Cal's Mid-Spring Tournament 2018
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Tossups

1. The paramilitary group FLAM is headquartered in this country and represents the *halpulaar* population in this country's northern neighbor. This country dissolved a short-lived federation with its eastern neighbor amidst tensions between its Catholic first president and the Muslim opposition leader Cheikh Tidiane Sy ("shake tee-dee-AHN see"). Protests over unequal compensation for black *tirailleur*s ("tee-rye-YURZ") in the French army led to the Thiaroye ("tyah-ROY") massacre in this country. This country entered a loose confederation with a neighboring country after its army defeated a 1981 coup attempt against that neighbor's leader, (*) Dawda Jawara. The Jola ethnic group has led a decades-long separatist movement in this country's southern Casamance region. This country's first president, who was peacefully succeeded by Abdou Diouf ("AHB-doo dyoof"), was the first African elected to the Académie française ("frahn-SEZ") and was a socialist leader of the Négritude movement. For 10 points, name this West African country first led by Léopold Senghor.
ANSWER: Republic of **Senegal** [or *République du **Sénégal***]
<EC, World History>

2. George Grosz ("gross") satirized the central scene of this painting in his drawing "Shut up and do your duty," while Otto Dix mimicked its composition in his painting *The War*. In this painting, the infant Christ plays with a necklace in an outdoor scene next to a scene under a Gothic tabernacle in which a dark, sickly angel awkwardly plays a viola da gamba. Martin Schongauer's ("SHONE-gow-ur's") work surrounds this painting at the Unterlinden museum. This altarpiece's wings meet at Christ's knees in the predella and right shoulder in its main scene, possibly in reference to (*) amputation. It features wooden sculptures by Nikolaus Hagenauer. An orange ball of light appears behind and blends with a pale Christ above sleeping soldiers in this altarpiece's Resurrection, which is next to a Nativity and angelic concert. An inscription reading "He must increase, but I must decrease" next to John the Baptist appears near its central dark crucifixion. Depictions of demons and St. Anthony reflects its commission by an Antonine monastery treating ergotism. For 10 points, name this altarpiece by Matthias Grünewald ("GREW-nuh-valt").
ANSWER: ***Isenheim*** ("EE-zun-hime") *Altarpiece*
<AK, Painting/Sculpture>

3. One of these figures describes being covered in snow, rain, and dew before a god responds that he knows of the bright benches and gold platforms of heaven. In that poem, that one of these figures thrice ends lines with "I speak under duress; now I will be silent" before describing a god's son not washing his hands or combing his hair. One of these figures assists in the wooing of Menglod in a poem in the *Poetic Edda*. A large one of these figures recounts the lineage of Ottar to Freyja ("FRAY-uh") as they ride on a wolf towards Valhalla. In an episode from the *Poetic Edda* titled for (*) *Baldr's dreams*, Odin rides to Hel in the form of Vegtam and resurrects one of these figures to ask it questions. The first episode of the *Poetic Edda* is named after these figures, with one telling Odin about the events of Ragnarok. Groa and Hyndla are these figures, which display an unmanliness called *ergi*, are named for the staff they carried, and practiced sorcery called *seidr* ("SAY-thur"). For 10 points, name these female prophetesses of Norse mythology.
ANSWER: ***völva**s* [or ***vala***; or ***spákona***' or ***spækona***; prompt on <u>sorceress</u>, <u>witch</u>, or equivalents]
<AK, Legends>

4. **In the preface to a collection, this poet argued that French poems in *vers libre* ("vair LEE-bruh") form are built on "organic rhythm" and claimed to be the first to attempt Paul Fort's "polyphonic prose" form in English. The speaker of a poem by this author watches the "thin and lustreless" moon from a window and muses "I know the moon, and this is an alien city." This author of "A London Thoroughfare. 2 A.M." wrote a poem whose speaker recalls being "aching, melting, unafraid" and seeing "the sun (*)** flash from [a man's] sword-hilt and the buckles on his shoes." This poet included the sequence "Two Speak Together" in the Japan-inspired *Pictures of the Floating World*, which concerns her relationship with Ada Dwyer Russell. The speaker of a poem by this author wears a "stiff, brocaded gown" and receives a letter informing her of the death of Lord Hartwell. That poem ends with the speaker asking, "Christ! What are [the title entities] for?" For 10 points, name this Imagist poet of "Patterns."
ANSWER: Amy **Lowell** [or Amy Lawrence **Lowell**]
<JN, Poetry>

5. **A youth group in this country known as the "wild boars" opposed the "rams," who likely destroyed the sixteenth-century Hans Gieng ("GHEE-ung")-designed Fountain of Justice; that latter group was part of a separatist movement that caused three majority Catholic districts in this country's northwest to split from its administrative region in 1979. It's not Portugal, but the ZIPP-AIDS program in this country gave clean needles to heroin addicts who gathered at Needle Park. From 1959 to 2003, a body in this country allocated two seats each to the Social Democratic Party, the Free Democratic Party, and the Christian Democratic People's Party and one seat to a populist party according to the (*)** "magic formula." This is the largest economy that remains in the EFTA, which also includes Liechtenstein ("LICK-tun-stine"), Iceland, and Norway. A 1971 referendum allowed women's suffrage at the federal level in this country, the last Western republic to do so. For 10 points, name this European country governed by a seven-member Federal Council, a non-EU member known for its armed neutrality.
ANSWER: **Switzerland** [or **Swiss Confederation**; or *C*onfoederatio *H*elvetica; or **Helvetia**]
<EC, European History>

6. **A partially-autobiographical book by Arlette Farge ("farzh") reflects on these institutions and their "allure." These institutions are often governed by a principle of *respect des fonds* ("day FOHN"). A concept named for this type of institution is defined as "the law of what can be said" and "the general system of the formation and transformation of statements." "The description of discursive formations" aims at the "uncovering" of examples of that concept in the work of Michel Foucault. A different thinker characterizes these institutions as "hypomnesic" in that they cannot exist without an external "place of consignation"; that work draws on Freud to argue that the desire to create these institutions is due to the death drive, which simultaneously threatens them in a kind of (*)** "fever." That work is by Jacques Derrida. Leopold von Ranke is credited with pioneering a method characterized by the use of these institutions for history. Brewster Kahle ("kail") created an organization named after this type of institution which aims to enable "universal access to all knowledge" and operates the Wayback Machine. An institution of this type is responsible for operating most American presidential libraries. For 10 points, identify these types of institutions, which specialize in the collection of historical records, often from a particular nation.
ANSWER: **archive**s
<MC, Other Academic>

7. **In one piece, a solo for this instrument is preceded by the oboes oscillating among the notes of an A major triad as the clarinets do the same with a D major triad; this instrument then opens its melody with an ascending C-sharp minor triad. This instrument plays a 6/8 melody marked *molto cantabile, con dolore* in G-sharp minor following a bassoon introduction in the second movement of a famous orchestration. This instrument introduces the main melody in Waltz No. 2 from Shostakovich's *Suite for Variety Orchestra*. (*)** Sigurd Raschèr ("RAH-shur") promoted the use of "top tones" on this instrument, allowing its range to be extended

to four octaves. This instrument plays prominent solos in the first movement of Rachmaninoff's *Symphonic Dances* and the "Old Castle" movement of Ravel's orchestration of *Pictures at an Exhibition*. A concerto for this instrument in E-flat major was one of the last pieces written by Alexander Glazunov. For 10 points, name this instrument played by Cannonball Adderley and Charlie Parker.
ANSWER: alto **sax**ophone [do not accept "tenor saxophone," "baritone saxophone," or any other specific type of saxophone]
<EC, Classical Music>

8. **McClure developed a method of measuring this quantity that relies on "auxiliary" species, in which this quantity is proportional to one minus F. Ratios of values of this quantity are used to calculate reverse and forward commitment factors. The use of coupled assays to measure this quantity can eliminate the lag phase, during which this quantity rapidly increases. When this quantity is large, it can be measured by ejecting two materials through a multi-jet mixer into an observation port, where it is "stopped" by a syringe; that device is a stopped-flow apparatus. This quantity is proportional to the specificity constant, which is on the order of ten-to-the-ninth in (*)** diffusion-limited processes. The inverse of this quantity is plotted on the *y*-axis of a "double reciprocal" plot, whose *y*-intercept is equal to maximum value of this quantity. This quantity is equal to "V-max times concentration of S, over K-m plus concentration of S" in the Michaelis-Menten model. For 10 points, name this quantity that for a reaction is increased by the addition of an enzyme.
ANSWER: reaction **rate** [accept **rate** constant; accept **reaction velocity**; prompt on velocity; prompt on V-max until read]
<RD, Chemistry>

9. **This religious organization's founder collected 999 maxims introduced as "things that I whisper in your ear, as a friend, as a brother, as a father" in a book titled *The Way*. This organization's governance is documented by the apostolic constitution *Ut sit*, which established it as the first personal prelature of the Catholic Church. Though most members of this organization are (*)** supernumeraries who are allowed to marry, this organization's numeraries are required to remain unmarried and celibate. Some members of this organization controversially wear a cilice, a metal chain with small prongs, around their thigh as part of corporal mortification. This organization, mostly made up of laymen, was founded by Josemaría Escrivá and emphasizes the "sanctification of ordinary work." For 10 points, name this Catholic organization whose name is Latin for "Work of God."
ANSWER: **Opus Dei**
<WC, Religion>

10. **By maximizing *k* such that the *k*th order statistic of a set of certain values is less than *k* over *m* times this quantity, a procedure named for Benjamini and Hochberg controls the FDR. This quantity is plotted on the *x*-axis of receiver operating characteristic curves, or ROC ("R-O-C") curves. For multiple tests, the union bound shows that the FWER is less than or equal to the number of tests times this quantity, which is why the Bonferroni correction divides this value by the number of tests. One minus this quantity defines the (*)** interval of a confidence interval. The *p*-value is smallest value of this quantity for which the test procedure rejects. This quantity, often symbolized with alpha, is commonly chosen to be 0.05, and is also known as the significance level. This quantity is the rate at which the null hypothesis is falsely rejected. For 10 points, name this quantity also known as the false positive rate, a statistical error in hypothesis testing along with the type-II error rate.
ANSWER: **type-I error** rate [accept **false positive** rate until read; accept **significance** level until read; prompt on error rate; prompt on alpha until read]
<JN, Math>

11. **The transmittance of an etalon in a Fabry–Pérot interferometer is inversely proportional to "one, plus the coefficient of finesse times the square of this function." A theorem named for this function gives a ratio of heights that must be equal for all rays for there to be zero coma aberration. The S3 Stokes parameter is**

exclusively defined in terms of this function. The acceptance cone is defined as being less than the numerical aperture, which is proportional to this function. This function times (*) one-over-*x* defines the amplitude resulting from Fraunhofer diffraction. Ratios of this function must be equal for magnification to be possible without blurring or distortion according to a condition named for Ernst Abbe ("AH-buh"). This function is approximated to the first order in the paraxial approximation. The inverse of this function is used to find the critical angle above which total internal reflection occurs. For 10 points, name this function that appears on both sides of Snell's law, which Fourier optics decomposes signals into along with cosines.

ANSWER: **sin**e

<AK, Physics>

12. **The transition between one of these things named for capitalism and one of them named for subsistence is central to a model developed by W. Arthur Lewis, which was expanded into the Fei–Ranis model, which identifies "modern" and "primitive" forms of these things. An analytic framework developed by Wynne Godley is named for the "balances" of these things. Building on work by A. G. B. Fisher, Colin Clark's book *The Conditions of Economic Progress* introduced a model based on (*)** three of these things. This is the highest level of classification used in the GICS, a taxonomy developed by MSCI and Standard & Poor's. Information services are sometimes considered a "quaternary" form of these things, in addition to the standard primary, secondary, and tertiary forms, which refer to extraction of raw materials, manufacturing, and services, respectively. For 10 points, name this term which refers to a segment of an economy, such as when it follows the words "public" or "private."

ANSWER: **sector**s [prompt on industries]

<WN, Social Science>

13. **John Earman used Bayesian analysis to rebuke this philosopher in a book on his "Abject Failure." This philosopher's theism is emphasized in the book *Philosophical Melancholy and Delirium* by a leading authority on his thought, Donald Livingston. In Section 29 of a book, another philosopher used the example of a body being warmed by the sun to respond to what he called this philosopher's *crux metaphysicorum*. James Beattie's *Essay on Truth* critiques the (*)** racism of this philosopher's essay "Of National Characters." In his *Fragment on Government*, Jeremy Bentham recounts how he felt as if "the scales had fallen from [his] eyes" after reading this philosopher's theory of moral utility, which inspired his own "principle of utility." "Common sense" philosophers like Thomas Reid refuted this philosopher's skepticism and theory of causation. For 10 points, name this empiricist who woke Kant from his "dogmatic slumber" with his *Enquiry Concerning Human Understanding*.

ANSWER: David **Hume** (The third sentence refers to Nietzsche's *Prolegomena to Any Future Metaphysics*.)

<RK, Philosophy>

14. **In a scene accompanied by frenzied dancing, this play's chorus compares a character to a spider who "creeps" and "clutches his prey," a "snake that is human" who "shudders and crawls to my side," and an "adder that biteth the foot." This play is part of a tetralogy whose other parts are mostly lost, though a speech by Aphrodite praising the marriage between the earth and the sky survives. The many mentions of hands in this play include the final line, in which the semi-chorus says "the hands of thy saving are sure" to (*)** Zeus, who is the addressee of this play's opening speech. A group of women in this play offer to use their girdles to adorn statues; when asked to identify their lineage, those women recount the story of Io ("EYE-oh"). A herald in this play attempts to drag the title characters to a ship, but is rebuffed by Pelasgus, who has offered shelter to them. At this play's beginning, the title characters travel to Argos to flee from marriage with the fifty sons of Aegyptus ("ih-JIP-tus"). For 10 points, name this Aeschylus play in which the daughters of Danaus ("DAN-ay-us") seek assistance.

ANSWER: The ***Suppliants*** [or The ***Suppliant Maidens**; or The ***Suppliant Women***; or ***Hiketides***]

<JN, Drama>

15. **Thomas Struth ("shtroot") photographed a group of schoolgirls at this museum sketching a painting from its collection. In 2015, this museum created 3D copies of six of its pieces, including *The Nobleman with a Hand on His Chest*, for an exhibit for the blind titled "Touching [this museum]." Its first solo exhibition of a female artist was a 2016 showing of the seventeenth-century painter Clara Peeters. In 2009, it partnered with Google Earth to produce fourteen-thousand-megapixel digitizations of pieces like Rubens's *The Three Graces*. The Baron d'Erlanger ("bah-ROHN dair-lon-ZHAY") donated a series of paintings to this museum. After Picasso's *Guernica* left the MoMA, it was housed here until it was transferred in 1991 to a nearby museum next to the (*)** Thyssen-Bornemisza ("TEE-same-bor-nay-MEE-sah") Museum. In 1879, John Singer Sargent visited this museum and copied one of its paintings in preparation for painting *The Daughters of Edward Darley Boit*. This museum houses Van der Weyden's ("VY-dun's") *Deposition* and Bosch's *Garden of Earthly Delights*. For 10 points, name this museum home to Goya's *Black Paintings* and Velázquez's *Las Meninas*, located in Madrid.
ANSWER: Museo del **Prado** [or the **Prado**; prompt on Casón del Buen Retiro]
<AK, Other Art (Misc)>

16. **At the beginning of a story by this author, a drunk man instantly sobers up upon hearing that Doctor MacFarlane has arrived. Fettes ("FEH-tis") discovers Mr. K—— is being supplied fresh bodies for dissection in that story by this author inspired by the Burke and Hare murders. Colonel Geraldine's employer duels the President at the end of a series of stories by this author about an organization that employs a man offering cream tarts to Prince Florizel, included in his (*)** New Arabian Nights*. This author's time in Samoa inspired a story about a man who marries Kokua with the help of a devilish object that must be sold for less than it was bought for. This author of "The Body Snatcher" and "The Suicide Club" wrote a story about the Hawaiian Keawe ("kay-AH-vay") called "The Bottle-Imp." In a novella, this author created the lawyer Gabriel John Utterson, who investigates the death of his client Danvers Carew. For 10 points, name this author who described a transforming scientist in *The Strange Case of Dr. Jekyll and Mr. Hyde*.
ANSWER: Robert Louis **Stevenson**
<RK, Short Fiction>

17. **The activity of this protein is mimicked by a penta-aza-macrocyclic compound known as M40401 and a cisplatin nephrotoxicity treatment known as TEMPOL ("tempo-L"). A nutritional supplement combines melon extract, which contains high amounts of this protein, with gliadin, which complexes with this protein to protect it from digestive enzymes. The CCS gene encodes a chaperone metalloprotein that provides a metal for the active site of an isoform of this enzyme. The A4V and G93A mutations to a gene encoding for this enzyme are linked to familial ALS. The oxidation of a (*)** ubiquinone radical between complexes I and III in the ETC produces this enzyme's substrate, which in eukaryotes uses a copper and zinc active site to perform a disproportionation reaction on a diatomic radical. For 10 points, name this enzyme, an antioxidant that produces either hydrogen peroxide or diatomic oxygen from its namesake oxygen radical.
ANSWER: **superoxide dismutase** [or **SOD**; or PC-**SOD**; or **SOD**-mimetic agents; or **glisodin**; or CuZn**SOD**; or anything with **SOD** in it really]
<AK, Biology>

18. **The 1974 Eurovision Song Contest was censored in one country out of fear that its entry, whose title translates to simply "Yes," would subliminally influence a referendum on this practice. John Bruton's government introduced the Fifteenth Amendment legalizing this practice in Ireland. An incomplete form of this practice is called *a mensa et thoro*. The Supreme Court held that lax Nevada laws on this practice must be recognized by other states in the 1942 case *Williams v. North Carolina*. London became known as the world capital for this practice after the ancillary relief case (*)** White v. White*. The 2011 legalization of this practice in Malta left the Philippines as the only UN member in which this practice is illegal for the general population. In 1969, California became the first state to legalize the no-fault version of this practice. For 10 points, name this practice historically opposed by the Catholic Church, in which a marriage is ended.

ANSWER: **divorce** [prompt on en<u>ding</u> a <u>marriage</u>; anti-prompt on *a mensa et thoro* until it is read]
<EC, Other History>

19. **James Wood's harsh review of this novel ends by quoting the author's belief that he's a better writer than Michael Crichton. In this novel, Schopenhauer quotations and an illustration of four rectangles explaining multiplication are interspersed amidst a description of a "Dinner of Revenge," during which a seven-year-old stays at the table for five hours without eating liver. While on a Nordic Cruise, an old man in this novel hallucinates a conversation with a literal "sociopathic turd" that successfully convinces him to jump off. A professor in this novel has sex with his student (*)** Melissa while under the influence of the drug Aslan, leading him to be fired and later move to Lithuania. This novel begins by describing an "alarm bell of anxiety" as the retired railway engineer Alfred, who suffers from Parkinson's, repairs his home in St. Jude, where his wife Enid desires to bring their adult children for "one last Christmas." For 10 points, name this 2001 novel centering on the dysfunctional Lambert family, written by Jonathan Franzen.
ANSWER: *The **Corrections***
<RK, Long Fiction>

20. **When Evelle Younger joked to a member of this family that he "didn't inherit the Irish charm of [his] father," that man sharply rebutted that he "inherited the fiscal frugality of [his] mother." Though Erwin "Machine-Gun" Walker's death sentence was commuted to life in prison by a member of this family, he approved the death sentences of female inmates Elizabeth Duncan and Caryl Chessman. A member of this family developed a three-tiered "master plan" for higher education in his state with (*)** Clark Kerr. After losing an election to a member of this family in 1962, Richard Nixon declared that the media "wouldn't have [him] to kick around anymore" in what he declared to be his "last press conference." A member of this family was nicknamed "Moonbeam" in his first stint as governor and later defeated Meg Whitman in a 2010 gubernatorial re-election campaign. For 10 points, name this influential California political family, whose members have included governors Pat and Jerry.
ANSWER: **Brown** family [accept Edmund "Pat" **Brown**; accept Edmund "Jerry" **Brown**]
<BL, American History>

Bonuses

1. Answer the following about the work of American humorist David Sedaris, for 10 points each:
[10] In an essay titled for this figure, Sedaris recalls his time while working at a Macy's department store. Francis Pharcellus Church wrote an editorial saying that this figure exists "as certainly as love and generosity and devotion exist."
ANSWER: **Santa Claus** [accept clear equivalents]
[10] The aforementioned "Santaland Diaries" was popularized through this medium in collaboration with *This American Life*. Orson Welles incited mass hysteria with his 1938 adaptation of *War of the Worlds* in this medium.
ANSWER: **radio**
[10] This activity inspired Sedaris to take the trip to Japan described in the last chapter of his book *When You Are Engulfed in Flames*, whose Chip Kidd-designed cover features a painting of this activity.
ANSWER: **smoking** (That painting is Van Gogh's *Skull of a Skeleton with Burning Cigarette*.)
<RK, Misc Literature>

2. In his autobiography, future governor of Illinois John Reynolds described his father mistakenly believing that this event was actually an Indian raid upon their log cabin. For 10 points each:
[10] Name this series of natural disasters that caused the Shawnee and other Indian tribes to flock to a leader known as "the Prophet."
ANSWER: **New Madrid earthquake**s
[10] Tenskwatawa ("ten-skwuh-TAH-wuh"), also known as "the Prophet," was the brother of this Shawnee chief, who led a confederacy of Indian tribes to oppose the growing influence of the United States. He allied with the British during the War of 1812 and was killed at the Battle of the Thames.
ANSWER: **Tecumseh** ("ti-CUM-suh")
[10] Tecumseh helped Isaac Brock take this major American stronghold during the War of 1812. British trickery, such as lighting additional fires and wearing surplus uniforms, convinced William Hull to surrender this city to a vastly smaller force.
ANSWER: **Detroit** [accept Siege of Fort **Detroit**]
<BL, American History>

3. Answer the following about the antiquated Thomas–Fermi model, for 10 points each:
[10] The Thomas–Fermi model was superseded by a theory named after this quantity based on the Hohenberg–Kohn theorems. The first of those theorems states that the external potential is a unique functional of this quantity.
ANSWER: electron **density** [accept **density** functional theory; or **charge density**; prompt on DFT]
[10] Instead of calculating the wavefunction, the Thomas–Fermi model relies on calculating the terms representing kinetic and potential energy to then calculate this quantum mechanical operator representing the system's total energy.
ANSWER: **Hamiltonian** [or **H**]
[10] In the Thomas–Fermi model, the kinetic energy is proportional to the volume integral of the electron density raised to this power.
ANSWER: **five-thirds** [or **five over three**; or **5/3**]
<AK, Chemistry>

4. Answer the following about *The Young Visiters*, a novel written by the nine-year-old Daisy Ashford, for 10 points each:
[10] *The Young Visiters* was published with a preface by this creator of Peter Pan, leading to persistent rumors that it was he, and not Ashford, who actually wrote it.
ANSWER: J. M. **Barrie** [or James Matthew **Barrie**]

[10] This author's parody of *The Young Visiters*, entitled *The Young Immigrunts*, is the source of perhaps his most quotable sentence: "'Shut up,' he explained."
ANSWER: Ringgold Wilmer "Ring" **Lardner**
[10] The rampant spelling errors in *The Young Visiters*, including in the title, recall the spelling error in the title of this piece of juvenilia by Jane Austen, written mostly in the form of letters from Laura to Marianne.
ANSWER: ***Love and Freindship***
<WN, Long Fiction>

5. In the Yasna, Zoroaster asks the deity of this plant, "Who, o Man, are you, the most beautiful of the entire material world whom I have seen," and in his response the deity calls this plant by the epithet *dūraoša* ("doo-RAO-shah"). For 10 points each:
[10] Name this sacred plant in Zoroastrianism, which is pounded in a mortar to prepare a consecrated liquid. This plant's name is cognate to the Vedic *soma*.
ANSWER: ***haoma*** [or ***hōm***; accept para***haoma*** or para***hōm***]
[10] *Haoma* is pounded to produce *parahaoma* as part of this Zoroastrian ritual, an offering to water that is the culminating act in the liturgy of the Yasna.
ANSWER: **Ab-Zohr** [or ***zor-melavvi***; or ***jor-melavvi***]
[10] In part because of the role of water in the Ab-Zohr, these Zoroastrian places of worship are typically built near a source of water. The most sacred of these places of worship contain an Atash Behram.
ANSWER: **fire temple**s [or ***dar-e mehr***; or ***darbe-mehr***; or ***agiyari***]
<WC, Religion>

6. A ruler from this family often held court with his pet orangutan Betsy, and he once held a trial in which he sentenced a man-eating crocodile to "be instantly killed without honours." For 10 points each:
[10] Name this royal family, whose rule began when Omar Ali Saifuddin II granted its patriarch territory around the modern-day city of Kuching and the region of Bau. As rulers, they were known as the "White Rajahs."
ANSWER: **Brooke** family
[10] The White Rajahs ruled a kingdom with this name on the island of Borneo. Today, the oil-rich state of Brunei is completely surrounded by a sub-national division with this name.
ANSWER: **Sarawak** [or Kingdom of **Sarawak**]
[10] James Brooke, the first White Rajah, was granted Sarawak after he defended Brunei from this type of people. The Japanese *wokou* were this type of people, who today terrorize the Strait of Malacca.
ANSWER: **pirate**s
<IJ, World History>

7. A work by this composer uses a sine wave oscillator and a magnet to vibrate a long piano wire. For 10 points each:
[10] Name this experimental American composer. In his piece *I am sitting in a room*, this composer repeatedly played and recorded a text he read until it became unintelligible to "smooth out any irregularities" caused by his stuttering.
ANSWER: Alvin **Lucier** ("LOO-see-ur")
[10] The text in *I am sitting in a room* was recorded and played on this medium, which can be held in a reel or on a cassette. Steve Reich ("RYE'sh") played loops of this medium at different speeds to create phasing in pieces like *Come Out*.
ANSWER: magnetic **tape**
[10] Lucier's *North American Time Capsule* used an early one of these devices that take in a carrier signal and modulator signal, usually voice. Wendy Carlos and Robert Moog ("mohg") created one used for the choral part of Beethoven's Ninth in Stanley Kubrick's *The Shining*, and Laurie Anderson used one throughout "O Superman."

ANSWER: **vocoder** [or **voice changer**; or **voice synthesizer**; or **speech synthesizer**; or **talk box**; prompt on synthesizer]
<EC, Other Art (Auditory)>

8. Ernest Gellner argues that communism is differentiated from capitalism in part because the former is incompatible with the realization of this concept. For 10 points each:
[10] Identify this concept, which has been promoted as a part of democratization, and which denotes organizations like universities, foundations, unions, and clubs which can advance the interests of private citizens independently from the state. It is sometimes said to constitute a third, voluntary sector beyond the public and private ones.
ANSWER: **civil society**
[10] This Hungarian-born billionaire is known for funding civil society organizations around the globe through his Open Society Foundations, which have attracted criticism from Viktor Orbán and have been accused of funding protesters in the US. His Quantum Fund is said to have "broke[n] the Bank of England."
ANSWER: George **Soros** [or György **Schwartz** or **Soros** György]
[10] In 2017 Orbán's government passed measures that would have restricted the operations of foreign-funded universities, a measure which was widely seen as an attack on this Budapest-based private university, which was founded by Soros and where Gellner was an early leader.
ANSWER: **Central European** University [or **CEU**]
<MC, Current Events>

9. These phenomena can become "glassy" when they are "pinned" by impurities and lattice defects according to the nonlinear Fukuyama–Lee–Rice model of them. For 10 points each:
[10] Name these transport phenomena studied in condensed matter physics, often paired with a similar "spin" variety caused by electron-phonon interactions. These phenomena discovered by Rudolf Peierls ("PIE-earls") have been primarily modeled in niobium triselenide.
ANSWER: **charge density wave**s [or **CDW**s]
[10] CDWs are mostly favored in conductors with a "quasi" form of this property, like niobium triselenide. Unlike harder-to-model square lattices, this type of system exhibits no phase transitions, according to the work of Rudolf Peierls and Ernst Ising ("EE-zing").
ANSWER: **one-dimensional** [or **1-D**; prompt on low-dimensional]
[10] CDWs are theorized to be induced by the "nesting" of a surface named for this man. The formation of CDWs is also aided by a gap in this man's namesake "level," which has a fifty percent chance of being occupied by an electron.
ANSWER: Enrico **Fermi** [accept **Fermi** level]
<RK, Physics>

10. Answer the following about what philosophers in the Middle Ages knew about Greek philosophy, for 10 points each:
[10] Thanks to Porphyry's *Isagoge* ("eye-suh-GO-gay"), medieval philosophers adopted a version of Aristotle's classification of this many predicables ("PRED-icables"), or possible relations between predicates and subjects.
ANSWER: **five** [accept **five** predicables or *quinque voces*]
[10] Many Greek texts, including Porphyry's *Isagoge*, were read in Latin translations by this medieval philosopher. The title allegorical figure wears a gown with a ladder connecting the letter pi to the letter theta in his *Consolation of Philosophy*.
ANSWER: **Boethius** ("bo-EE-thee-us") [or **Boetius**; or Anicius Manlius Severinus **Boëthius**]
[10] This was the only surviving Platonic dialogue throughout most of Middle Ages due to a partial translation by Calcidius. This dialogue describes the orbits of planets and the creation of the "World Soul" by the demiurge.
ANSWER: *Timaeus*
<AK, Philosophy>

11. Many historians argue that the Black Death and this event were responsible for causing the revolt of John and William Merfold in the fifteenth century. For 10 points each:
[10] Name this economic depression in England that lasted from 1440 to 1480. It was exacerbated by the Hundred Years' War.
ANSWER: the **Great Slump**
[10] The Great Slump began during the reign of this ruler, who faced the revolt of Jack Cade. Under this king, the Hundred Years' War ended with England losing all landholdings in France except Calais ("cal-AY") after the Battle of Castillon ("kah-stee-YOHN").
ANSWER: **Henry VI** [prompt on Henry]
[10] During the Great Slump, markets for this good all but disappeared. The practice of enclosure was largely driven by English production of this good. In Italy, laborers working with this good led the Revolt of the Ciompi ("CHOM-pee").
ANSWER: **wool**
<IJ, European History>

12. A Robert Motherwell painting titled *Drunk with [this substance]* appropriately consists of several thick black brushstrokes and splatters, with some surrounded by faint orange halos. For 10 points each:
[10] Name this foul-smelling solvent used to excess in Helen Frankenthaler's "soak-stain" technique, which used large amounts of this paint thinner so the paint would permeate the fabric of the canvas.
ANSWER: **turpentine** ("TUR-pun-tine")
[10] Frankenthaler occasionally used acrylics in her soak-stains, but turpentine is usually used to thin this type of paint which became widely used in the Renaissance. Made from linseed, this type of paint cracks over time and dries through oxidation, unlike watercolor or tempera ("TEM-pur-uh").
ANSWER: **oil** paints
[10] Morris Louis was an early adopter of this solvent-based acrylic developed by Leonard Bocour in the 1940s. Roy Lichtenstein ("LICK-tun-stine") loved the flat, matte ("mat") color of this paint and used it along with oil paints in his cartoon-inspired works.
ANSWER: Bocour **Magna**
<AK, Painting/Sculpture>

13. Answer some questions about X-ray binary systems, for 10 points each:
[10] X-ray binaries are composed of a donor, usually a normal star, and an accretor. The accretor is an extremely dense object, and can be a black hole, white dwarf, or one of these stars with an upper bound of three solar masses by the TOV ("T-O-V") limit.
ANSWER: **neutron star**s
[10] These objects are the only type of X-ray binaries to emit radio jets. Granat was the first project to discover one of these objects called GRS 1915+105 in the Milky Way, and XMM-Newton discovered the first extragalactic one of these objects in January 2017.
ANSWER: **microquasar**s [do not accept or prompt on "quasars"]
[10] Kip Thorne and Stephen Hawking's 1974 bet concerned this microquasar, which is in a high-mass X-ray binary system along with the blue supergiant HDE 226868. This body was the first black hole candidate to be discovered.
ANSWER: **Cygnus X-1** [or **Cyg X-1**]
<PS, Other Science (Astronomy)>

14. A set of these texts exist in the margins of the Venetus A manuscript Jean-Baptiste Villoison ("veel-wah-ZON") found in the Marciana Library in Venice. For 10 points each:
[10] Give this Ancient Greek term for commentaries on texts such as the *Iliad*. The ones written by students of Aristarchus and found in the Venetus A manuscript are known as the "A" group of these texts.

ANSWER: _scholia_ [or _scolion_; or _scholium_; or A **scholia**]
[10] In his 1993 commentary on the _Iliad_, G. S. Kirk argues that the creation of this section might have relied on ancient itineraries. This list of demonyms in Book Two begins with Homer invoking the Muses to assist his memory.
ANSWER: **Catalogue** of **Ships** [or _neōn katalogos_]
[10] A theory of the composition of the Catalogue of the Ships states that it was gradually lengthened as the _Iliad_ was spread in this way. Milman Parry and Albert Lord developed the theory that the _Iliad_ was composed in this way, being performed and altered over time by bards rather than being written down by one source.
ANSWER: **oral** transmission [or equivalents indicating an auditory performance like being **sung** or **spoken**]
<AK, Legends>

15. This poem describes a man in the house who plays with serpents and writes, and ends by referencing Margareta's golden hair and Shulamith's ashen hair. For 10 points each:
[10] Name this poem whose speaker describes drinking the "black milk of daybreak." A man in this poem orders a grave to be dug in the earth.
ANSWER: "**Death Fugue**" [or "**Todesfuge**"; or "**Fugue of Death**"]
[10] Paul Celan ("SAY-lahn") drew on his experience in a work camp during this conflict to write "Death Fugue." The SS forcibly transports Eliezer from Sighet to Auschwitz in _Night_, which is set during this conflict.
ANSWER: **World War II**
[10] Celan stopped attending the meetings of Group 47 after this poet's collection _The Extended Hours_ won a prize and Celan's work received only six votes. This author's poem "Every Day" proclaims that "war is no longer declared, only continued."
ANSWER: Ingeborg **Bachmann**
<JN, Poetry>

16. This disease's name comes from the Nahuatl ("NAH-wah-tul") for "pest," and its symptoms included nosebleeds, a black tongue, and green urine. For 10 points each:
[10] Name this unidentified disease. Epidemics of this disease in 1545 and 1576 killed around fifteen million natives in Mexico. Previous studies claimed that this disease was an indigenous viral hemorrhagic fever, while recent studies argued that it was caused by a possibly European strain of _Salmonella_.
ANSWER: _cocoliztli_ ("koh-koh-LEEST-lee")
[10] Before the _cocoliztli_ epidemics, the population of Mexico had already been decimated by a 1520s epidemic of this Old World disease, whose victims developed characteristic fluid-filled blisters. Blankets infected with this disease were weaponized during the French and Indian War.
ANSWER: **smallpox** [or _variola_ vera]
[10] Smallpox first spread to the Aztecs by a member of the expedition to stop Cortés's invasion, which was led by this man. In his _La Relación_, Cabeza de Vaca chronicled this conquistador's disastrous expedition to Florida, during which all but four of its members died.
ANSWER: Pánfilo de **Narváez**
<EC, World History>

17. Just months before her death, this composer wrote a setting of the "Pie Jesu" ("PEE-ay YAY-soo") for voice, string quartet, harp, and organ. For 10 points each:
[10] Name this composer who became the first female composer to win the Prix ("pree") de Rome with her 1913 cantata _Faust et Hélène_ ("ay-LEN").
ANSWER: **L**ili **Boulanger** ("boo-lon-ZHAY") [prompt on Boulanger; do not accept or prompt on "Nadia Boulanger"]
[10] This composer of _Appalachian Spring_ was among the dozens of American composers taught by Lili's elder sister Nadia.

ANSWER: Aaron **Copland**

[10] Nadia Boulanger's other student Elliott Carter wrote his piece of this genre and number after a year in the desert. Smetana's autobiographical piece of this genre and number depicts his own deafness.

ANSWER: **String Quartet No. 1** [or **first string quartet**; prompt on partial answer]

<EK, Classical Music>

18. A character in this play possesses "that kind of delicate and rugged beauty which no circumstance of evil or ugly reality can destroy" and is forced to perform a burlesque by Blick. For 10 points each:

[10] Name this 1939 play that follows the habitués of a "honky-tonk" restaurant owned by Nick. In a subplot in this play, Joe encourages the romance between Tom and the prostitute Kitty Duval.

ANSWER: The ***Time of Your Life***

[10] William Saroyan's *The Time of Your Life* is set in this city. A dentist from this city kills his miserly wife Trina Sieppe in Frank Norris's *McTeague*, which is subtitled "A Story of [this city]."

ANSWER: **San Francisco**

[10] Saroyan's son Aram earned a cash award from the National Endowment for the Arts for a one-word poem that consists of this word, but misspelled.

ANSWER: **light** [or "**lighght**"]

<JN, Drama>

19. This book notes that subjects evaluate a computer more favorably if they complete the evaluation using the same computer. For 10 points each:

[10] Name this book in which Clifford Nass and Byron Reeves argue that human interactions with computers and television are "fundamentally social and natural," like real-life interactions.

ANSWER: The ***Media Equation***: *How People Treat Computers, Television, and New Media Like Real People and Places*

[10] Nass and Reeves claim that because people are polite to machines, we must create media that are polite to people by incorporating this thinker's maxims of quantity, quality, relation, and manner into their design.

ANSWER: Herbert Paul **Grice**

[10] In "A Virtual Reprise of the Stanley Milgram Obedience Experiments," Slater et al. found that subjects who administered these punishments to an avatar they could see and hear responded to the situation as if it were real.

ANSWER: electric **shock**s

<EC, Social Science>

20. Answer some questions about protein purification, for 10 points each:

[10] Fusion proteins are often made to purify proteins through this type of chromatography, which involves binding the desired protein to a resin. Immunoprecipitation can be considered a specific example of it involving antibodies.

ANSWER: **affinity** chromatography [accept immuno**affinity** chromatography]

[10] A short tag of six to ten residues of this amino acid can be added to the desired protein to make it bind to a nickel resin because the imidazole ring in this amino acid's positively-charged side chain chelates nickel.

ANSWER: **histidine** [or **His**; accept poly**histidine** tag or hexa**histidine** tag or **His**6 tag]

[10] Larger tags such as MBP are often cleaved from the desired protein with a His-tagged protease derived from this single-stranded RNA virus, which recognizes the sequence ENLYFQS.

ANSWER: **tobacco etch** virus [or **TEV**; do not accept or prompt on "tobacco mosaic virus"]

<JK, Biology>