**Chicago Open 2016: "An Insatiable Kingpin of International Meme-Laundering"**

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**Tossups**

1. **In one legend, this skill is used in tandem with a bladder of blood, in a deception by Völund's brother aimed at helping Völund escape the court of king Nidung. A hero who drunkenly boasted about this ability used it to do away with the royal killer of his grandfather Jarl Ottar. According to Saxo Grammaticus, Harald Bluetooth forced that same hero to use this ability to save his own son. Besides theft, this is the main notable ability of Clym of the Clough, William of Cloudsley, and Adam Bell, three outlaws who lived near Carlyle. This is the distinguishing skill of Palnatoki and of a pre-saga legendary hero named Egil, who used it to** (\*) gather bird feathers. Along with skiing, the god Ullr is awesome at this skill. The rune for the god Tyr depicts an implement used in, for 10 points, what skill which Gessler tested by placing an apple on the head of the son of William Tell?  
ANSWER: **archer**y [or use of a **bow** and arrow; or firing of **arrow**s; prompt on hunting, shooting, marksmanship, etc. etc.]

2. **An algorithm for computing dynamic changes to these data structures was developed by Chrysanthou and Slater. A paper by Chin and Feiner extended the use of this data structure to the problem of generating shadow volumes. This data structure was developed by Fuchs, Kedem, and Naylor. Merging two of these structures, which can be done in logarithmic time, forms the basis for the set operations of constructive solid geometry. k-d trees are a subset of these structures. These structures are created by recursive subdivision of a volume by (\*)** hyperplanes. A standard use of these structures is to specify a polygon rendering order for the painter’s algorithm. These data structures have leaf nodes representing front and back perspectives. For 10 points, name these tree structures used in computer graphics in which each node represents a hyperplane that splits the world in half.  
ANSWER: **b**inary **s**pace **p**artition tree [or **BSP** tree; prompt on tree or partition tree or binary tree, prompt on k-d tree before it’s mentioned; do NOT accept or prompt on “binary search tree”]

3. **In one story, this author imagined a lesbian affair between the *amanuenses* for Henry James and Joseph Conrad. This author used Harold Bloom’s taxonomy of “strong” and “weak poets” as an example of the way veneration of literature violates the Second Commandment in the essay “Literature as Idol.” In a novel by this author of “Dictation,” a man who declares himself to be the lost son of Bruno Schulz meets the real daughter of Schulz with his real lost manuscript; that man is Lars Andemenin. This author created a recurring character who raises a female golem that gets her elected Mayor of New York. This author of *The*** *(\*) Messiah of Stockholm* and *The Puttermesser Papers* is most famous for a short story that ends with Rosa swallowing her daughter Magda’s saliva off the title object, after Magda is tossed against the electrified fence of a concentration camp. For 10 points, name this Jewish-American author of “The Shawl.”  
ANSWER: Cynthia **Ozick**

4. **A railway being built across this nation is meant to terminate at a new deep-water port at Matakong. In most estimates, this country beats out Australia as having the largest bauxite reserves of any in the world. In July 2016, the Rio Tinto Group canceled plans to build the world's largest iron ore mine in this country's southeastern Simandou Hills, close to its second largest city, Nzérékoré. This country’s largest city, port, and capital is split across the Camayenne Peninsula and Tombo Island in the southwest, and was attacked in Operation** (\*) Green Sea. The middle of this nation, the source of such rivers as the Bafing and Tinkisso, is dominated by a sheer sandstone block known as the Fouta Djallon. Alpha Condé leads this country which contains the source of the Niger river, the northernmost of three countries which recorded over 1,000 deaths in the 2014 Ebola epidemic. For 10 points, name this country whose southern border abuts Sierra Leone and Liberia, and whose capital is Conakry.  
ANSWER: Republic of **Guinea** [or **Guinea**-Conakry; do NOT accept “Guinea-Bissau” or “Equatorial Guinea”]

5. **Villain developed an approximation for this model by replacing the original Hamiltonian with a Gaussian. The correlation function in this model diverges exponentially when approaching the critical temperature from above but follows a power law when approaching from below. The change in free energy when adding a pair of singularities in this model is determined by the “helicity modulus” or “spin stiffness.” Although this model does not exhibit an ordered phase, as implied by the Mermin-Wagner-Hohenberg theorem,** (\*) vortex excitations can drive a phase transition named for Kosterlitz and Thouless. The Hamiltonian for this model can be written as the sum over *i* and *j* of the cosine of the difference between theta-sub-*i* and theta-sub-*j*, where *i* and *j* are indices of a lattice of spins. For 10 points, identify this model of statistical mechanics which takes its name from the fact that its dimensionality is traditionally equal to 2.  
ANSWER: **XY** model [or **planar** spin model]

6. **This event was masterminded by two cabals of businessmen, Hugh MacRae's "Secret Nine" and Walker Taylor's "Group Six." A contributing factor was probably women's rights activist Rebecca Felton's endorsement of violence and a controversial editorial responding to it by Alex Manly of the *Daily Record* newspaper that openly discussed miscegenation. Future Navy Secretary Josephus Daniels has been called the "precipitator" of it for openly calling for an end to "Negro Domination." This incident occurred two days after the election of a Fusionist (\*)** mayor opposed by the Democratic Party. During this event, Colonel Alfred Waddell threatened to "choke the Cape Fear" with black "carcasses" as he led 2,000 citizens to turn out the mayor and biracial city council. For 10 points, name this only coup d'état in United States history, an 1898 incident in which white supremacists seized a North Carolina port.  
ANSWER: the **Wilmington** coup [or the **Wilmington** massacre; if you are a Southern apologist, accept **Wilmington** riot]

7. **One character in this play describes the moment of conceiving her child as like the sensation holding a live bird tight in your hand, running through your blood. In this play’s final act, a woman with a necklace of bells and a man with a bull’s horn play the part of the devil and his wife in a dancing ceremony. Near the beginning of its second act, a bunch of gossipy women note that one sheep is missing from a passing flock, as they do their laundry by the river. Two nearly silent** (\*) sisters-in-law dressed in funereal black are asked to keep watch on this play’s protagonist, but do not stop her from stealing away from her house at night to visit a conjurer named Dolores. This play ends with its protagonist yelling “I have killed my son!” after strangling to death her husband Juan, near the site of a fertility shrine. For 10 points, name this play, a part of the “Rural Trilogy” of Federico Garcia Lorca, whose title character bemoans her inability to have a child.  
ANSWER: ***Yerma***

8. **This artist’s pencil copy of Ruisdael’s *Wooded Landscape with a Flooded Road* explains later revisions to his own *Cornard Wood*. He stopped exhibiting at one venue after his painting of three princesses in “tender light” was hung “above the line.” On a commission for Woburn Abbey, this artist made a pair of *Wooded Landscapes* depicting haymaking and woodcutting. A Pomeranian dog lies under the desk of a friend who rests a large viola de gamba on his thigh in his portrait of (\*)** Carl Friedrich Abel. Another canvas by this painter hints at the subject’s use of a seed drill with the rows of stubble at bottom right, below Sudbury Hill. In that same dual-portrait by this artist, a brown and white dog turns up its nose at the rifle of a man whose wife’s lap was never completely painted in. He depicted the Halletts taking a “morning walk”. For 10 points, name this artist of *Mr. and Mrs. Andrews*, the rival of Sir Joshua Reynolds.  
ANSWER: Thomas **Gainsborough**

9. **This man represented the trinity by surrounding the letters "I.E.U.E." with three interlocking circles in green, blue, and red. This man's "Tree Eagle" may have inspired Dante's image of the eagle made of souls in the sphere of Jupiter. At Pentecost this man, whose ideas were illustrated in his *Book of Figures,* had a critical vision of a psaltery with ten strings. The Spiritual Franciscan movement was heavily influenced by the writings of this man, as were others who thought Holy Roman Emperor Frederick II was the** (\*) Antichrist. This man believed that of history's three eras, the bygone Era of the Father and ongoing Era of the Son were to be passed by the coming Age of the Holy Spirit. This man's writings on Saladin inspired Richard the Lion-Heart to visit him in Messina while sailing to the Third Crusade. For 10 points, name this medieval Calabrian mystic and apocalyptic writer who founded a monastic group in Fiore.  
ANSWER: **Joachim** of Fiore [or **Joachim** of Flora; or **Gioacchino** di Fiore]

10.**A driver for this group was a man nicknamed "Skin-the-Goat." While investigating this group, John Mallon allegedly kept the top of the spine of one of its members, Joe Brady, as a souvenir. This group's leader was using the alias "James Power" while on a ship bound for Natal, South Africa, when he was shot dead by a bricklayer who suddenly realized whom his fellow passenger was. This group continually failed in its promises to kill "Buckshot" (\*)** Forster and was founded by James Carey, who was eventually himself slain by Patrick O'Donnell for testifying against his confederates. Richard Pigott fraudulently linked this group's 1882 killing of Lord Frederick Cavendish and Thomas Henry Burke to Charles Stewart Parnell. For 10 points, name this group that carried out the Phoenix Park Murders, a splinter group of the Irish Republican Brotherhood.  
ANSWER: Irish National **Invincibles** [prompt on Fenians; prompt on Irish Republican Brotherhood]

11. **This poet described reacting with the delight that birds find in “Winging wildly across the white / Orchards and dark-green fields” upon hearing “Everyone suddenly burst out singing.” One of this author’s poems praises people who “listen with delight / By tales of dirt and danger fondly thrilled.” One of this author’s speakers condemned the lack of patriotism of a man who “howled and beat his chest” because “his brother had gone west.” In another poem by this author of “Glory of Women” and “Lamentations,”** (\*) “Bulged, clotted heads” that “slept in the plastering slime” are mentioned before the speaker describes “the jolly old rain.” He wrote a trilogy of novels about George Sherston, which begins with *Memoirs of a Fox-Hunting Man*.In his most famous poem, a cry of “O Christ, they’re coming at us!” is heard before a soldier is shot, as the title maneuver fails. For 10 points, name this English author of “Counter-Attack” and other poems about World War I.  
ANSWER: Siegfried (Loraine) **Sassoon**

12. **A double piece of this type called “Book of Signs” and a piece of this type labeled a “requiem” for Toru Takemitsu were both written by Leo Brouwer, who has written eleven of these in total. One of these pieces in A major is the Opus 30 of an Italian virtuoso, also known for his Rossini arrangements; that piece is one of three by Mauro Giuliani. The slow movement of one of these pieces opens with an English horn melody that begins with a rapid F-sharp – E – F-sharp, over broken B-minor chords. Manuel** (\*) Ponce wrote a piece in this genre “from the South.” A quadruple one of these opens with a “Tiempo de Bolero.” One composer was inspired by six dances by Gaspar Sanz to write a piece of this type titled *Fantasia for a Gentleman*. Andres Segovia made a notable recording of a piece of this type inspired by the gardens at a palace built for Philip II. For 10 points, name this genre exemplified by ones labeled “Andaluz” and “de Aranjuez” by Joaquin Rodrigo.  
ANSWER: **guitar concerto**s [prompt on partial answer]

13. **After losing to this force at Halmyros, Roger Deslaur was named the new leader of it, at the same time succeeding his former boss Walter V of Brienne as Duke of Athens. Despite being outnumbered 14,000 to 2,500, it decisively won the Battle of Apros. This force's first leader married Maria Asenina, the daughter of a Bulgarian ruler and was killed along with 130 of his top aides at a banquet given in honor of him. This force was excommunicated by Clement V after it pillaged Thrace and Macedonia in revenge for (\*)** Michael IX Palaeologus' treacherous murder of its leader. This group, which featured many Almogavars, was founded by the Italian rascal Roger de Flor, who initially hired it out to the Byzantines to fight the Ottomans. For 10 points, name this 14th century group of mercenaries whose members mostly came from a principality controlled by the Kingdom of Aragon.  
ANSWER: **Catalan** Company of the East [or ***Magna Societas Catalanorum***; prompt on the Grand Company, prompt on Almogavars]

14. **Drew Schwartz developed a mutagen-detection system in maize by assaying variants of this protein. The chimeric gene *jingwei* evolved from the gene encoding this protein in *Drosophila*, which has “fast” and “slow” polymorphs. Computing the ratios of fixed replacement to fixed synonymous differences, and their respective polymorphisms, McDonald and Kreitman tested neutral theory by studying mutations to this protein. In the EC system, this enzyme is assigned 1.1.1.1. A** **SNP** [“snip”] **that causes** **hyperactivity of this protein is frequently coupled to inactivity of another protein with the** (\*) rs671 SNP in haplogroup D. In metabolism, this enzyme is immediately followed by another oxidoreductase that produces NADH and acetic acid. Disulfiram mimics the effects of an over-strong variant of this enzyme found in 40% of East Asians that causes a flushing reaction. For 10 points, name this enzyme that oxidizes ethanol to acetaldehyde.  
ANSWER: **alcohol dehydrogenase** [or **ADH**; or EC **1.1.1.1** until it is read]

15. **A very weird speech at this event ended when a man shouted "If you have to shit, shit! If you have to fart, fart! You will feel much better for it." That speech here also talked about the problem with canteens and claimed "Marx also made many mistakes." At this event, a private letter was distributed publicly in which a man complained about "petty bourgeois fanaticism." This event's leader was so stressed he invited his long-separated ex-wife, He Zizhen, for a visit. The play (\*)** *Hai Rui Dismissed from Office* is frequently judged to be an allegory of what happened here. This event is best known for a Defense Minister's criticism of backyard steel furnaces, which led him to be labeled part of the "anti-Party clique." It was where Mao purged Peng Dehuai for criticizing the Great Leap Forward. For 10 points, name this 1959 meeting of the Communist Party of China, which took place on a resort on Mount Lu.  
ANSWER: **Lushan** Conference [or ***Kuoda Huiyi***; or the **8th Plenary** of the **8th** **Central Committee** of the **Communist** Party of **China**--do not need Communist or China after mentioned]

16. **One of this thinker’s papers attempts to adapt Max Black’s “consistency of application” gradation test for the title concept, while still accounting for its “purely semiotic character.” He attempted to repair the problem of the “ambiguity of statistical explanation” through his criterion of “maximal specificity.” This thinker is the alphabetically-prior creator of a theory that states that A is explained by B, if and only if B contains at least one general law and A can be deduced from B. This author of “Vagueness and Logic” co-created the** (\*) “covering law” or deductive-nomological model of explanation with Paul Oppenheim. This philosopher’s most famous paper rejects Nicod’s criterion by demonstrating that using it would result in every observation providing evidence either for or against a hypothesis. For 10 points, identify this logical empiricist and author of “Studies in the Logic of Confirmation,” in which was formulated his namesake “raven paradox.”  
ANSWER: Carl Gustav **Hempel**

17. **Psychologist Ronald Beghetto helped add "mini-" and "pro-"forms of this trait to an existing model of its "Big" and "little" types. This trait is likened to the investment pattern "buy low, sell high" by Robert Sternberg. The "Mother Hubbard problem" can be used in cognitive tests of this trait developed by E. Paul Torrance. A cultural "domain," a social "field," and the individual all influence each other in the "DiFi" systems model of this trait, proposed by D.H. Feldman and "flow" theorist Mihaly** (\*) Czikszentmihalyi [mee-HAH-yee "CHICK" sent-mee-HAH-yee].R.R. McCrae has studied the high correlation of this trait with the Big Five trait Openness To Experience. It informs a namesake four-stage "process" according to Graham Wallas. J.P. Guilford basically equated "divergent thinking" with this capacity. In linguistics, this term refers to a speaker's ability to utter sentences one hasn't heard before. For 10 points, what trait observed in the Unusual Uses test lets artists produce original work?  
ANSWER: **creativity** [or **creative** thinking; or the **creative** process; accept **divergent** thinking until "DiFi"] <MJ>

18. **The oxidative Namiki pathway contrasts with this reaction’s classic mechanism offered by John Edward Hodge. Boronate affinity chromatography is specific for products of this reaction. Pentosidine and pyrraline, which are formed by this reaction, have been implicated in Alzheimer’s disease. This reaction forms furfural at low temperatures and acrylamide at high temperatures. The first half of this reaction opens a hemiacetal, then dehydrates it to give the enamine, then rehydrates it to reform a six-membered ring, which is the** (\*) Amadori rearrangement. Advanced endproducts called AGEs can be formed by a Strecker degradation at the end of it. Hb1Ac is hemoglobin that has undergone this reaction. Sterilizing LB too long in an autoclave causes the media to undergo this reaction and turn dark brown. For 10 points, name this condensation of amino acids and reducing sugars, which occurs when you bake bread.  
ANSWER: **Maillard** reaction [my-YARD] [or **glycation** or word forms; prompt on Amadori rearrangement until it is read]

19. **This legend was first translated into English by Isaac D’Israeli, father of Benjamin Disraeli. One character in this legend gashes his blanched arm in several spots to extract one drop of blood because a fat man ate his lunch every day for months. Another character in this legend dies the instant she realizes her half-dead acquaintance has fused with a Saharan tree. The male lead in this legend rests his head on an ass and his feet on a gazelle, while living naked in a cave. In this legend, the basis for the third poem of the *Khamsa,* a man retreats to the wilderness in his ecstatic love for a woman whose name means** (\*) “Night,” whom he never manages to touch until after death. After reading a translation of Nizami’s treatment of this legend, Lord Byron dubbed it the “Romeo and Juliet of the East.” For 10 points, name this Persian legend about Qays ibn al-Mulawwah, who goes mad over his love for his cousin.  
ANSWER: ***Layla and Majnun*** [or ***Majnun Layla***]

20. **A performer with this last name was Irving Berlin’s original choice to play Annie Oakley in *Annie Get Your Gun*, but declined to come out of retirement. A dancer with this last name paid controversial tribute to Bill Robinson by donning blackface on film for a solo dance number called “Bojangles of Harlem.” Two performers with this last name starred in the original production of *Lady Be Good,* introducing the song “Fascinating Rhythm,” which they recorded with Gershwin at the piano. A man with this last name first sang the lyrics:** (\*) “Lovely, never, never change / Keep that breathless charm,” and started out as a double act with his sister Adele. A performer with this last name sang “You’re All the World to Me” in the film *Royal Wedding,* in a scene in which he dances on the walls and ceiling of a room. That man with this last name introduced the songs “The Way You Look Tonight” in *Swing Time* and “Cheek to Cheek” in *Top Hat*. For 10 points, give the last name of the dancing partner of Ginger Rogers.  
ANSWER: **Astaire** [or **Austerlitz**]

21. **After a direct measurement of this non-derived quantity, Bruker’s BioTyper software is used to identify bacteria. The first devices to directly measure this quantity were marketed by the Bendix Corporation under the McLaren-Wiley design, a two-grid apparatus divided into three regions. This is the directly-measured variable in PEPICO. Boris Mamyrin’s reflectron increases this measured quantity to narrow its distribution. The directly measured variables in an atom probe tomography experiment are** (\*) position and this quantity. Modern devices named for this quantity operate using an orthogonal continuous ion source like a pulsed laser. This measured variable is squared, then multiplied by twice the voltage over distance to the analyzer, to give the mass-charge ratio. For 10 points, name this variable used to sort ions flying through a namesake mass spectrometer often paired with MALDI.  
ANSWER: **time**-of-flight [or **TOF**; or MALDI-**TOF**]

**Bonuses**

1. [*Note to moderator: Do NOT read the alternate answers to the first part if they are not given.*]

This campaign was fought by a folk hero named Maria Pita. For 10 points each:  
[10] What disastrous campaign featured as a flagship the *Revenge*, which sprung a leak on the return home? Besides attempting to seize treasure, it aimed to restore a pretender to the throne, a Prior of Crato.  
ANSWER: The **English Armada** [or the **Drake-Norreys** Expedition; or the **Counter-Armada**; prompt on answers such as English attack on Portugal or English attack on Spain]  
[10] With John Norreys, this man led the English Armada attack. He enjoyed more success destroying the Spanish fleet in the bay near Cadiz, an act called “singeing the king of Spain’s beard.”  
ANSWER: Sir Francis **Drake**  
[10] This dimwit, the Prior of Crato and heir to the House of Aviz, was sure that the Portuguese would accept him as ruler and resist Philip II of Spain. He was wrong.  
ANSWER: **Antonio** [or **Antonio I**]

2. This book studies the process of negotiating water rights in its fourth chapter, "Analyzing Institutional Change," and its first chapter studies what its author terms "CPR" management in high mountain villages and among irrigation communities in the Philippines. For 10 points each:  
[10] Name this 1990 economics book. It claims that collective action emerges in more context-specific and less selfish ways than the work of Garrett Hardin or Mancur Olson would predict.  
ANSWER: ***Governing the Commons****: The Evolution of Institutions for Collective Action*  
[10] This American economist explored the use of common pool resources in *Governing the Commons*. In 2009, she became the first woman to receive the Nobel Prize in Economics.  
ANSWER: Elinor Claire **Ostrom**  
[10] Ostrom's Nobel acceptance speech attacked fascination with this game, whose Nash equilibrium is "both players defect" and whose Pareto optimum is "both cooperate," as a "retrogressive step" that impeded real-world economic analysis.  
ANSWER: **prisoner's dilemma**

3. This sculptor’s perfectionism earned him the name Katatexitechnos, and he is supposed to have sculpted a perpetually burning lamp of gold for the Erechtheum. For 10 points each:  
[10] Name this Greek sculptor of the original, no longer extant *Venus Genetrix*, a Roman copy of which now resides in the Louvre.  
ANSWER: **Callimachus** [or **Kallimachos**]  
[10] The invention of the Corinthian capital is attributed to Callimachus in this Latin-language treatise, which advocates the qualities of *venustas*, *utilitas*, and *firmitas*.  
ANSWER: ***De Architectura*** [or ***On Architecture***; or *The* ***Ten Books on Architecture***][by Vitruvius]  
[10] This other ancient Greek sculptor created the *Discobolus*, or *Discus Thrower*.  
ANSWER: **Myron** of Eleutherae

4. Answer the following about a delightful tale of deception, cannibalism, and betrayal, for 10 points each.  
[10] This general had to eat his own son after Astyages discovered he did not actually murder an infant prophesied to overthrow him. He would later understandably mutiny against Astyages at the Battle of Pasargadae.  
ANSWER: **Harpagus** [or **Hypargus**]  
[10] That youth was this future founder of the Achaemenid Empire and grandson of Astyages.  
ANSWER: **Cyrus the Great** [or **Cyrus II**]  
[10] Harpagus gave the infant Cyrus to this shepherd, but instead of killing the lad, this man passed off his own stillborn son to Harpagus as the dead Cyrus and raised the youth himself.  
ANSWER: **Mithradates** [or **Mit**h**ridates**]

5. The Dortmund Data Bank is a consortium of data applied for this method, which was invented in the 70s at Berkeley by Fredeslund, Jones, and Prausnitz. For 10 points each:  
[10] Name this group contribution method of calculating activity coefficients, which relies on estimating interaction parameters between molecules based on the functional groups that they contain.  
ANSWER: **UNIFAC** [or **UNIQUAC Functional-Group Activity Coefficients**; prompt on UNIQUAC]  
[10] The UNIFAC method splits contributions to the activity coefficient into a “combinational” coefficient and this other component. In thermodynamics, this adjective denotes the difference between a state variable and what the variable would be for an ideal gas.  
ANSWER: **residual** activity coefficient [or **residual**]  
[10] The residual Gibbs energy is used to define this quantity’s namesake coefficient, which is one for an ideal gas. This quantity, which is used for equilibrium calculations for real gases, is sorta like pressure, but isn’t.  
ANSWER: **fugacity** [or **fugacity** coefficient]

6. This composer’s two operas, *Der Corregidor* and the unfinished *Manuel Venegas*, were both based on works by Pedro Antonio de Alarcon. For 10 points each:  
[10] Name this Austrian composer of the tone poem *Penthesilea* and the *Italian Serenade* for string quartet.  
ANSWER: Hugo (Philipp Jacob) **Wolf**  
[10] Wolf specialized in this genre, in which he set texts by Goethe, Ibsen, Michelangelo, and others. Schubert’s works in this genre include “Gretchen at the Spinning Wheel” and “Der Erlkönig.”  
ANSWER: **lied**er [prompt on **song**s]  
[10] Wolf composed 53 lieder in four volumes setting poems by this German poet. Wolf’s lieder from those collections include “Verborgenheit,” “Gebet,” “Im Frühling,” and “Der Feuerreiter.”  
ANSWER: Eduard (Friedrich) **Mörike**

7. This scholar wrote extensively about his love of wine in his 1921 *Notes on a Cellar-Book*. For 10 points each:  
[10] Name this author of *A Short History of English Literature* who revised Walter Scott’s complete edition of Dryden and wrote a critical biography of Dryden for the “English Men of Letters” series.  
ANSWER: George **Saintsbury**  
[10] References to this author abound in Saintsbury’s *Notes on a Cellar-Book*, including a discussion of the claret drunk by Bullwig in *Memoirs of Mr. C.J. Yellowpush* and Chevalier Strong’s comments to Laura Pendennis about sherry.  
ANSWER: William Makepeace **Thackeray**  
[10] Saintsbury coined the term “Janeite” in his preface to a new edition of this Jane Austen novel, which begins “It is a truth universally acknowledged that a single man in possession of a good fortune must be in want of a wife.”  
ANSWER: ***Pride and Prejudice***

8. Answer the following about academic theories of the origins of religion, for 10 points each.  
[10] Mircea Eliade and Emile Durkheim both wrote that religion comes out of a dichotomy between these adjectives for that which is set apart as revered or untouchable and that which is ordinary or bodily.  
ANSWER: **sacred**-**profane** dichotomy [or *The* ***Sacred*** *and the* ***Profane***]  
[10] This era from about 800 to 200 BC was proposed to link the rise of ideas underlying many contemporary religions across such places as Plato's Greece, Zoroaster's Persia, Mahavira's India, and Lao Tzu's China.  
ANSWER: **Axial Age** [or ***Achsenzeit***][proposed by Karl Jaspers]  
[10] Cognitive scientist Justin Barrett has claimed that a "hypersensitive...device" for this mental ability led early humans to infer that deities were behind weather and other salient natural events.   
ANSWER: **agency detection** [or **agent detection**; accept hypersensitive **agency detection** device; prompt on HADD; prompt on pattern recognition or causation or other answers not indicating a being doing things] <MJ>

9. In April 2016, this company's CEO Lowell McAdam was caught on tape ranting about how "contemptible" Bernie Sanders is, and one of its corporate attorneys ran over three of its striking workers in his Porsche. For 10 points each:  
[10] Name this company affected by a strike of over 45,000 Communications Workers of America employees in early 2016. In settling that strike, it added 1,300 new call center jobs in East Coast states.  
ANSWER: **Verizon** Wireless [or **Verizon**  
[10] This current Secretary of Labor, who shares his first *and* last name with a character in Albert Camus's *The Stranger*, presided over a May 2016 mediation ending the Verizon strike.  
ANSWER: Thomas Edward **Perez**  
[10] Verizon customers sign away some rights via this type of clause, which the *New York Times* profiled in fall 2015 as "Stacking the Deck of Justice" in favor of companies. Title 9 of the United States Code concerns its namesake procedure, which the Consumer Financial Protection Bureau has proposed rules to rein in.  
ANSWER: binding **arbitration** clause [accept any answer indicating that disputes must be resolved via binding private **arbitration** rather than in a court of law; prompt on liability waiver, giving up the right to sue, etc.]

10. This quantity can be defined as the distance over which particles can travel in the time it takes the scale factor to double. For 10 points each:  
[10] Identify this quantity, which sets the maximum separation over which two particles can remain in causal contact.  
ANSWER: **Hubble radius** [or **Hubble distance**]  
[10] A situation in which the comoving Hubble radius is decreasing, and therefore the second derivative of the scale factor with respect to time is positive, provides an inflationary solution to this cosmological problem. This problem is to account for the observed homogeneity of the known universe.  
ANSWER: **horizon** problem  
[10] In order to make the second derivative of scale factor with respect to time negative, inflation requires that this quantity be less than minus the energy density over 3. This quantity being negative thus drives inflationary expansion.  
ANSWER: **pressure**

11. This poem’s speaker expresses disgust at “the man’s mouth sealing my mouth, the man’s paralyzing body.” For 10 points each:  
[10] Name this poem. Referring to the title flower, the speaker concludes this poem by asking, “How can I be content when there is still that odor in the world?”  
ANSWER: “**Mock Orange**”  
[10] “Mock Orange” was written by this contemporary American poet, a professor at Yale who succeeded Billy Collins as U.S. Poet Laureate from 2003 to 2004. She won a Pulitzer for her collection *The Wild Iris* and the Bollingen Prize for her collection *Vita Nova*.  
ANSWER: Louise (Elisabeth) **Glück**  
[10] Glück wrote a collection titled for the “triumph” of this Homeric hero, in which the title poem recounts his love for Patroclus.  
ANSWER: **Achilles**

12. While on a visit to this settlement from Rome, Lucius Junius Brutus tripped over himself so he could kiss the ground. For 10 points each:  
[10] Name this mountainside town whose temples featured inscriptions reading "Nothing overmuch" and "Know thyself." The Castalian spring still gurgles here.  
ANSWER: **Delphi**  
[10] A sacred stone covered in a net commemorates the belief that Delphi is at this special location. According to one legend, Zeus sent two eagles in opposite directions whose flight paths converged at this spot.  
ANSWER: **navel** of the **world** [or **Gaia**’s **navel**; or ***Omphalos***; prompt on center of the world]  
[10] In the *Homeric Hymn to Apollo*, this man and his brother Agamedes built a temple at Delphi. In another myth, this man discovered a cave near Lebadaea that was so frightening that nobody who saw it ever smiled again.  
ANSWER: **Trophonius**

13. In an article published in *Scientific American* last year, Sivaram, Stranks, and Snaith claimed that a solar cell based on this type of material would soon overtake silicon cells in efficiency. For 10 points each:  
[10] Identify this type of material, which takes its name from the fact that its structure resembles that of calcium titanium oxide, a mineral that is also called by this name.  
ANSWER: **perovskite**  
[10] A popular use of perovskite materials, such as PZT, is in applications based on this effect, in which the application of mechanical stress to the perovskite crystal results in the generation of a potential difference.  
ANSWER: **piezoelectric**ity  
[10] Perovskite solar cells are touted as a possible successor to cells made from this binary compound, which currently holds the majority of the thin-film solar market.  
ANSWER: **cadmium telluride** [or **CdTe**]

14. The oldest-known piece of literature in this language is the drama *Ollantay*, about a warrior who marries the daughter of the emperor Pachacutec. For 10 points each:  
[10] Name this first language of the chronicler Garcilaso de la Vega. An Andean language, it was the *lingua franca* of the Inca Empire.  
ANSWER: **Quechua**  
[10] This leader of the Peruvian *indigenismo* movement, whose first language was Quechua, chronicled an Andean bullfight in the novel *Yawar Fiesta*. He embedded a description of his future suicide into the novel *The Fox from Up Above and the Fox from Down Below*.  
ANSWER: José María **Arguedas** (Altamarino)   
[10] Another native Peruvian ethnic group is the Amazonian Machiguenga tribe, whom university student Saul Zuratas leaves home to live with in this novel by Peruvian author Mario Vargas Llosa.  
ANSWER: *The* ***Storyteller*** [or *El* ***Hablador***]

15. Alex Rackley was held captive and tortured for two days in this city. For 10 points each:  
[10] In what city were nine Black Panthers arrested after they tortured and killed Rackley, a suspected FBI informer? Bobby Seale, who was already serving a four-year sentence, was put on trial again for charges related to that incident.  
ANSWER: **New Haven**, Connecticut  
[10] Seale had previously been convicted for being one of the protesters charged with inciting a riot in this city, the host of the 1968 Democratic National Convention.  
ANSWER: **Chicago**, Illinois  
[10] This Yale chaplain blamed the New Haven Nine’s actions on the illegal acts of law enforcement agencies. A leader of anti-Vietnam War protests and pro-nuclear disarmament campaigns, he later became senior minister at New York’s liberal Riverside Church.  
ANSWER: William Sloane **Coffin** Jr.

16. Density-dependent growth can stabilize the predictions of this model, which unusually does *not* predict a stable equilibrium at nonzero populations. For 10 points each:  
[10] Name this discrete model used to model the population dynamics in host-parasitoid interactions. It sets the new population of the host proportional to the negative exponential of the current parasitoid population.   
ANSWER: **Nicholson-Bailey** model  
[10] For instance, the model could model the parasitism of *D. dendriticum*, a fluke found in this phylum. This invertebrate phylum consists of bilaterally symmetric, acoelomate organisms, like those that cause schistosomiasis.  
ANSWER: **platyhelminth**s [or ***Platyhelminthes***; or **flatworm**s; prompt on **worm**s]  
[10] *D. dendriticum*, like most trematodes, matures as a larva in the GI tract of these animals. These animals are hermaphroditic and copulate by ejecting a sharp gypsobelum made of chitin or calcium carbonate and sticking it into a mating partner’s foot.  
ANSWER: **snail**s [or garden **snail**s; or any other specific type of snail]

17. This paper imagines two coffee tasters named Chase and Sanborn. One claims that he no longer likes the taste of Maxwell House and the other claims that he still likes the taste, but his taste buds have changed. For 10 points each:  
[10] Name this essay that also imagines a neurosurgeon causing “inverted spectrum” vision as a prank. Its controversial thesis is that the idea of subjective properties of conscious experience is incoherent.   
ANSWER: “**Quining Qualia**”  
[10] “Quining Qualia” is by this white-bearded Tufts philosopher, who further attacked the notion of qualia in his book *Consciousness Explained.*  
ANSWER: Daniel **Dennett**  
[10] This Australian philosopher defended the reality of qualia and the falseness of physicalism in his paper “Epiphenomenal Qualia,” which imagines a scientist named Mary who studies the neurology of color vision, but has never actually seen colors.  
ANSWER: Frank (Cameron) **Jackson**

18. After his death in a plane crash, this man’s brother placed an obelisk on his grave with lines from “The Rime of the Ancient Mariner.” For 10 points each:  
[10] Name this hunter. He gave a treasured gift of a gramophone to his mistress, who was married to a syphilitic nobleman. All of those events were recounted in a book in which he prominently appears.  
ANSWER: Denys (George) **Finch-Hatton** [generously prompt on “Denys”; this requires his last name since he is clued as a real-life person rather than as a character]   
[10] This Danish author’s affair with Denys Finch-Hatton is obliquely implied throughout her memoir *Out of Africa*.  
ANSWER: Isak **Dinesen** [or Karen (von) **Blixen**-Finecke; or Karen Christenze **Dinesen**; accept Tania **Blixen**; accept **Osceola**; accept Pierre **Andrézel**]  
[10] At the end of this short story by Dinesen, the cross-dressing Agnese interrupts a duel between Prince Pozentiani and Prince Nino over Nino’s failure to rape Rosina as he promised to do.  
ANSWER: “The **Roads Round Pisa**”

19. A lamb’s feet are bound together in this artist’s painting *Agnus Dei*, and Mary stands above a galleon and a castle in his *Immaculate Conception*. For 10 points each:  
[10] Identify this chiaroscuro-loving artist who depicted Hercules about to bring the club down on the Nemean Lion as part of the ten panels he made on the *Labors of Hercules* for the Hall of Realms in the Buen Retiro Palace in the 1630s.  
ANSWER: Francisco de **Zurbarán**  
[10] This other Zurbaran painting for the Hall of Realms shared a theme with a play written by Rodrigo de Herrera. The gout-afflicted Duke of Fernandian gestures at his generals from an armchair in the foreground of this painting as a giant sea battle takes place in the background.  
ANSWER: *The* ***Defense of Cadiz*** *against the English* [or *The* ***Rescue of Cadiz*** *against the English* or ***Defensa de Cádiz*** *contra los ingleses*]  
[10] The most famous painting originally commissioned for the Hall of Realms is this Diego Velazquez painting, which inspired Stefan Zweig’s scenario for the Strauss opera *Freidenstag*. Ambrosio Spinola receives the keys to the title city in this painting.  
ANSWER: *The* ***Surrender of Breda*** [or *Las* ***Lanzas*** or *La* ***rendición de Breda***]

20. During this scandal, an Interior Minister noted his fellow Cabinet member’s actions were “somewhat outside of legality.” For 10 points each:  
[10] What 1962 scandal resulted in Defense Minister Franz Joseph Strauss losing his office after he exceeded his authority and ordered the arrest of Rudolf Augstein? Strauss was angry over an apparent leak regarding NATO training exercises.  
ANSWER: *Der* ***Spiegel*** scandal  
[10] *Der Spiegel* was called “a shit paper” by this Social Democrat, a Chancellor who promoted *Ostpolitik*.  
ANSWER: Willy **Brandt** [or Herbert Ernst Karl **Frahm**]  
[10] A far more conservative German publication, *Bild*, was, along with other Axel Springer publications, blamed for the shooting of this man. This dynamite-toting leader of the West German student movement had followers like Ulrike Meinhof and was shot in the head by Josef Bachmann in 1968.  
ANSWER: Alfred Willie Rudi **Dutchske**

21. Before scientists have animals do this task, they typically place dye or a sticker on the animal's head; with human children a bit of rouge makeup is often put on the kid's nose. For 10 points each:   
[10] Identify this test which chimpanzees, orcas, and the Asian elephant pass, and which human toddlers routinely pass after the age of 18 months. It is a common test of higher cognitive functioning and self-awareness.  
ANSWER: **mirror** test [or mirror **self-recognition** test; or **MSR** test; or **mirror** stage; accept any answer indicating a subject's ability to **recognize** an image of it**self**; accept any answer indicating a subject's ability to **recognize** its own **reflection**; or **recognize** oneself in a **mirror**; prompt on rouge test or lipstick test]  
[10] This psychologist, the lead author of the 2002 paper "Does semen have anti-depressant properties?", developed the mirror self-recognition test used to test for self-awareness in animals.   
ANSWER: Gordon J. **Gallup** Jr.  
[10] Success at the mirror test was thought to require this brain component until the Eurasian magpie, which lacks this component, was shown to pass in 2008. In humans, chandelier cells are part of Layer IV among its six layers.  
ANSWER: **neocortex** [prompt on cerebral cortex; prompt on cerebrum; prompt on grey matter]