

Chicago Open 2015

Packet by Sustainable Ibex Farming (Matt Bollinger, Tommy Casalaspi, Auroi Gupta, and Matt Jackson)

1. The voice of this being ends a bidding war over a crying fish which a servant was sent to go purchase in a *Complete Tale of* [this being] set in the Southern Seas. In another story, this being transforms some trees to generate a bunch of illusory sword-wielding pirates, who run up a hill to test the devotion of a boy with a broken leg. A "dragon daughter" with her hands in her sleeves is one of the two servants often depicted flanking this being. Many depictions show this being with a jar of water in one hand and a willow branch in another. Distressed (*) sailors especially revere this being, who in one origin story put out a fire in a monastery using only bare hands under the birth name Miao Shan, then took a name which means "contemplating the sounds of the world" and retired to Mount Putuo. Red Boy becomes the servant of this white-robed divine being in the Ming novel *Journey to the West*. For 10 points, name this usually-female and sometimes thousand-armed Chinese analogue of the Sanskrit Avalokiteshvara, revered since the Tang dynasty as the bodhisattva of compassion.
ANSWER: Guan Yin [or Guanshivin; prompt on "Avalokiteshvara"]

2. George Russell's book *The Lydian Chromatic Concept of Tonal Organization* used this musician's solos as an example of horizontal improvisation. In a recording released under "Jones-Smith Incorporated," this musician performed a frequently-imitated solo during the standard "Oh, Lady Be Good." In the title of a head arrangement based on the chord progression of "I Got Rhythm," this man "Leaps In." This musician called the bridges of songs "George Washingtons," coined the term "bread," meaning money, and came up with many other slang terms that popularized the original (*) hipster ethos. He also nicknamed Billie Holliday "Lady Day," and replaced Coleman Hawkins in Fletcher Henderson's orchestra after himself leaving Count Basie's band. His death in 1959 inspired Charles Mingus's elegy "Goodbye Pork Pie Hat." For 10 points, name this tenor saxophonist who was nicknamed "Prez."
ANSWER: Lester Young [or Lester Willis Young; accept Prez before mentioned; accept President before mentioned]

3. An English raider named Aymas Preston sacked this city during its early days as a wheat export powerhouse. Governor Juan de Pimentel sketched out the first map of this city, whose elites were studied in the travel journals of Frenchman Francois Depons. In the 18th century, trade from this New World city was monopolized by the Basques who ran its namesake Gipuzkoan Company, which was opposed by León's rebellion. Starting in 1777, it administered its surrounding region as a "Captaincy General" which fell apart after the appointment of Vicente de Emparán by Emperor Joseph was not universally recognized. This city took its colonial-era exports to the nearby port of La Guaira. (*) A massive 1812 earthquake helped loyalist Domingo de Monteverde defeat a breakaway republic headquartered in this city, which was later the capital from which José Antonio Páez ruled. An army that marched northeast to here from Cúcuta issued the Decree of War to the Death. For 10 points, name this city reached at the end of Simón Bolívar's Admirable Campaign in 1813, Bolívar's childhood home.
ANSWER: Caracas, Venezuela

4. A minor character in this play boasts that she is such a good matchmaker, that she can make "the Grand Turk marry the Republic of Venice." Thomas Shadwell and Henry Fielding staged popular English adaptations of this play. The title character of this play clasps his own arm and casts suspicions on everyone, even the audience, in his great soliloquy at the end of Act IV. Near the end of this play, a brother and a sister independently reveal that they both survived a shipwreck, and that they are both the children of Neapolitan nobleman (*) Don Thomas d'Alburci. At an unsatisfying dinner party in this play's second act, the title character's son removes a huge diamond ring from his father's finger to blackmail him. Anselme agrees to finance two weddings at the end of this play, between Elise and the steward Valere, and Mariane and Cleante. The title character of this play freaks out that someone stole his buried money. For 10 points, name this Plautus-derived play about the pinchpenny Harpagon, written by Moliere.
ANSWER: *The Miser* [or *L'Avaré*]

5. A consortium based at the University of Liverpool maintains a database of these values pertaining to the human immune system. These quantities are the mean in the distribution described by the Balding-Nichols model. In genome-wide association studies, methods like Eigenstrat correct for the "stratification" of populations by these values. These quantities are raised to the exponents k and $2N-k$ in the Wright-Fisher

model. The “minor” form of these quantities has to be 0.05 or greater to be included in the HapMap project, and is a frequently reported value for (*) SNPs. In the hitchhiking effect, linkage changes these values. Random sampling changes these values for a population in genetic drift. In the Hardy-Weinberg equation, two times the product of two of these quantities indicates the number of heterozygotes. For 10 points, name these proportions of dominant and recessive gene variants.

ANSWER: allele frequencies [or frequencies of alleles or SNP frequencies; do not accept or prompt on “genotype frequencies”; prompt on frequencies]

6. A late work of social science by this man contains a "Didactic" section on "cognizing the interior as well as the exterior of the human being" and a "Characteristic" section on cognizing the human interior *from* the exterior. For this man, the "unity of all places on the face of the Earth as a spherical surface" was one justification for property rights and hospitality. This man included mathematical, commercial, moral, and theological branches in his sixfold division of the field of geography. This man gave more lectures on geography than any other subject, claiming that it was a "propadeutic" (*) to prepare people for ethics. While at the Albertina University on Kneiphof, an island now named for him, this man posited a program for the social sciences in *Anthropology from a Pragmatic Point of View*. He presaged democratic peace theory by positing that all nations should be republics in an essay written like a mock treaty. For 10 points, name this thinker whose daily walks over and by the Pregel river were allegedly so punctual that they set the clocks for the inhabitants of Königsberg, the author of *Perpetual Peace* and *Metaphysics of Morals*.

ANSWER: Immanuel Kant

7. "Principle F" is part of a non-conventionalist theory of these acts known as the "expectation view," proposed in the early 1990s by Tim Scanlon. A so-called "Complicated Way" of defining this sort of act involves nine separate conditions which must hold, of which the first reads: "Normal input and output conditions obtain". Along with forgiveness, this type of action is a remedy for the twofold "darkness of human affairs" according to Hannah Arendt's *The Human Condition*. Hume's *Treatise of Human Nature* claims that the purported force of this sort of act is as magical as "*transubstantiation*, or *holy orders*." The claim that early man was too forgetful to engage in this activity is made in the Second Essay of Friedrich Nietzsche's *On the Genealogy of Morals*, (*) which opens by explaining how "to breed an animal that *is entitled to*" do this sort of act. To determine the structure of illocutionary acts in general, John Searle analyzed the "sincere" and "insincere" type of these in his 1969 book *Speech Acts*, noting that insincere ones still make the speaker S "responsible for intending to do" a spoken-about action A. For 10 points, identify these verbal assurances of some future deed or obligation.

ANSWER: promises [or making a promise; or keeping a promise; or promising; do not accept or prompt on any synonyms or close-synonyms]

8. The product of this quantity and viscosity is approximately constant, according to Walden's rule. An experimental determination of this quantity was made by summing cationic and anionic contributions via the law of independent migrations of ions. It's not surface tension, but a sharp dip in this quantity occurs at the critical micelle concentration. The Nernst-Einstein equation relates the diffusion coefficient to this quantity. The inverse of this quantity's limiting type serves as the intercept when plotting the inverse of this value against c times this value, in a visual representation of Ostwald's dilution law. This quantity varies linearly with respect to the square root of the concentration according to Kohlrausch's law for strong (*) electrolytes, whereas for weak electrolytes, this quantity has a very strong relationship with concentration. The units of this quantity are siemens per meter per mole. For 10 points, name this quantity denoted capital lambda, a measure of the efficiency of an electrolyte in solution.

ANSWER: limiting molar conductivity [prompt on lambda; prompt on partial answer]

9. A tyrant of this city was the father-in-law of the Athenian traitor Cylon and rose to power by slaughtering rich men's cattle. This city of Theagenes was home to the 6th-century aristocratic poet Theognis and a 4th-century philosophical school founded by Socrates' pupil Euclid. This city derived its strategic importance from its twin ports, Nisaea and Pegae, which gave this city access to both the Corinthian Gulf and the Aegean Sea. Originally a colony of Corinth, this city established two colonies on the Bosphorus that became Chalcedon and Byzantium. This city's violation of territory sacred to Demeter (*) was the pretext for a punishment levied against it in 432 B.C., forbidding its merchants from trading in the ports of the Delian League. That embargo against this city, along with the quarrels over Corcyra and Potidaea, exacerbated tensions between

Athens and Sparta. For 10 points, name this city whose dispute with Athens was an instigating factor of the Peloponnesian War.

ANSWER: Megara

10. A poem with this title quotes broken lines from the hymn "Jesus Savior Pilot Me" and opens with the names "Jesus, Estrella, Esperanza, Mercy." The protagonist of a novel with this title has a mystical vision after feeding the god of the Allmuseri while aboard the *Republic*. That novel follows the stowaway Rutherford Calhoun, and won the 1990 National Book Award. This title is shared by a travelogue giving "Impressions of Five Societies" by V.S. Naipaul and an epic poem about Cinquez by (*) Robert Hayden. The only chapter narrated by the title character of Toni Morrison's *Beloved* is a stream-of-consciousness description of this historical process. A Charles Johnson novel is named for this experience, which is also described in a famous excerpt from the "Interesting Narrative" of Olaudah Equiano, which evokes "loathsome smells," "shrieks of the women," and "groans of the dying." For 10 points, name this traumatic experience often treated in African-American literature, the portion of the Triangle Trade that brought slaves to the Americas.

ANSWER: The Middle Passage

11. A quantum version of this process can be classified as "super-ohmic" or "sub-ohmic" in a model describing a particle in one dimension coupled to a bath. That model of this process is named for Caldeira and Leggett. In hydrodynamics, Helmholtz's name is sometimes appended to a principle named for this process stating that the Stokes flow minimizes it. In Lagrangian dynamics, this process names a function calculated as one half times a sum over j of $k_{\text{sub-}j}$ times the square of $\dot{q}_{\text{sub-}j}$, which was developed by Lord Rayleigh. A variational principle introduced by Onsager (*) holds that under certain condition, the function representing this process is minimized, and Nyquist developed a statistical mechanics theorem relating various forms of this process to their inverses, such as Johnson noise and thermal radiation. For oscillatory systems, this process names a factor that is the inverse of the quality factor. This process bears a symmetric relation to thermal fluctuations. For 10 points, name this process of energy loss by which mechanical energy is converted into heat.

ANSWER: dissipation [prompt on "damping" until "named for this process" is read; prompt on "friction" until "named for this process" is read]

12. During this decade, the national government published a white paper called *Streamlining the Cities* that foretold its abolition of the GLC, and the so-called "Limehouse Declaration" was issued by four MPs. In this decade, a faction in the newspaper industry was nicknamed the "refuseniks" for refusing to work at a new plant during the "battle of Wapping." News programs during this decade provided regular updates on a years-long, all-women peace protest on Greenham Common. During this decade, a "Gang of Four" consisting of Shirley Williams, William Rodgers, Roy Jenkins, and David Owen broke ties with their party to form the SDP. Gerald Kaufman (*) attacked a document published in this decade that called for the abolition of the House of Lords and nuclear disarmament by calling it the "longest suicide note in history." The "militant tendency" faction coalesced during this decade, in which Michael Foot resigned as party leader. During this decade, organized labor's image suffered due to Arthur Scargill's failed miners' strike. For 10 points, name this decade in which the Labour Party's internal struggles reinforced the supremacy of Margaret Thatcher.

ANSWER: the 1980s

13. One model of this field imagines a "neutral" ball being pulled outwards by rubber bands tying it to magnets in a "universal" "space"; that came from a paper questioning whether this field has any "universals," by Ian Maddieson. The source-filter theory is assumed by many studies in this subfield. *The* standard textbook in this field has been updated by Berkeley professor Keith Johnson since the 2006 death of original author Peter Ladefoged. An academic in this field designed the X-SAMPA system for use in computers. It's not any type of physics, but a 1977 paper by Ian Catford led more papers in this field to use the Reynolds number in their analyses. This field often uses a mode of analysis devised by Gunnar Fant, in which a computer program isolates (*) F1, F2, and other formants. Glides are one type of approximant studied by this field, which also studies suprasegmentals and "places of articulation" such as the alveolar ridge and the pharynx. For 10 points, name this subfield of linguistics which studies the physical production of linguistic sounds.

ANSWER: phonetics [or auditory phonetics; or articulatory phonetics; or acoustic phonetics; prompt on "linguistics"; prompt on answers such as "speech acoustics" or "speech production analysis"; do not accept or prompt on "phonology"]

14. A woman who was *originally* from this family rides on a chariot pulled by unicorns on the outside of a diptych while the inside contains a pair of portraits in profile of her and her one-eyed husband. A member of this family wears an unusually-shaped ruby pendant and holds an extremely thin glove in his right, gloved hand, in a portrait in half-profile by Piero Pollaiuolo. Martin Kemp performed forensic analysis on a fingerprint on vellum to determine the provenance of a portrait in *trois crayons* of a member of this family, titled *La Bella Principessa*. Piero della Francesca painted (*) Battista of this family facing her husband the Duke of Urbino. A member of this family was allegorically dubbed “the white ermine,” which is the literal animal held by his mistress Cecilia Gallerani in a 1490 painting. To renovate the Convent of Santa Maria delle Grazie, that member of this family commissioned a painting in which a man knocks over a salt cellar and clutches a small bag possibly containing thirty pieces of silver. For 10 points, name this Milanese family whose duke Ludovico commissioned Leonardo da Vinci to paint *The Last Supper*.

ANSWER: Sforza

15. This author called the moral of *Gulliver’s Travels* “horrible, shameful, unmanly, blasphemous,” in his oft-quoted lecture on Swift asking readers to abstain from the novel’s ending, arguing, “giant and great as this Dean is, I say we should hoot him.” This writer conducted an intimate correspondence with Jane Brookfield, on whom he modeled two of his heroines. During the last years of his life, he served as the first editor of *The Cornhill Magazine*. This author was attacked in a column by Edmund Yates that triggered the “Garrick Club affair,” which resulted in a nearly lifelong rift in his friendship with (*) Dickens. He concluded one of his novels with the questions “Which of us is happy in the world? Which of us has his desire, or having it, is satisfied?” This author, who often used the pseudonym Michael Angelo Titmarsh, was catapulted to fame by the publication of a “Novel Without a Hero” following a conniving friend of Amelia Sedley. For 10 points, name this Victorian novelist who created Becky Sharp in *Vanity Fair*.

ANSWER: William Makepeace Thackeray

16. Walter Burkert examined parallels between the myths of this location and a ritual in which its daily life paused for nine days until new fire arrived from Delos; Burkert compared the ritual return of fire to its craftsmen with the mythical return of its craftsmen gods, the Cabiroi. Homer writes that the Minyan allies of Greece, ruled by Euneus, came from this island. An earlier king of this island stowed away in a box and became a priest of Artemis among the Taurians. That king, Thoas, was deposed due to the wrath of Aphrodite, who punished this island for not worshiping her by giving its (*) women a repellent stench. During the Trojan War, Odysseus and Neoptolemus voyaged to this island to recover Heracles’ arrows from the wounded Philoctetes. Hypsipyle was the queen of this island when the Argonauts visited, finding that its women had killed all their husbands. For 10 points, name this Aegean island sacred to Hephaestus, who landed here after his fall from Mount Olympus.

ANSWER: Lemnos

17. In deciding a case arising from this state, Warren Burger wrote that “a whole community cannot be restrained from discussing a subject intimately affecting life within it.” In that case arising from this non-Minnesota state, a namesake press association sued state judge Hugh Stuart for imposing prior restraint on their reporting of a sextuple murder. A 1923 Supreme Court case involving this state’s Siman Act, often grouped with *Pierce v. Society of Sisters* as a milestone for substantive due process, led Justice McReynolds to write that “Mere knowledge of the German language cannot reasonably be regarded as harmful.” This state’s ban on foreign language education, passed in reaction to World War I, was struck down in (*) *Meyer v.* [this state]. A doctor in this state got state and federal laws against partial-birth abortion struck down via the cases *Sternberg v. Carhart* and *Gonzales v. Carhart*. For 10 points, name this state whose senator Ben Nelson threatened to derail the Affordable Care Act unless given the “Cornhusker Kickback.”

ANSWER: Nebraska

18. As a boy, this character begins to trade sexual favors for cat’s eye marbles from his older brother after his brother accuses him of lacking a “stick.” In another appearance, an epic simile compares this character to a man who rises with outstretched arms and drawn-in feet after diving to unloose an anchor caught on a rock. As a teenager, this character is disturbed by a photograph of a volcano called “Red Patience” taken by his gay lover’s grandmother. This character’s dialogue with his pleading mother and his subsequent death are

among the surviving fragments of a long poem named for him written by Stesichorus. That poem inspired Anne Carson's (*) verse novel *Autobiography of Red*, in which this character is the protagonist. This character has hairy arms, the face of an honest man, and the body of a serpent in his role as the embodiment of Fraud in the *Inferno*, in which Dante and Virgil descend to Malebolge by riding on his back. For 10 points, name this monster who, in Hesiod's *Theogony*, has his red cattle stolen by his killer, Heracles.

ANSWER: Geryon

19. A mapping of this type that preserves hyperbolic distances preserves all distances according to the Schwarz-Pick lemma, which was used as the basis for a proof using the Caratheodory metric of the Earle-Hamilton fixed-point theorem applying to mappings with this property. Runge's theorem places a bound on the poles of rational functions that converge to functions with this property. A simple test for whether a function has this property is offered by Morera's theorem. Functions with this property can be represented as a product from which one can read off their zeros (*) according to the Weierstrass factorization theorem. The ranges of values assumed by functions with this property are described by the "little" and "great" theorems named for Picard. A bounded function with this property must be constant according to Liouville's theorem. A function that has this property over the whole complex plane is called "entire." For 10 points, name this property from complex analysis in which a function is complex differentiable at every point in its domain.

ANSWER: holomorphicity [or analyticity; accept entire before it is read]

20. The ninth member of a set of 12 of these pieces closes with an A major "Scozzese" derived from the Scottish tune "Tweedside," and the composer of that piece returned to Scottish tunes for his opera *Rosalinda*. That set of these pieces concludes with a canon on the plainchant theme *Ut relevit miserum fatum*. 12 of these pieces described as *Accademiche* comprise the Opus 2 of Francesco Maria Veracini. J.G. Lalande's *Voyage du françois en Italie* recounts how another of these pieces was written down following a (*) dream of the composer.. In another set, each of the 15 pieces of this type requires different tuning, including one in which the middle strings are crossed above and below the fingerboard. An unaccompanied passacaglia caps off that set of these pieces called "Rosary" or "Mystery," by Heinrich Biber. For 10 points, name these pieces which include Giuseppe Tartini's "Devil's Trill," for a small string instrument.

ANSWER: violin sonatas [prompt on "sonatas"; do not accept "sonatas for violin and piano"]

1. Answer the following about personages addressed by New Testament epistles, for 10 points each.

[10] The Epistle to Philemon concerns one of these people named Onesimus, who ran away to Paul. A Biblical passage on the "curse of Ham" was often used to justify keeping people in this status well into the 19th century.

ANSWER: runaway **slave**

[10] Paul sends this epistle to its addressees via the messenger Epaphroditus, who caught a horrible illness en route to Paul in prison. After warning about legalistic Judaizers in its third chapter, it claims in the fourth and final chapter that "I can do all things through Christ who strengthens me."

ANSWER: Epistle to the **Philippians**

[10] The Second Epistle of John is addressed to this mysterious figure and her children, who are warned to "love one another" and not provide hospitality to disbelievers as they are "the Antichrist." John Wesley insisted that the Greek words for this figure were a proper name and not a title.

ANSWER: "**chosen lady**" [or **elect lady**; or **lady chosen** by God; or **chosen Kyria**; or **elect Kyria**; or **eklektē kyria**]

2. In 2006, a plumbers' union protested the usage of waterless urinals in a building designed by this dean of the Yale School of Architecture. For 10 points each:

[10] Name this postmodern American architect who designed the Comcast Tower, the tallest building in Philadelphia, and promoted architectural history by hosting the PBS documentary series *Pride of Place*.

ANSWER: Robert A.M. **Stern**

[10] Stern incorporated a hat into his plan for a Burbank, California building he designed for this company, for whom he also helped plan the community of Celebration, Florida. Frank Gehry designed a concert hall in Los Angeles named for this company.

ANSWER: The Walt **Disney** Company

[10] Stern revived a turn-of-the-century plain, unornamented style named for these architectural elements. The Low House designed by McKim, Mead, & White, and Kraggsyde, designed by Peabody & Stearns, are the most famous examples of this style.

ANSWER: **shingles** [or **Shingle** Style]

3. This neighborhood was the eastern border of the "Five Points" slum in the mid-19th century, when it was menaced by a street gang of its namesake "boys." For 10 points each:

[10] Name this neighborhood often called New York City's "Skid Row." Beginning in the 1940s, it became home to many homeless alcoholics colloquially called its "bums."

ANSWER: the **Bowery**

[10] The Bowery took its name from the farm of this last Director-General of New Netherland. This peg-legged soldier was forced to surrender New Amsterdam to the British in 1664.

ANSWER: Peter **Stuyvesant**

[10] Michael Pauw founded this settlement in New Netherland, which later grew into the cities of Hoboken and Jersey City. In 1643, Willem Kieft ordered a massacre of the Lenape at this location which prompted a furious response that almost destroyed New Amsterdam.

ANSWER: **Pavonia**

4. This city is the setting for three novels about the friendship of Elena and Lila, including *My Brilliant Friend* and *The Story of a New Name*. For 10 points each:

[10] Name this southern Italian city with a distinctive namesake dialect, the setting for much of the work of a popular reclusive female writer. This city is ruled by King Alonso in Shakespeare's *The Tempest*.

ANSWER: **Naples**

[10] That popular writer is this pseudonymous woman, whose "Neapolitan novels" include the aforementioned *My Brilliant Friend* and *The Story of a New Name*.

ANSWER: Elena **Ferrante**

[10] This best-known novel by Elena Ferrante opens with the sentence "One April afternoon, right after lunch, my husband announced that he wanted to leave me." It concerns Olga's mental breakdown after the dissolution of her marriage.

ANSWER: The **Days of Abandonment**

5. Carbocyanine dyes such as DiI and DiO are used to generate these diagrams. For 10 points each:

[10] Name these diagrams invented by Walter Vogt that chart the different developmental pathways for the cells of an embryo.

ANSWER: **fate maps** [or **clonal analysis**; or **cell lineage tracing**; prompt on **cell-labeling**]

[10] In developing chicks, fate maps reveal mismatches between the prospective regions of the endoderm and the “splanchnic” version of this middle germ layer, which develops into muscle tissue.

ANSWER: **mesoderm**

[10] Fate mapping in chicks sometimes requires this technique, in which tissue is transplanted from another bird embryo, typically quail, to the same position on the chick embryo.

ANSWER: **orthotopic graft** [prompt on partial answer]

6. This man chose thirty-six conscientious objectors, most of them members of the historic peace churches, for his twenty-four week starvation study conducted at the University of Minnesota. For 10 points each:

[10] Name this pioneering nutritionist researcher who established the risk between lifestyle and cardiovascular disease risk with his Seven Countries study, and designed the K-ration for the U.S. Army during World War II.

ANSWER: Ancel **Keys** [or Ancel Benjamin **Keys**]

[10] Ancel Keys and his chemist wife Margaret promoted this supposedly healthy diet rich in legumes, unrefined cereals, and olive oils, patterned after the food eaten in countries such as Greece and Spain.

ANSWER: **Mediterranean** diet

[10] Because the same subjects in the Minnesota Starvation Experiment were fed, starved, and rehabilitated, the study can be thought of as having this design, in which subjects serve as their own controls for a number of successive interventions.

ANSWER: **crossover** design

7. This man's nephew Kim Jong-Pil ("**pill**") founded an intelligence agency called the KCIA before installing this man to lead the Supreme Council for National Reconstruction for two years. For 10 points each:

[10] Name this autocratic leader who was succeeded by Chun Doo-Hwan shortly after his 1979 assassination in the Blue House. His daughter is the current President of South Korea.

ANSWER: **Park Chung-Hee**

[10] Park Chung-Hee put forth this autocratic constitution in 1972 after suspending the existing constitution for 10 months, beginning South Korea's Fourth Republic. It set up a National Conference for Unification which could re-elect Park to infinite consecutive 6-year terms.

ANSWER: **Yushin** Constitution [or **Yushin** order; or **Yushin** reforms]

[10] These dynastic economic conglomerates, a rough analogue to Japan's *zaibatsu*, grew in power as Park Chung-Hee's economic reforms led to a so-called "Miracle on the Han River." The Daewoo Group is one of these entities which went bust.

ANSWER: **chaebols**

8. Klaus Clusius and Gerhard Dickel designed an isotope separation tube that takes advantage of this phenomenon, which is quantified by the Soret coefficient. For 10 points each:

[10] Name this phenomenon in which different mobile particles in a mixture respond differently to temperature gradients. Carl Ludwig was the first to observe it in liquid mixtures.

ANSWER: **thermodiffusion** [or **thermophoresis**; or **thermomigration**; prompt on **diffusion**; prompt on **migration**]

[10] The term “thermophoresis” is most commonly used to describe the phenomenon in these colloids, which comprise small solid particles or liquid droplets suspended in air or other gases. Fog and smoke are two examples.

ANSWER: **aerosols**

[10] The Dufour effect, which is reciprocal to thermodiffusion, is the energy flux due to a mass concentration gradient in these processes, for which the integral over velocity space of $P \ln P$ d cubed v should monotonically increase.

ANSWER: **irreversible** processes

9. The main work discussing this type of precept claims that under the reign of an unchecked absolute monarch named Rex I, this precept consists only of "simple reference to the fact" that Rex I enacted something. For 10 points each:

[10] Name this type of "ultimate," yet often tacit, rule. One of these is required within a society so as to assess the "validity" of that society's primary rules.

ANSWER: **rule of recognition** [prompt on "**secondary rules**"]

[10] This British legal positivist proposed that each society's set of primary and secondary rules must contain a rule of recognition in his magnum opus, *The Concept of Law*.

ANSWER: H.L.A. **Hart** [or Herbert Lionel Adolphus **Hart**]

[10] With Tony Honoré, Hart produced a 1959 study of this concept in *the Law*. Contemporary philosophers such as Ned Hall often show its "relata" on neuron diagrams.

ANSWER: **causation** [or **causality**; or **causal** relata]

10. The title character of this play eventually goes blind from glaucoma after Dr. Larkin warns her husband Philip not to aggravate her worsening condition. For 10 points each:

[10] Name this 1890 play by James Herne. It caused controversy for a scene in which the title woman breastfeeds her husband's illegitimate infant son.

ANSWER: **Margaret Fleming**

[10] *Margaret Fleming* marked an early transition in American theater from sentimental melodrama to plays exemplifying this literary movement. William Dean Howells was another contemporary champion of this movement.

ANSWER: **realism**

[10] This other turn of the century American playwright, known as the "Bishop of Broadway," emphasized realistic scenery and stage design using box sets. He wrote the plays *Madame Butterfly* and *The Girl of the Golden West*.

ANSWER: David **Belasco**

11. This author introduced his recurring character Zack Busner in his short story collection *The Quantity Theory of Insanity*. For 10 points each:

[10] Name this contemporary British novelist of *The Book of Dave* and *How the Dead Live*. The painter Simon Dykes wakes up one morning to find the world overrun by chimpanzees in his novel *Great Apes*.

ANSWER: Will **Self**

[10] In Self's fiction, Zack Busner has this profession. In a Philip Roth novel, Portnoy narrates his history to a man with this profession named Spielvogel.

ANSWER: **psychoanalyst** [or **psychiatrist**; or psycho**therapist**]

[10] The psychoanalyst Palmer Anderson appears in this author's novel *A Severed Head*. Her first novel follows the aspiring writer Jake Donaghue, who loses his manuscript translation of a bad novel by Jean-Pierre Breteuil.

ANSWER: Iris **Murdoch**

12. Answer the following about the medieval European university system, for 10 points each.

[10] Albertus Magnus, Alexander of Hales, and Thomas Aquinas studied and taught at this university, the center for theological study outside of Italy. It was founded by Robert Sorbon.

ANSWER: University of **Paris**

[10] The modern "liberal arts" derived from these two groupings of fields of study common in medieval universities. One grouping contains mathematics and music, while the other includes rhetoric and grammar.

ANSWER: **trivium** and **quadrivium**

[10] This Italian city was known as the "city of Hippocrates" for containing the world's oldest medical school; it was the center for medical study in Western Europe in the early Middle ages.

ANSWER: **Salerno**

13. Delores P. Aldridge's book *Imagine A World* profiles six prominent black feminists in this academic field, including Aldridge herself, and Robert Staples called for a "black" form of this discipline in an essay collection on the "death" of its "white" form. For 10 points each:

[10] Name this academic discipline. Another member of this field, Patricia Collins, examined how black female intellectuals have harnessed their marginal status within the academy in "Learning from the Outsider Within."

ANSWER: **sociology**

[10] Many black feminist sociologists cite this UCLA Law professor, who coined the term “intersectionality.” She co-founded the African American Policy Forum, and currently serves as its Executive Director.

ANSWER: Kimberlé Williams **Crenshaw**

[10] After getting a Ph.D in sociology from Harvard, this social scientist wrote the study *The Philadelphia Negro* and developed the concept of “double consciousness” in *The Souls of Black Folk*.

ANSWER: W. E. B. **DuBois**

14. The element of chance in this painting is symbolized by two boys tossing a knife on the ground and by a man on the steps flipping a coin, whereas underlying violence is personified by a bandaged man hanging his head. For 10 points each:

[10] Name this 1852 painting whose artist mockingly bestowed a shiny top hat upon E. D. Sappington, who had bested the artist in the title small-town Missouri event.

ANSWER: *The **County Election***

[10] *The County Election* was painted by frontiersman, whose river scenes include *Jolly Flatboatmen in Port* and *Fur Traders Descending the Missouri*.

ANSWER: George Caleb **Bingham**

[10] This fellow American student of Bingham’s at the Dusseldorf Academy and co-founder of the Met painted slaves in a happy-looking domestic scene beneath an utterly dilapidated house in his canvas *Negro Life at the South*, which aroused both pro- and anti-slavery sentiments.

ANSWER: Eastman **Johnson**

15. This process is described by a Feynman diagram that looks like a wavy line interrupted by a solid loop. For 10 points each:

[10] Identify this process in which an applied electromagnetic field results in the production of virtual electron-positron pairs.

ANSWER: **vacuum polarization**

[10] The calculation of the correction to the standard Coulomb potential due to vacuum polarization involves setting a reference scale so that the correction remains finite. This is an example of this technique common in QED in which infinite quantities are eliminated.

ANSWER: **renormalization** [accept word forms]

[10] QED contains one of these phenomena, in which the coupling constant of the theory becomes infinite at some energy or length scale. Vacuum polarization may play a role in screening the charge at those scales.

ANSWER: **Landau pole**

16. The myth of this woman explains the origin of the peace pipe and the seven sacred ceremonies performed with it. For 10 points each:

[10] Name this holy woman from Lakota myth, who saved the Lakota from starvation by providing them with herds of animals to hunt, thus establishing the Lakota culture.

ANSWER: **White Buffalo** Woman [or **White Buffalo** Calf Woman; do not accept “buffalo woman”]

[10] This hero was born when his father fulfilled a promise to a magic “buffalo woman” by marrying the ugliest woman he could find.

ANSWER: **Sundiata** Keita

[10] In Hinduism, Yama rides a buffalo and carries a loop of rope. Yama is a god of this domain,

ANSWER: **death** [or the **underworld**]

17. This politician conspired with Lord Russell's Whigs to try and unseat Robert Peel in exchange for some reforms via the Lichfield House Compact. For 10 points each:

[10] Name this man. Parliament refused to seat him after his election to the MPship in County Clare, Ireland, until this man's agitations got the Catholic Emancipation Act passed.

ANSWER: Daniel **O'Connell**

[10] An earl of this place named George Finch-Hatton opposed Catholic emancipation so much that he duelled the Duke of Wellington for aiming to pass it. A much earlier noblewoman of this place, Anne Finch, wrote "A Letter to Dafnis" and other love poems in her correspondence while a handmaiden in the Stuart court.

ANSWER: **Winchilsea** [or George Finch-Hatton, 10th Earl of **Winchilsea**; or Lady **Winchilsea**; or Anne Finch, Countess of **Winchilsea**]

[10] Later in his career, O'Connell held "monster meetings" on the Hill of Tara to agitate for the repeal of the 1801 legislation of this name. The 1707 legislation of this name essentially created Great Britain from England and Scotland.

ANSWER: Act of **Union**

18. A 1978 autobiography by Jim Carroll discusses how his heroin addiction took him away from this sport as a teen. For 10 points each:

[10] Name this sport, also played in high school by the title Magi-Peel salesman of a tetralogy by John Updike.

ANSWER: **basketball**

[10] This author profiled Princeton star and 1970s New York Knick Bill Bradley in his approving non-fiction book *A Sense of Where You Are*. He is also known for his eclectic nature writing in books such as *Annals of the Former World* and *Encounters with the Archdruid*.

ANSWER: John **McPhee**

[10] This David Halberstam non-fiction account of the 1979-1980 Portland Trail Blazers season is still considered the authority on life in the NBA in the 1970s.

ANSWER: *The **Breaks of the Game***

19. Fully inaugurated in 2013, this giant telescope consists of 66 radio antennae located in northern Chile. For 10 points each:

[10] Name this largest and most expensive ground-based telescope ever. It has the ability to detect protostellar collapse and observe subsequent star and planet formation on small scales.

ANSWER: **ALMA** [or **Atacama Large Millimeter/submillimeter Array**]

[10] Originally set to launch around the same time as ALMA, this \$8 billion space telescope was pushed back to launch in 2018 due to funding issues. Its infrared capabilities will allow observation of the very first stars and galaxies.

ANSWER: **James Webb** Space Telescope [or **JWST**]

[10] The James Webb Space Telescope is the successor to the Spitzer Space Telescope and this other extremely successful telescope launched in 1990, which observes primarily in the visible spectrum.

ANSWER: **Hubble** Space Telescope [or **HST**]

20. This composer wrote two song cycles based on poems by Arseny Golenishchev-Kutuzov. For 10 points each:

[10] Name this Russian composer, whose works include a tone poem inspired by "St. John's Eve" and a suite inspired by sketches drawn by Viktor Hartmann.

ANSWER: Modest **Mussorgsky**

[10] This last song cycle by Mussorgsky consists of four songs partly sung by the title character, including "Lullaby" and "Serenade."

ANSWER: **Songs and Dances of Death** [or **Pesni i Plyaski Smerti**]

[10] In this final song in the cycle, the melody of the piano accompaniment is borrowed from a Polish chorale beginning "With the smoke of fires." In this song, Death sings boastfully of trampling the graves of a mass of dead men.

ANSWER: "The **Field Marshal**" [or "The **Commander-in-Chief**" or "**Polkovodets**"]