

1. When DNA or RNA are analyzed with the reverse-phase form of a type of this technique, they are paired with TEAA. Alkyl sulfonates are the most popular pair in that type of this technique. A popular matrix for this technique is a polymer of polystyrene crosslinked by divinylbenzene; an important parameter of that matrix is the resin capacity. Early versions of this technique had problems with the eluting electrolyte swamping out the signal from the analyte of interest, which was originally solved by Hamish Small, et al. with the addition of a suppressor column. The most common detector used for this technique is the conductometric detector. For 10 points, identify this type of chromatography used to separate charged molecules.

ANSWER: cation-exchange chromatography [or IC; or ion pair chromatography; or IPC; or ion-pair reverse-phase chromatography; or IPRP chromatography; prompt on chromatography]

2. At the end of this work, two squires use a magic glass to observe their fathers fighting and killing each other, after which the squires also fight and kill each other. One character in this play engages in a magic duel with Jacques Vandermast by conjuring the tree from the Garden of the Hesperides, but Vandermast conjures up Hercules, who tears the branches from that tree, and is only stopped by the intervention of the first title character. In this work, the words "Time is," "Time was," and "Time has been," are uttered by a head made of brass which is then shattered by a magical hammer, foiling the first title character's attempts to surround England with a wall of brass. The story of this play's title characters is intertwined with the romance between Lacy, Earl of Lincoln, and Margaret, daughter of the Keeper of Fressingfield Park, and this play is set during the time of Henry III and ends with the prophecy of prosperity during the rule of Elizabeth I. For 10 points, identify this comical history play about the two title Oxford clergymen, the best known work of Robert Greene.

ANSWER: Friar Bacon and Friar Bungay

3. The initial impetus for this project arose when Willstrop and Wynne showed that existing equipment could be modified to realize the parameters of this experiment. This project's major technical advances included 400 optic fibers mounted in magnetic buttons, which are spread across two plates so that a robot can adjust one set of fibers while the other set is imaging. Percival et. al. in 2001 used the results of this project to characterize the large-scale density fluctuations in terms of the power spectrum of the galactic distribution, yielding results consistent with a cold dark matter universe. This survey was also the first to measure the bias between the galaxy distribution and the underlying matter distribution. Resulting in the production of a three-dimensional map of over 200,000 galaxies out to a redshift of 0.3, for 10 points, identify this astronomical survey using the Anglo-Australian Telescope which takes its name from the diameter of its field of view.

ANSWER: 2df Galaxy Redshift Survey [or 2 degree field]

4. This event was partially catalyzed by the issuance of the March Manifesto, which canceled unconstitutional legislation, and Power Act, which made supreme the legislature of the polity in which this event occurred. The government which carried out this event was replaced after making a failed offer of a crown to Friedrich Karl, Prince of Hesse. After the failure of the "We Demand" program of social reform advocated by the Social Democratic Party, this action was carried out by the middle-class government of Pehr Evind Svinhufvud. Following this event, the nation in which it occurred experienced a civil war, whose sides, much like those in a nation directly east, were called the Whites and the Reds. For 10 points, identify this event which occurred in 1917 when a region that was formerly a Grand Duchy of the Russian Empire became a separate Scandinavian nation.

ANSWER: **Finnish independence**

5. The theoretical section of this work divides the topic of its subtitle into an editing phase and an evaluation phase, with the editing phase consisting of coding, combination, segregation, and cancellation. One section of this work discusses the experiments of Maurice Allais while another section introduces an experiment called "probabilistic insurance." This work argues that the decomposition of its title concepts into common and distinctive components in different ways will lead to different preferences, a term it calls the "isolation effect," and argues by analogy to sensory phenomena that the marginal value of both gains and losses decreases with their magnitude. This paper introduces an S-shaped value function which is steepest at the reference point, and argues that the certainty effect drives people to risk aversion in choices involving sure gains and to risk taking in choices involving sure losses. For 10 points, identify this seminal paper of behavioral economics by Kahneman and Tversky, which spawned the namesake theoretical framework.

ANSWER: **Prospect Theory**: An Analysis of Decision under Risk

6. One work in this collection is "A Study in Individualism" of a man named William Remington, whose "individual and personal program," was to "insist on being an active party in any transaction that might involve him." Another work in this collection argues that although "formerly, quantity had to give place to quality; today it is the reverse," in critiquing its title subject, "Education, Past and Present." In addition to those works by Henry Kline and John Gould Fletcher, this collection includes a critique of Francis Bacon as embodying the titular "Philosophy of Progress," written by Lyle Lanier, as well as an essay that quotes Booker T. Washington to argue for vocational education for blacks while endorsing segregation titled "The Briar Patch." The first essay in this collection acknowledges that "It is out of fashion in these days to look backward rather than forward," and argues that a certain region was "unique on this continent for having founded and defended a... European... culture," and is titled "Reconstructed but Unregenerate." Beginning with "A Statement of Principles" that sets itself against progressive industrialism, for 10 points, identify this collection that includes essays by John Crowe Ransom, Allen Tate, and Robert Penn Warren, the manifesto of the Southern Agrarians.

ANSWER: **I'll Take My Stand**: The South and the Agrarian Tradition

7. When questioned whether his mystical experiences produced the same insights as reason, man allegedly replied "Yes and no, and between the yes and the no spirits take wing from their matter and necks are separated from their bodies." A central concept of this man's thought is the idea of the "perfect man," whose perfection consists of the fact that "his Lord is not without need for him, since there is no one [else] who worships Him outside the mode of glorification." In this man's thought, the most perfect of all human beings acts as a bridge between man and God, and is called the *qutb*, or "axis." This man is most famous for first formulating the concept of *wahdat al-wujud*, or the "transcendent unity of being," and his religious views are contained in his *Fusus al-hikam*, or *Bezels of Wisdom*, and his *Meccan Illuminations*. For 10 points, identify this gnostic Sufi thinker sometimes known as *al-shaykh al-akbar*, or "the Greatest Master."

ANSWER: Abu Abdullah Muhammad ibn Ali ibn Muhammad ibn **al-Arabi**

8. After this event, a pamphleteer named Frank Wolfe analogized its aftermath to an event that had occurred seven years earlier in Colorado, drawing parallels between Harry Orchard and Ortie McManigal. Following this event, Lincoln Steffens served as a mediator in the subsequent trial, which also resulted in the defense's counsel being separately tried for bribing a juror. This event led directly to Job Harriman's loss in the general election for mayor, as Harriman had been the defense lawyer, along with Clarence Darrow, for the two perpetrators of this event. This event resulted in the death of 21 people and had

targeted a building in "Ink Alley," which belonged to a company run by Harrison Gray Otis, who had been inveighing against the Iron Workers' strike. For 10 points, identify this October 1, 1910 event perpetrated by the McNamara brother, which resulted in the destruction of a building belonging to a major publishing company in a large Southern California city.

ANSWER: the **bombing** of the **Los Angeles Times** building [accept any equivalents mentioning the Times and the fact that a bomb was used on them]

9. An atypical painting by this artist depicts Napoleon's soldiers waist-deep in water building a bridge over the title river; that painting is titled *The Crossing of the Berezina*. In one painting by this artist, his name is engraved on a stone plinth underneath a bronze sculpture of a panther while three women look down over a stone wall at ships returning in the distance. In addition to painting *The Coign of Vantage*, this painter depicted a piper being followed down a series of steps by a train of children wearing flower garlands during a festival. This painter used a story from Plutarch as inspiration for a painting in which the title figures guard a group of *bacchantes*, and he depicted the title figure of another painting reclining on a couch wearing a robe of golden silk while in the foreground courtiers are being smothered to death by petals of the titular flowers. Denounced for decadence by, among others, John Ruskin, for 10 points, identify this Dutch-born British Victorian artist of *Spring*, *The Women of Amphissa*, and *The Roses of Heliogabalus*, famous for his depictions of daily life in ancient Rome and Greece.

ANSWER: Lawrence **Alma-Tadema**

10. This work's third section contrasts the "ethical state of Nature," in which "each individual is his own judge," with the "ethical commonwealth," joining which, this work argues, is a "duty... sui generis... of the human race toward itself." The second section of this work addresses the difficulty of passing judgment on someone who has turned from evil to good by noting that punishments for former evil are not appropriate to the now-good individual, as he is "morally another person." This work argues against the vicarious atonement theory, holding instead that the sacrifice of Jesus was an exemplary one, and its first section is dedicated to an analysis of radical evil. The preface to this work argues that although morality, in itself, has no need of the title concept, it nevertheless "leads ineluctably to," that title concept, extending to the idea of a "powerful moral Lawgiver, outside of mankind." Also containing an attack in its fourth section on clericalism as unnecessary to the title concept, for 10 points, identify this work which expounds the religious philosophy of Immanuel Kant.

ANSWER: **Religion Within the Limits of Reason Alone** or **Religion Within the Bounds of Bare Reason** or Die **Religion innerhalb der Grenzen der blossen Vernunft**

11. The centromeric version of a gene that codes for a protein whose absence results in the death of these cells has a C to T mutation at exon 7 as compared to the gene's telomeric version. The alpha type of these cells form a negative feedback loop with Renshaw cells. The telomeric version of that gene codes for the SMN protein and is mutated in SMA. Lesions of the upper ones of these cells can be diagnosed by the presence of a clasp-knife response or the Babinski sign. These cells are organized in the anterior horn of the spinal cord according to the flexor-extensor and proximal-distal rules. These cells are clustered in columnar nuclei called pools and their lower type is split into two types based on whether they interact with extrafusal or intrafusal fibers. The most common disease that affects these cells is ALS. For 10 points, identify these neurons that innervate muscles.

ANSWER: **motor** neurons [or **motoneuron**; or specific types of motor neurons, such as "upper", "lower", "alpha", "gamma"; prompt on **neurons**, **spinal** neurons, **extrapyramidal** neurons, or **cranial** neurons]

12. In one work by this author, the chapters correspond to the movements of a piece of music played by the nameless child of Anne Desbaresdes, and takes its name from the instruction given by Mademoiselle

Giraud on how to play Diabelli's sonata. Another work by this author ends with Rodrigo Paestra committing suicide after having previously shot his wife and her lover. In addition to *Moderato Cantabile* and *10:30 on a Summer Night*, this writer told the story of Ma, her son Joseph, and her daughter Suzanne's attempt to cultivate a plot of land that's continuously being flooded by the Pacific Ocean in *The Sea Wall*. This writer's most famous novel concerns the love affair between a thinly-fictionalized 15-year-old version of herself and a Chinese man in French Indochina, and won her the 1984 Prix Goncourt. For 10 points, identify this French author who wrote the screenplay for Alain Resnais' *Hiroshima, mon amour* as well as the novel *The Lover*.

ANSWER: Marguerite **Duras**

13. William Thompson Walters donated five works by this artist to the city of Baltimore and was this artist's major collector and biographer in the States. As a student, this artist's works on the theme of "Cain cursed by God after the murder of Abel," and "Joseph's coat brought to Jacob," failed to garner the top prize at the Ecole des Beaux-Arts. This artist received a major commission to create five hunting groups for the Duke of Orleans, and after his death, most of his models were purchased by Ferdinand Barbedienne, who had done most of the casting of this artist's works. More conventional sculptures by this artist include an equestrian monument to Napoleon for the Corsican town of Ajaccio, and for the courtyard of the Louvre, called the Carousel, this artist created two personifications of the Seine as river gods, which were intended to flank this artist's relief of Napoleon III. This sculptor was most famous for his miniature bronzes, such as *Crocodile Devouring an Antelope*, and *Python Killing a Gnu*. For 10 points, identify this French *animalier* sculptor.

ANSWER: Antoine-Louis **Barye**

14. In one myth, this goddess teams up with her sister Lishan Laomu, who is sometimes identified as Nuwa, to fix the sky at Mount Li after Mount Buzhou is destroyed in a fight between Gonggong and Zhurong. During the Han dynasty, this goddess was said to have a consort named Dongwanggong, whom she met while climbing on the wing of the giant bird Xiyao. In the book *Huainanzi*, the hero Yi asks this goddess for the elixir of immortality, of which she was said to be the keeper, and which was later stolen by Yi's wife Chang'e. Immortality is also said to be in the possession of this goddess in the form of peaches, as related in *Journey to the West*, and in general the peach is an attribute of this goddess. In the *Shanhaijing*, this goddess is depicted with a panther's tail and tiger's teeth, and she has an alternate name meaning "queen mother." For 10 points, identify this Chinese goddess, said to be the leader of the goddesses in the Taoist pantheon.

ANSWER: **Xiwanmu** or **Wangmu** Nianniang

15. In his capacity as the lord high admiral, this monarch came into conflict with Sir George Cockburn, the senior member of the naval council without whose permission this monarch could not undertake naval actions. This king caused the "ministry of the hundred days" by dismissing parliament and asking the Tories to form a ministry that was first headed by the Duke of Wellington and then by Robert Peel. In foreign affairs, this ruler supported the claim of Leopold of Saxe-Coburg-Saalfeld, the widower of his niece Princess Charlotte, to the throne of a newly independent Belgium. This king's domestic actions included the dismissal of Lord Melbourne over the Irish Church question and the a threat to enough peers to pass a bill introduced into the House of Commons by John Russell, which fixed, among other things, the problem of rotten borough. For 10 points, identify this British monarch, whose reign saw the passage of the 1832 Reform Bill, and who was succeeded by his niece, Victoria.

ANSWER: **William IV** or **William Henry**

16. A key component in the operation of these devices is a "superleak," usually made from compressed

powders, which helps establish the osmotic pressure difference that drives the operation of these devices. The surface areas of the heat exchangers used in these devices must be as large as possible in order to compensate for the Kapitza boundary resistance. The “dry” variant of these devices eliminate the need for a 1K bath and its associated pumping system by using pulse-tube coolers, and at low temperatures these devices have cooling power proportional to the square of the temperature. These devices rely on the fact that below the triple point, a mixture of helium-3 and helium-4 will undergo phase separation, with the heat of mixing providing the energy to move pumped-out helium-3 across the phase boundary and create cooling. For 10 points, identify these cryostatic devices which are able to reach temperatures below 300 milliKelvin.

ANSWER: dilution refridgerator

17. A woodblock print by Hiroshige depicts this man looking left over a balcony onto a devastated white landscape populated by skeletons, symbolizing the destruction wrought by this man. After gaining the title of *dajo daijin*, this man solidified his power by marrying off his daughter Tokuko to Emperor Takakura. The last years of this man’s life were called the “Rokuhara regime,” and six months before his death, this man moved the capital to his own stronghold of Fukuvara. This man defeated his great rivals in the Hogen disturbance, during which he sided with Go-Shirakawa, and after his former ally Yoshitomo rebelled against him, he defeated and killed Yoshitomo in the Heiji war. Shortly after this man’s death, the remainder of his family would be eliminated following defeat at the 1185 Battle of Dan-no-ura by Minamoto Yoritomo. For 10 points, identify this great head of the Taira family, a major figure in 12th century Japan.

ANSWER: Kiyomori Taira

18. While riding a streetcar with a revolver in his pocket, the narrator of this novel brushes up against a young girl, an action which he then considers both “shameful” and “an extremely important key to my subsequent actions.” One of the last chapters in this novel is a letter from the narrator’s wife, in which she accuses him of needing a mirror, because “any stranger is for you simply a mirror in which to reflect yourself.” In this novel, commentaries by the narrator are set off in sections titled “Excursus,” and this novel itself is divided into three parts, which are titled after the black, white, and grey notebooks respectively. The narrator of this novel visits “K’s Molecular Chemistry Institute,” to get treatment for the scars left over from a liquid oxygen explosion, but later decides to create a mask for himself, which he then uses to seduce his estranged wife. For 10 points, identify this novel about a disfigured scientist, written by Kobo Abe.

ANSWER: The Face of Another or Tanin no kao

19. One book by this thinker contains an appendix that analyzes Karl Barth’s and Alphonse Maillot’s interpretations of Romans 13:1, which this thinker called “a very embarrassing passage.” That work by this author also interprets Ecclesiastes as a challenge to political power. In another work, this thinker asked “How has it come about that the development of Christianity has given birth to a society... that are completely opposite to what we see in the bible?” In addition to writing *The Subversion of Christianity*, this author analyzed what he defined as “the totality of methods rationally arrived at and having absolute efficiency... in every field of human activity,” which he termed “technique,” in a work which castigates the title entity for confusing means and ends. Another work by this author studies the scientific and sociological processes of opinion formation and is titled *Propaganda: The Formation of Men’s Attitudes*. For 10 points, identify this French Christian anarchist who wrote *Anarchy and Christianity* and *The Technological Society*.

ANSWER: Jacques Ellul

20. One character of this profession has a conversation with Doctor Vigelius accompanied by offstage celesta and piano, and then dies in Grete's arms after having been haunted by the title phenomenon in a work by Franz Schreker. In another opera, one of these people sings "Du Venus' Sohn" and, in order to please the richest man in Vienna, makes an agreement with Zerbinetta that he immediately regrets. Silla, also a trouser role, is an apprentice of this profession in another work; unlike Ighino, he eventually leaves for Florence rather than continuing to study this pursuit with the allegedly old-fashioned title character. That character plies this craft all night long after being visited by nine ghostly masters of this profession, as well as his dead wife Lucrezia. For 10 points, name this profession practised by the aforementioned characters from *Der ferne Klang*, *Ariadne auf Naxos*, and the Hans Pfitzner opera *Palestrina*.

ANSWER: **composers** [prompt on "musicians", I guess]

1. This trilogy consists of the books *The Structures of Everyday Life*, *The Wheels of Commerce*, and *The Perspective of the World*. For 10 points each:

[10] Identify this trilogy of historical works which covers the 15th through the 18th centuries, focusing particularly on the emergence of the title economic system.

ANSWER: **Civilization and Capitalism** or **Civilisation materielle, economie et capitalisme**

[10] This historian, a leader of the *Annales* school and practitioner of the *longue duree* method of historical analysis, wrote *Civilization and Capitalism*.

ANSWER: Fernand **Braudel**

[10] Braudel's first major trilogy focused on life near this geographical feature during the time of Philip II.

ANSWER: the **Mediterranean** Sea

2. This novel is narrated by Paulo, the son of one of Lisbon's most famous drag queens, and mainly consists of his memories, including the divorce of his parents Carlos and Judite, and Carlos' relationship with his boyfriend Rui. For 10 points each:

[10] Identify this novel.

ANSWER: **What Can I Do When Everything's On Fire?** or **Que Farei Quando Tudo Arde?**

[10] This Portuguese novelist, who set most of his works during Portugal's colonial war, wrote *What Can I Do When Everything's On Fire?* as well as *The Land at the End of the World* and *Fado Alexandrino*.

ANSWER: Antonio Lobo **Antunes**

[10] One of Antunes' novels is written up as a series of reports on various characters and is titled after a "manual" for this kind of person. Dostoyevsky's *The Brother's Karamazov* contains a famous story about the "Grand" one.

ANSWER: **inquisitor**

3. Founded by its namesake in the mid-15th century, this organization was purchased for the crown by Colbert in 1662. For 10 points each:

[10] Identify this factory originally founded as a dye works, which produced royal tapestries and furniture for Louis XIV.

ANSWER: the **Gobelins** Factory

[10] This artist was the director of the Gobelins factory from 1663 until 1690. You may know him better for his series on the battles of Alexander the Great, as well as for his Salons of War and Peace.

ANSWER: Charles **Le Brun**

[10] Le Brun owes much of his grand manner to this teacher of his, who was first painter to Louis XIII and painted allegories like *The Riches* and *Time Vanquished by Hope, Love, and Fame*.

ANSWER: Simon **Vouet**

4. This author wrote about Phillip Hayman's life on Ripple Street in the first novel of a trilogy that was continued in *Homage to Blenholt* and *Low Company*. For 10 points each:

[10] Identify this author who began his "Brooklyn Trilogy" about Jews living in, of all places, Brooklyn, with *Summer in Williamsburg*.

ANSWER: Daniel **Fuchs**

[10] A recent edition of Fuchs' Brooklyn Novels was published with an introduction by this other American Jewish writer, best known for fictionalizing himself as Dylan Ebdus in *The Fortress of Solitude*.

ANSWER: Jonathan **Lethem**

[10] This novel, Lethem's first, is a noir spoof in which the private detective Conrad Metcalf investigates

the murder of the doctor Maynard Stanhunt.

ANSWER: **Gun, with Occasional Music**

5. Prince Imre, the only son of King Stephen I of Hungary, was canonized as a saint after he died in this manner. FTPE,

[10] Name this cause of death, generally caused when the victim suffers slashing injuries from the tusks of the namesake game animal

ANSWER: **boar attack** or **boar hunting accident** or **being killed by wild boars**

[10] Amazingly, Prince Imre was not the only prominent Hungarian to be killed by wild boars. The same fate befell Mikos Zrinyi, better known as the author of this text, the national epic poem of Hungary.

ANSWER: **The Peril at Sziget** [accept: **Szigeti Veszdelem**]

[10] Miklos Zrinyi held this title, given to the Hungarian royal official in charge of Croatia. During the Kossuth rebellion, this title was held by Josip Jelacic.

ANSWER: **Ban** of Croatia

17th century woodcut of the death of Miklos Zrinyi



6. This biologist and his wife Midori pioneered the translation of DNA into music by ordering the four nucleotides by molecular weight and duplicating them over an eight note scale. For 10 points each:

[10] Name this scientist whose *Evolution by Gene Duplication* introduced the 2R hypothesis, which suggests that early vertebrates underwent two rounds of complete genome duplication.

ANSWER: Susumu **Ohno**

[10] Ohno is best known for proposing that these things were highly condensed, inactive X chromosome.

ANSWER: **Barr body**

[10] Transcription of this gene, located in the X inactivation center, triggers the inactivation of the X chromosome from which it is transcribed. The transcription product of this gene coats its associated chromosome.

ANSWER: **XIST** gene [or **X inactive specific transcript** gene]

7. The six major divisions in this religious tradition are called “nations,” and comprise Ketu, Ijexa, Jeje, Angola, Congo, and Caboclo. For 10 points each:

[10] Identify this syncretic religion that had its beginnings in the city of Salvador in Bahia state. Like Santeria, it combines Catholicism with devotion to *orixas*.

ANSWER: **Candomble**

[10] The Brazilian religious scholar Raymundo Nina Rodrigues was the first to conduct an academic study

of Candomble; his interest in it was driven by his curiosity about this process, which occurs to *iwos* and *ebomis* during a Candomble initiation, and preparation for it is sometimes called “making the saint.”

ANSWER: **possession** by an orixa [accept anything that implies that the orixa is occupying the initiate’s body]

[10] While Candomble traditions mostly originate with descendants of the Yoruba, this other Afro-Brazilian religion traces its roots to a fusion of Congolese and Angolan traditions. Its practices include consultations with *pretos velhos*, the spirits of dead African slaves.

ANSWER: **Umbanda**

8. An early application of these compounds was to cyanide displacement reactions. For 10 points each:

[10] Identify these compounds used in heterogeneous two-phase systems that facilitate the migration of a reactant from one phase to another, such an ionic reactant from an aqueous phase to the organic phase.

ANSWER: **phase-transfer** catalysts [or **PTC**]

[10] These salts are common phase-transfer catalysts for anions and are formed from a certain compound when all its hydrogens are replaced by alkyl or aryl groups. TMA is bound to a counterion in their simplest examples and one is formed after the first stage of the Hofmann elimination.

ANSWER: **quaternary ammonium** salts [prompt on quaternary ammonium salt]

[10] These non-cinchona alkaloid, macrocyclic compounds are common phase-transfer catalysts for cations. These compounds consist of a pair of carbon atoms attached to an oxygen that repeats in a ring structure and which have a very high affinity for certain cations depending on the size of the ring.

ANSWER: **crown ether**

9. In a 1964 conference presentation, Richard Hofstadter described this movement as “one of the faded passions of American reform” and asked, in the title, what happened to it. For 10 points each:

[10] Identify this reformist cause enshrined in such legislative efforts as the Sherman and Clayton Acts.

ANSWER: **antitrust** legislation

[10] This man succeeded Robert Jackson as the head of the Justice Department’s Antitrust Division. The author of a book called *The Folklore of Capitalism*, he gained notoriety for zealously prosecuting cases against companies which he thought hampered the war effort with their monopoly.

ANSWER: Thurman Wesley **Arnold**

[10] Probably Arnold’s highest-profile case was against this corporation, which Arnold thought was holding out on aluminum production. In 1945, a decision by Learned Hand found that the very existence of this company was breaking antitrust laws.

ANSWER: **Alcoa**

10. The narrator of this novel is a student who is himself writing a novel about Dermot Trells, who is also writing his own novel. For 10 points each:

[10] Identify this novel, in which the characters created by Trells, including John Furriskey and the Pooka conspire to overthrow him.

ANSWER: **At Swim-Two-Birds**

[10] *At Swim-Two-Birds* was written by this author of *The Third Policeman*, an Irish comic author well-known for his series of columns “The Cruiskeen Lawn.”

ANSWER: Flann **O’Brien** or Myles na **Gopaleen** or Brian **O’Nolan**

[10] Among the characters used by Dermot Trells in *At Swim-Two-Birds* is this Irish king, who allegedly went mad after being cursed by St. Ronan. His story also inspired a T.S. Eliot poem in which he is described as “ape-necked.”

ANSWER: **Sweeney** or **Suibhne**

11. A t-channel and a u-channel Feynman diagram are sufficient to describe this process, which by symmetry has the same cross section as Bhabha scattering. For 10 points each:

[10] Identify this elastic scattering process.

ANSWER: **Moller** scattering or **electron-electron** scattering

[10] Moller scattering can be used to obtain a precision measurement of this quantity from Glashow-Weinberg-Salam theory, which determines how the photon and Z boson are produced during symmetry breaking.

ANSWER: weak **mixing angle**

[10] Moller actually calculated the cross section for his eponymous process before QED was invented by directly solving this relativistic equation that describes spin-one-half particles.

ANSWER: **Dirac** equation

12. The introduction to this work argues that "everyone can be his own philosopher, because in philosophy we investigate what we already know." For 10 points each:

[10] Identify this 1929 philosophical work, which sets out to determine the criteria by which the term "real" can be correctly applied. It notably introduced its author's system of "conceptual pragmatism."

ANSWER: **Mind and the World Order**

[10] *Mind and the World Order* is the philosophical magnum opus of this American philosopher, who shares his surname with the unrelated author of *Counterfactuals*.

ANSWER: Clarence Irving **Lewis**

[10] In *Mind and the World Order*, Lewis defines this concept not as a "material truth" but as something "definitive or analytic in its nature," and "knowable simply through the reflective and critical formulation of our own principles of classification and interpretation."

ANSWER: **a priori**

13. As a result of this treaty, the Ottoman Empire ceded all territory west of a line between Enos and Midia and abandoned all claims to Crete. For 10 points each:

[10] Identify this treaty signed in a European capital on May 30, 1913; it did not prevent war from breaking out among some of the signatories just two months later.

ANSWER: Treaty of **London**

[10] The Treaty of London ended this conflict, in which Bulgaria, Serbia, and Greece allied against the Ottomans.

ANSWER: **First Balkan** War

[10] This British foreign secretary presided over the London conference, at one point issuing an ultimatum to the Balkan countries to either sign an agreement or leave.

ANSWER: Edward **Grey**, 1st Viscount Grey of Fallodon

14. The "Battle Hymn", "Hymn to the Waters", and "Hymn to Agni" are among his *Choral Hymns from the Rig Veda*. For 10 points each:

[10] Name this composer who had a women's chorus sing from behind a gradually closing door in *The Planets*.

ANSWER: Gustav **Holst**

[10] This orchestral suite by Holst was inspired by a visit to Algeria. Its third movement, "In the Streets of the Ouled Nails", features the ostinato E E-C-E F#-G-F#-E, introduced by a solo flute.

ANSWER: **Beni Mora**

[10] Holst composed a setting for soprano and orchestra of this Walt Whitman poem, whose speaker exhorts the title character to play a certain instrument.

ANSWER: **The Mystic Trumpeter**

15. One artist with this last name depicted a girl using her hand to cover her left breast in *The Bather*. For 10 points each:

[10] Give this last name of the artist of *Self Portrait in a Straw Hat* and many paintings of Marie Antoinette, which is also the last name of an artist who became "Chief Painter" to Louis XIV.

ANSWER: **Le Brun** [or Charles **Le Brun**; or Louise Elisabeth Vigée **Le Brun**; or Madame **Le Brun**]

[10] Charles Le Brun decorated seven rooms named for Roman deities at this location. The salons of war and peace are part of this complex, where Hardouin-Mansart designed a famous hall.

ANSWER: Palace of **Versailles** [or Chateau de **Versailles**; or Chateau of **Versailles**]

[10] This other artist's works were included in the *appartement du roi* at Versailles. His red-clad *Saint John the Evangelist* stands between two putti struggling to hold up books, and he painted many frescoes of San Gennaro.

ANSWER: **Domenichino** [or Domenico **Zampieri**]

16. This man got his start as an itinerant preacher in the kingdom of Gobir, but eventually gathered enough followers to lead a *jihad* against the Hausa states. For 10 points each:

[10] Identify this man who founded an independent state in northern Nigeria which after his death was ruled by his son, Muhammad Bello.

ANSWER: Shehu Usman **dan Fodio** or Uthman ben Muhammad **ben Salih**

[10] This was the kingdom founded by dan Fodio, a Muslim empire that reached great prosperity from its capture of Hausa slaves and from trade in Hausa cloth.

ANSWER: **Sokoto** Caliphate

[10] The other target of dan Fodio's *jihad* was this empire, which occupied parts of modern-day Chad and Sudan in central Africa, and at one point was ruled by Idris Alooma.

ANSWER: Kanem-**Bornu**

17. The Canadian city of Dauphin enacted this economic policy from 1974 to 1979, and data suggests it may have led to higher graduation rates and better health. FTPE,

[10] Name this proposal, recently featured in the New York Times, which would give every citizen of a country an certain amount of money each year, unconditionally.

ANSWER: **basic income** [accept: **universal income**; **minimum income**; **guaranteed annual income** or **GAI**]

[10] This US President proposed a form of basic income he called the Family Assistance Plan, or FAP, under which a family of four would receive \$1,600 per year, equivalent to \$10,000 in 2013 dollars. His proposal passed the House of Representatives but failed in the Senate.

ANSWER: Richard Milhous **Nixon**

[10] Some trace the idea of a basic income to this 1797 pamphlet by Thomas Paine, which also suggested high inheritance taxes and a land tax.

ANSWER: **Agrarian Justice**

18. This deity, second in rank only to Hunab Ku, takes his name from the fact that in the Mayan pantheon, the world was conceived of as a series of walls sitting on top of iguanas. For 10 points each:

[10] Identify this supreme Mayan deity, whose name literally means "iguana house."

ANSWER: **Itzamna**

[10] In his form as a two-headed serpent, Itzamna represented this entity, which was also represented by Mixcoatl in the Toltec pantheon in his form as the "cloud serpent."

ANSWER: the **Milky Way**

[10] In the Mayan pantheon, the goddess Ixtab plays the role of psychopomp, conducting the worthy to the shade of Yaxche, which is this kind of thing, like Ygdrasil in Norse myth.

ANSWER: world **tree**

19. This novel's titular "hero without character" seduces the wife of his stupid brother Jigue and has a son with Ci, the Mother of the Forest, who is later killed by a snake. For 10 points each:

[10] Identify this novel in which the title character ascends to heaven as the Great Bear constellation after his adventures with his brothers Jigue and Maanape in Sao Paulo.

ANSWER: **Macunaima**, o heroi sem nenhum caracter

[10] *Macunaima* is probably the best known novel of this Brazilian modernist who also wrote about Sao Paulo in his poetry collection *The Hallucinated City*.

ANSWER: Mario Raul de **Andrade**

[10] Andrade was strongly impacted by this work, which spoke of the desire to "sing the love of danger," and proclaimed "a roaring car... more beautiful than the Victory of Samothrace." It was written by Filippo Marinetti.

ANSWER: **Futurist** Manifesto

20. Loosely paraphrased, this result states that for an elliptic system of partial differential equations on a closed, smooth, oriented manifold, the analytical index is equal to the topological index. For 10 points each:

[10] Identify this doubly-eponymous mathematical result.

ANSWER: **Atiyah-Singer** index theorem

[10] The Atiyah-Singer theorem contains as a special case a theorem that links the geometry of a manifold to its topology. It is named after Pierre Bonnet and this mathematician.

ANSWER: Carl Friedrich **Gauss**

[10] One formulation of the Gauss-Bonnet theorem is that the integral of the curvature over the area is proportional to this quantity, which the polyhedral formula gives as vertices minus edges plus faces.

ANSWER: **Euler characteristic**