which begins with the sentence " $A$ screaming comes across the sky," a V-2 (*) rocket hit follows shortly after each of Tyrone Slothrop's sexual encounters. For 10 points, name this magnum opus of Thomas Pynchon.
ANSWER: Gravity's Rainbow
024-10-19-03117
17. Though not African, this language is the basis for dialects such as Aku and Gullah. William Labov studied the social stratification of this language, which is very similar to the Low Country tongue Frisian. Otto Jespersen first identified a major change in this language's pronunciation called the (*) Great Vowel Shift. It is the most commonly spoken tongue in Zimbabwe, Jamaica, and Australia. For 10 points, name this language which developed from Anglo-Saxon and was used by such authors as John Knowles, William Shakespeare, and J.K. Rowling.
ANSWER: English
079-10-19-03118
18. Two branches of this dynasty negotiated the secret Oñate (oh-NYAH-tay) Treaty. Several members of this dynasty, including Frederick III, used the acronym AEIOU. The Spanish branch of this dynasty was initiated when Philip the Handsome married Joanna the Mad. Rudolph IV and Maximilian I were among the members of its Austrian branch. A Spanish king from this family opposed the $\mathbf{(}^{*}$ ) Protestant Reformation in Germany as Charles V. For 10 points, name this royal house which produced all the Holy Roman Emperors from 1438 to 1740.
ANSWER: House of Habsburg
024-10-19-03119
19. Bézout's Identity means that for integers a and $\mathbf{b}$, there exist integers $u$ and $v$ such that au plus bv equals this value for $a$ and $b$. It can be computed using an algorithm that is based on the fact that this of $\mathbf{a}$ and $\mathbf{b}$ is equal to that of $\mathbf{b}$ and the $\left.\mathbf{~}^{*}\right)$ remainder of a divided by $b$. That algorithm is named for Euclid. If two integers are relatively prime, then this value for those two integers is one. For 10 points, name this value that is the largest factor shared by two numbers, which for the example of 12 and 18 is 6 . ANSWER: greatest common divisor [or GCD; or greatest common denominator; or greatest common factor; or GCF]
20. In Caspar Friedrich's painting The Stages of Life, a group of people of varying ages is mirrored by five of these objects. One of these objects created by Hieronymous Bosch shows a singing monk and a lute-playing nun next to a plate of cherries. One of these objects is towing a much grander one of these objects to its final destination in J.M.W. Turner's painting The (*) Fighting Temeraire. For 10 points, name these modes of transportation, the wreck of which resulted in the drama of Theodore Gericault's The Raft of the Medusa.
ANSWER: boats [accept all equivalents, including ships, vessels, etc.]
030-10-19-03121
21. The Myhill-Nerode relation is defined on sets of these and a set of them is called a formal language. C style ones are null terminated and search algorithms on them include Boyer-Moore and the KMP algorithm. Combining two of them is called (*) concatenation and in some cases matching them can be accomplished by regular expressions. Common encoding methods used include Unicode and ASCII. For 10 points, name these sequences of characters used to store text on computers.
ANSWER: strings [prompt on words]
22. Ludwig van Beethoven's Diabelli Variations were based on a work of this form by Anton Diabelli, and its ancestor was the Ländler (LAND-luhr). This dance in triple meter features an "oom-pah-pah" accompaniment, and examples written by its "king" include "Wine, Women, and Song" and (*) "Tales From The Vienna Woods". For 10 points, name this Austrian dance associated with both the elder and younger Johann Strauss, the most famous of which is "The Beautiful Blue Danube". ANSWER: waltz
23. In one of this man's plays, Sir Robert Chiltern's sister Mabel marries Lord Goring, and in another, Gerald turns out to be the son of Lord Illingworth. Those plays are An Ideal Husband and A Woman of No Importance. The title character of an another of his plays believes her husband is having an affair with Mrs. Erlynne, who is actually her mother. In another play by him, Jack Worthing turns out to be the brother of (*) Algernon Moncrieff. For 10 points, name this author of Lady Windermere's Fan and The Importance of Being Earnest. ANSWER: Oscar Fingal O'Flahertie Wills Wilde

Tournament 15
Round 3

1. This hero's enemies include Agent Orange and Sinestro. For 10 points each:
[10] Name this DC Comics superhero whose role has been filled by Alan Scott and John Stewart. He wields a power ring whose strength is limited only by his imagination.
ANSWER: Green Lantern
[10] This second Green Lantern received his role from the dying Abin Sur. Although he eventually became the evil Parallax, he was one of the founders of the Justice League.
ANSWER: Hal Jordan [or Hal Jordan]
[10] In order to charge his ring, Hal Jordan swears that "no evil would escape [his] sight" in "brightest day" or in this other situation. This phrase names a recent DC universe crossover event.
ANSWER: "blackest night"
080-10-19-03201
2. This ruler brought embarrassment upon herself by accusing a cancer-infected Flora Hastings of being pregnant with John Conroy's child. For 10 points each:
[10] Name this nineteenth century queen of Britain married to Prince Albert.
ANSWER: Alexandrina Victoria
[10] This Whig prime minister served as a mentor to Queen Victoria when she gained the throne in 1837.
He was accused of having an affair with Caroline Norton.
ANSWER: Viscount Melbourne [or Sir William Lamb]
[10] This Liberal rival of Benjamin Disraeli became Victoria's Prime Minister in 1868. His parliamentary reforms included the Ballot Act and the Corrupt Practices Act.
ANSWER: William Ewart Gladstone
080-10-19-03202
3. One poem in this collection states that "smirking beauties of vignettes" cannot satisfy the poet's heart. For 10 points each:
[10] Name this collection of poetry with sections titled "Spleen," "Ideal," and "Revolt."
ANSWER: The Flowers of Evil [or Les Fleurs du Mal]
[10] The Flowers of Evil was written by this French Symbolist poet.
ANSWER: Charles Baudelaire
[10] One poem from The Flowers of Evil is titled for the "Litanies" of this figure, who says "Better to reign in hell, than serve in heav'n" in another work.
ANSWER: Satan [or the Devil; accept equivalents]
080-10-19-03203
4. For 10 points each, name these figures from twentieth-century Italian politics.
[10] He rose to the prime ministry following Italy's military disaster at Caporetto during World War I, and he remained in that office long enough to represent Italy at the Paris peace conference.
ANSWER: Vittorio Emanuele Orlando
[10] Orlando initially supported this leader of the Fascists, but quickly joined the opposition. This leader of the "March on Rome" was Italian dictator from 1922 until an uprising during World War II.
ANSWER: Benito Amilcare Andrea Mussolini
[10] From his father's assassination in 1900 to a plebiscite at the end of World War II, the third king of this name was Italy's head of state. The second king of this name founded the Italian monarchy.
ANSWER: Victor Emmanuel [or Vittorio Emanuele]
5. This poet wrote "If ever two were one, then surely we" in "To My Dear And Loving Husband." For 10 points each:
[10] Name this colonial poet.
ANSWER: Anne Bradstreet
[10] This collection of Bradstreet's poetry, the only one released in her lifetime, was published in England by her brother-in-law.
ANSWER: The Tenth Muse Lately Sprung Up In America, By A Gentlewoman of Those Parts
[10] In one poem, Bradstreet wrote about one of these phenomena that destroyed her house. Robert Frost wrote that "Some say the world will end" in this phenomenon, but "Some say in ice."
ANSWER: fire
6. Caroline and Mrs. Hurst both scheme to separate Mr. Bingley from this character's sister Jane, ultimately without success. For 10 points each:
[10] Name this protagonist, who survives the disapproval of her aunt Catherine to unite with Fitzwilliam Darcy.
ANSWER: Elizabeth Bennet [prompt on Bennet]
[10] Elizabeth and her sisters Jane and Lydia seek husbands in this 1813 novel.
ANSWER: Pride and Prejudice
[10] Pride and Prejudice was written by this author. It debuted two years after her Sense and Sensibility. ANSWER: Jane Austen
7. This man's painting The Artist's Studio depicts figures such as Charles Baudelaire and George Sand in the title location. For 10 points each:
[10] Name this French Realist painter whose The Stone Breakers was destroyed by Allied bombers during World War II.
ANSWER: Gustave Courbet
[10] Courbet created this painting of a funeral at the title location that includes a dog, a procession of women in bonnets on the right, and a man kneeling next to the gravesite.
ANSWER: Burial at Ornans [or Un Enterrement a Ornans]
[10] Courtbet's Burial at Ornans has parallel's to this man's Burial of Count Orgaz. He also painted The Opening of the Fifth Seal and View of Toledo.
ANSWER: El Greco [or Domenikos Theotokopoulos] [prompt on The Greek]
8. This man gave the "History Will Absolve Me" speech after his failed attack on the Moncada Barracks. For 10 points each:
[10] Name this world leader who led the Twenty-Sixth of July Movement and defeated the Bay of Pigs invasion.
ANSWER: Fidel Castro Ruz
[10] Castro was the leader of this country, which was the focus of a Cold War missile standoff in 1962.
ANSWER: Republic of Cuba [or Republica de Cuba]
[10] Castro came to power by overthrowing this dictator, who himself came to power in 1933 with the Revolt of the Sergeants.
ANSWER: Fulgencio Batista y Zaldívar
9. This instrument is played by the soloist in Francis Poulenc's Concert Champêtre, which was written for Wanda Landowska, an avid performer. For 10 points each:
[10] Identify this keyboard instrument which was very popular in 17th century France, when François Couperin wrote four livres of pieces for it.
ANSWER: harpsichord
[10] Gyorgi (zhee-or-zhee) Ligeti (luh-GET-ee) wrote Continuum for the harpsichord, and worked on the soundtrack to 2001: A Space Odyssey, which opens with this tone poem, in which a slow, ascending horn tune is followed by a loud crash and timpani beats.
ANSWER: Also Sprach Zarathustra [or Thus Spoke Zarathustra]
[10] This man was the composer of Also Sprach Zarathustra, as well as the operas Salome and Der Rosenkavalier (row-sin-CAV-a-leer)
ANSWER: Richard Strauss [prompt on Strauss]
10. This operation can be done by least squares fitting to find the minimal error sum of squares. For 10 points each:
[10] Name this operation that can be used to add a straight, first order trend line to a collection of data.
ANSWER: linear regression [promp on regression]
[10] A visual representation of the data and trend line are often found on this sort of plot, which puts everything onto an $\mathrm{x}-\mathrm{y}$ plane.
ANSWER: scatter plot [or scatter diagram]
[10] A trendline with a strong type of this coefficient will closely fit the data and be close to either negative one or positive one, and that coefficient is represented by the letter r .
ANSWER: correlation coefficient
11. For 10 points each, name these philosophies.
[10] Friedrich Jacobi named this philosophy for the Latin word for "nothingness." Practiced by the protagonist of Turgenev's Fathers and Sons, it finds no meaning in life.
ANSWER: nihilism [accept word forms]
[10] Proponents of this philosophy are sure of the existence of nothing except their own mind.
ANSWER: solipsism [accept word forms]
[10] Soren Kirkegaard, Albert Camus (ka-MOO), and Jean-Paul Sartre all belonged to this school of thought that finds absurdity in the face of man's apparently purposeless, meaningless existence.
ANSWER: existentialism [accept word forms]
12. For 10 points each, answer the following about wacky results from special relativity.
[10] In this phenomenon, a stationary observer sees a fast-moving object as shorter than a stationary object that would be of identical size in the same reference frame.
ANSWER: length contraction [accept Lorentz contraction, but do not reveal this answer if not given] [10] This other phenomenon is illustrated by the twin paradox, in which a twin moving at relativistic speeds appears younger than a twin that moves at the Earth's speed, when measured an equivalent number of
Earth-years later.
ANSWER: time dilation
[10] Both length contraction and time dilation are explained by the introduction of this factor, equal to one over the square root of quantity one minus velocity squared over speed of light squared.
ANSWER: Lorentz factor
13. Name these members of the Obama cabinet, for 10 points each.
[10] Negotiations with China over the strength of the yuan were a summer 2010 focus for this Treasury Secretary.
ANSWER: Timothy Franz Geithner
[10] After shooting to fame as the Senate-appointed overseer of TARP, this Harvard professor won a permanent spot as the head of the new Consumer Financial Protection Bureau in September 2010.
ANSWER: Elizabeth A. Warren
[10] This former Arizona governor remains the Secretary of Homeland Security. ANSWER: Janet Ann Napolitano
14. Components used in the formation of these include hubs, switches, and routers. For 10 points each: [10] Name these assemblages of computers that are connected through communications channels like ethernet or WIFI.
ANSWER: computer networks
[10] This network protocol is usually paired with TCP. Its version four has a 32 bit addressing model, but version six has 128 bit addressing.
ANSWER: IP [or internet protocol]
[10] This model for communication between systems has seven layers ranging from the physical layer to the application layer.
ANSWER: OSI model [or Open Systems Interconnection model]
001-10-19-03214
15. In this dialogue, Socrates relates a theory taught him by Diotima of Mantinea. For 10 points each: [10] Name this dialogue concerning a drinking party at Agathon's house where Socrates, Aristophanes, and others discuss the nature of love.

## ANSWER: Symposium

[10] The Symposium is a work by this ancient Greek philosopher, who was taught by Socrates. ANSWER: Platon
[10] Plato's dialogue Theaetetus provides three possible definitions for this concept. Edmund Gettier rejected the definition of this concept as "justified true belief."
ANSWER: knowledge [accept equivalents]
16. Phospholipids are the main components of this structure described by the fluid mosaic model. For 10 points each:
[10] Name this structure that surrounds the animal cell.
ANSWER: cell membrane [or plasma membrane; prompt on membrane]
[10] The cell membrane is defined as this type of membrane, meaning it only allows certain molecules to pass through it via diffusion.
ANSWER: semi-permeable membrane [or selectively-permeable membrane; or partially permeable membrane]
[10] The phospholipids in the membrane form this type of structure in which non-polar hydrocarbon tails are arranged in the interior and polar heads are exposed to the aqueous environment.
ANSWER: lipid bilayer
17. It is built around Mount Victoria, overlooking Port Nicholson on the Hutt River. for 10 points each: [10] What is this North Island city, which was named for the funding given to its founders by Arthur Wellesley?
ANSWER: Wellington
[10] Wellington is, like Auckland and Christchurch, a major city of this country.
ANSWER: New Zealand [or Aotearoa]
[10] New Zealand's more exotic territory includes a claim on Ross Dependency, found on this landmass, which, by treaty, no country may exert direct military or political control over.
ANSWER: Antarctica
18. This economic downturn occurred because of an overreaction to western land speculation. For 10 points each:
[10] Name this economic panic in the antebellum United States caused in part by Secretary of the Treasury Levi Woodbury's issuance of the Specie Circular, which required bullion to purchase land from the government.
ANSWER: Panic of $\underline{\mathbf{1 8 3 7}}$
[10] This opponent of the Second Bank of the United States, known as "Old Hickory," promulgated many of the policies that led to the Panic of 1837 . He had earlier signed the Indian Removal Act.
ANSWER: Andrew Jackson
[10] Jackson saddled this man, his Secretary of State and successor as president, with problems like the Panic of 1837 and carrying out the Trail of Tears.
ANSWER: Martin Van Buren
19. In this opera, Nedda is married to Canio but loves Silvio, prompting Canio to stab Neda and Silvio. For 10 points each:
[10] Name this opera by Ruggero Leoncavallo that contains the aria "Vesti la giubba."
ANSWER: Pagliacci [or The Clowns]
[10] Although not one of his most well known roles, this legendary tenor who died in 2007 played the role Canio and made a notable recording of "Vesti la giubba."
ANSWER: Luciano Pavarotti
[10] This late 19th and early 20th century Italian tenor became well known for his performance as Canio and his recording of "Vesti la giubba" was the first to sell a million copies.
ANSWER: Enrico Caruso
20. This trilogy includes the novels Palace Walk, Palace of Desire, and Sugar Street. For 10 points each: [10] Name this trilogy set in the titular African city.
ANSWER: Cairo Trilogy
[10] The Cairo Trilogy was written by this Nobel-winning Egyptian author of Midaq Alley and Children of Gebelawi.
ANSWER: Naguib Mahfouz
[10] Mahfouz's works are in this language, which was also used by writers such as Tayeb Salih and Tawfiq el-Hakim.
ANSWER: Arabic
21. One section of this work discusses how biases arise from Idols of the "Tribe," "Theater,"
"Marketplace," and "Cave." For 10 points each:
[10] Name this work, the second section of its author's Instauratio Magna, which criticizes Aristotelianism for only explaining already-known phenomena. Its second section uses "Tables of Instances" to develop "True Induction."
ANSWER: Novum Organum
[10] This English philosopher included the Novum Organum in his Instauratio Magna. He also wrote The Advancement of Learning and divided "pneumatic matter" into "Sulphur" and "Mercury" quaternions. ANSWER: Francis Bacon
[10] Francis Bacon championed this type of "method," based on rigorous induction and empirical data. This method is performed by testing hypotheses and is used to discover the natural laws of the universe. ANSWER: the scientific method

