

Cal's Mid-Spring Tournament 2018

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Tossups

1. An important parameter in the creation of these materials is equal to “ a -sub- f minus a -sub- s , all divided by a -sub- s ,” and is called the misfit strain. A technique that evaluates these materials relies on the equation “ ρ equals tangent ψ times e to the quantity i times δ ,” where tangent ψ is the amplitude ratio and δ is the phase difference. Better step coverage is an advantage of the “plasma enhanced” variant of one technique that creates these materials. In a model describing their creation, exceeding a value symbolized h -sub- c leads to formation of (*) “islands.” Creating them doesn’t involve indium, but the first step in their preparation is making a wetting layer. Ellipsometry can measure an important property of these materials, which can form through Stranski–Krastranov growth. Sputtering, molecular beam epitaxy, and chemical vapor deposition are used to create these materials, which can cause reflected light to interfere with itself and produce iridescent patterns. For 10 points, name these materials used in semiconductors and optical coatings that have a thickness measured in nanometers.

ANSWER: thin films [or monolayer; anti-prompt on semiconductors or quantum dots or crystals; prompt on films]

<AK, Chemistry>

2. One of this playwright’s characters wants to establish a national park at the home of Joaquin Miller, even though he doesn’t know who Joaquin Miller is. In a play by this man, a buzzer sounds twice, three times, then four times as Marjorie tries to convince a man not to send her father to prison for placing blank bonds in a bank in Culver. Alan McClean’s plan to prevent an appropriations bill from passing by loading it with (*) pork backfires in a play by this author whose title comes from Mercutio’s dying speech in *Romeo and Juliet*.

Shadow refuses to take part in the murder of Judge Gaunt in a play by this man in which Trock tries to prevent people from finding out that he committed the murder for which Romagna was executed. This author based that verse drama on the Sacco and Vanzetti case. For 10 points, name this author of *Both Your Houses* and *Winterset*.

ANSWER: Maxwell Anderson [or James Maxwell Anderson]

<JN, Drama>

3. An A major piece in this genre begins with the piano playing a soft E dominant ninth chord. An “*Allegretto espressivo alla Romanza*” in the distant key of E major is the central movement of Edvard Grieg’s C minor third piece in this genre. Another piece in this genre includes an “*Improvisation*” second movement; that E-flat major piece is Richard Strauss’s foray into this genre. A barely one-minute-long scherzo (“SKAIR-tsoh”) is the third movement of Beethoven’s F major fifth piece in this genre. It isn’t a symphony, but a (*) “*Recitativo-Fantasia*” is the third movement of an A major piece in this genre which exhibits cyclic form, a common characteristic of the music of its Belgian composer César Franck (“say-zar FRONK”); his piece in this genre was written in celebration of the wedding of Eugène Ysäye (“oo-ZHEN ee-ZYE”). For 10 points, name this genre that includes Beethoven’s *Spring* and *Kreutzer* (“KROY-tsur”), in which a piano accompanies the smallest of the string instruments.

ANSWER: violin sonata [prompt on sonata]

<EK, Classical Music>

4. This artist served as the translator and cover designer for a fellow countryman’s book *Aphorisms on Man*, and also translated Johann Winckelmann’s *Reflections on the Painting and Sculpture of the Greeks*. He’s not Rembrandt, but one of his paintings shows a bust of Homer between him and his mentor J. J. Bodmer. A

painting by this artist was widely distributed by an engraving done by Thomas Burke. A floating throng of fairies hold hands in a circle in a painting from a gallery of forty-seven paintings of (*) Milton that complement his contributions to a project of John Boydell (“BOY-dull”). A nude god at the prow of a ship pulls a chained sea monster in his reception piece for the Royal Academy. This artist of *Thor Battling the Midgard Serpent* and friend of Johann Caspar Lavater illustrated plays such as *A Midsummer Night’s Dream* for the Shakespeare Gallery. A wild-eyed horse juts out from behind a red curtain in a painting by this artist featuring an incubus (“ING-kyoo-bus”) sitting on the chest of a sleeping woman. For 10 points, name this Swiss Romantic painter of *The Nightmare*.

ANSWER: Henry **Fuseli** [or Johann Heinrich **Fussli**] (*Shepherd’s Dream* is the unnamed painting; the engraved painting is *The Nightmare*.)

<AK, Painting/Sculpture>

5. Charons are modified versions of this organism with deletions in their *nin5*, *KH53*, and *KH54* genes for use in molecular cloning. Wollman and Jacob demonstrated that genes from this organism are blocked by repressors through the process of “zygotic induction.” This organism extends reading frames through the binding of *BoxB* to *N*-protein. The proteins *Gam*, *Exo*, and *Beta* derived from this organism are used in a technique for the recombinant engineering of double-stranded DNA. This organism releases *cIII* (“C-three”), which competitively inhibits *ftsH*, preventing proteolysis. This organism’s genome contains two (*) twelve-base pair “sticky-ends” that form the *cos* site responsible for circularizing its DNA within the cytoplasm. A genetic switch in this organism is controlled by the relative concentrations of the *cI* (“C-one”) and *Cro* (“crow”) proteins and determines whether it enters the lysogenic or lytic cycle. This organism was discovered in a UV irradiated strain of K-12 after plaques were observed by Esther Lederberg. For 10 points, name this bacteriophage that infects *E. coli*, named after a Greek letter.

ANSWER: **lambda** phage [or *Enterobacteria* phage **lambda**; or coliphage **lambda**]

<RD, Biology>

6. A 1997 work analyzed how some people in this profession captured and exemplified singular “golden events” using images; those images are argued to have contributed to this profession’s development of mediatory “wordless” “pidgins” and “creoles” that functioned in “trading zones.” A 1971 essay analyzes adaptations to the “hostile environment” of the Weimar Republic by members of this profession in elaborating the “Forman thesis.” A 1931 essay relates the history of this profession to the development of “merchant capital” through sea transportation and the mining and war industries in examining the “social and economic roots” of work done by a member of this profession; that essay is by Boris (*) Hessen. A member of this profession named Henry DeWolf Smyth authored a bestselling historical report which served as an important source of information for Igor Kurchatov, possibly exceeding the information obtained from sources like Klaus Fuchs (“fooks”) in its usefulness. For 10 points, identify this profession, whose members included J. Robert Oppenheimer, a director of the Manhattan Project.

ANSWER: **physicists** [or **physics**; accept **nuclear scientists**; prompt on more generic answers like scientist, researcher, or science; prompt on natural philosopher or mathematician or mathematics]

<MC, Other History>

7. This character embarrasses his half-brother by asking “Where am I to put it?” in a moment of confusion while voting in a local election. The novel in which this character appears ends with his realization that every minute of his life “is no more meaningless, as it was before, but it has the positive meaning of goodness, which I have the power to put into it.” This character realizes how much he loves his son when he sees an oak tree knocked over by a (*) lightning storm, even though he was earlier unable to feel anything but repulsion and pity upon first meeting his newborn son. This character is ashamed by how much better than him his wife is at taking care of his sick brother Nikolai. In a scene inspired by the author’s own proposal, he proposes to his future wife by writing out the first letters of each word in a sentence on a table. That woman had earlier rejected him because she

was expecting a proposal from Count Vronsky. For 10 points, name this character who marries Kitty Shcherbatsky (“shur-BAHT-skee”) in *Anna Karenina*.

ANSWER: **Konstantin** Dmitrich “**Kostva**” **Levin** (“LYOH-vin”) [accept any underlined name; accept “Dmitrievich” in place of “Dmitrich”]

<JK, Long Fiction>

8. The book “Stop stealing sheep and find out how [these things] work” is by Erik Spiekermann. Robert Bringhurst wrote a standard reference on these things. Although one of these things developed by Meeker & Associates outperformed Series D and Series E(M) in a 1997 study, its approval was recently revoked by the Federal Highway Administration. A decree by Martin Bormann claimed that one of these things was created by “Schwabacher (“SHVAH-bock-er”) Jews”; that decree was part of a dispute over these things that also resulted in the abandonment of the Sütterlin (“ZOO-tur-lin”) system. Herbert Bayer created a (*) minimalist universal one of these things for the Bauhaus school. A 2007 Gary Hustwit documentary analyzes the popularity of a neo-grotesque example of these things. Ascender Corporation is a major foundry for these things. Hinting and kerning are two methods of adjusting these things. Donald Knuth (“kuh-NOOTH”) created the Computer Modern style of these things, while influential older ones were designed by Claude Garamond. For 10 points, give this term for a set of glyphs, examples of which include Helvetica and Times New Roman.

ANSWER: **typefaces** [or **font** families; prompt on alphabets, letters, scripts, or typography or equivalents]

<EC, Other Academic>

9. During the Shakambari festival, these things are made from various fruits and vegetables as part of the worship of Durga. In the *Mahabharata*, after Arjuna successfully shot a fish target with a bow, Draupadi gave him one of these objects as part of a ritual known as a *swayamvara*. Durvasa cursed the devas after Indra gave one of these things to the elephant Airavata, who then stomped on it. A tool used to facilitate *japa* shares a Sanskrit name with these objects. In many ceremonies, women wear one of these objects called a (*) *gajra* around their hair tied in a bun. In a Hindu wedding, the *jai mala* ceremony features the bride and groom putting these objects on one another. Idols known as *murtis* are decorated with these objects made from jasmine or marigolds. For 10 points, name these objects created by using a needle and thread to string together flowers.

ANSWER: **garlands** [or wreaths; or mala before it is read; prompt on necklace; prompt on flowers; anti-prompt on prayer beads or rosary]

<AK, Religion>

10. A quantity describing a kind of this phenomenon is the numerator of the Wilson ratio and is derived by considering a parabolic density of states with the right half shifted up by an energy linearly proportional to the B-field. Non-degenerate ground states and a second-order Zeeman effect cause a kind of this phenomenon with a strength proportional to the square of the magnetic moment matrix element divided by its energy gap; that form is temperature independent. A function used to model this phenomenon is equal to the “hyperbolic cotangent of x , minus one over x ” and is known as the (*) Langevin function, which is the classical limit of the Brillouin function that characterizes this phenomenon. This phenomenon is strongly exhibited by gadolinium complexes. A collection of non-interacting magnetic dipoles at absolute zero will exhibit this phenomenon, which requires a positive magnetic susceptibility equal to the Curie constant over temperature. For 10 points, name this phenomenon in which a material is attracted by an external magnetic field, unlike in diamagnetism.

ANSWER: **paramagnetism** [accept word forms; accept Pauli **paramagnetism** or Langevin **paramagnetism** or Van Vleck **paramagnetism**]

<AK, Physics>

11. This author discusses how Keats achieved Goethe’s (“GUR-tuh’s”) concept of *Architectonicè* (“ar-kee-TEK-toh-nee-CHAY”) yet failed by imitating Shakespeare in an preface challenging the claim that poets “must leave the exhausted past” to achieve success. In his introduction to T. H. Ward’s *The English Poets*,

this critic originated the “touchstone method” of judging poetry based on small excerpts and emphasized the value of “high seriousness” that Chaucer and Burns lacked. In the aforementioned “The Study of Poetry,” this author popularized his belief that poetry is (*) “criticism of life.” This author argued that the “scientific passion” and the “moral and social passion for doing good” combine to form a concept he defined as “a study of perfection.” In a book that labels the efficient and practical nature of Rome “Hebraism,” in contrast with Greek “Hellenism,” this author popularized Jonathan Swift’s phrase “sweetness and light.” That book by this author divides the social classes into Barbarians and Philistines. For 10 points, name this British critic who wrote *Culture and Anarchy*, better known for poems like “The Scholar-Gipsy.”

ANSWER: Matthew Arnold (The first essay is Arnold’s preface to his 1853 *Poems*.)

<RK, Misc Literature>

12. One chronicle of this kingdom includes a depiction of two of its legendary ancestors hunting a white stag, among 146 other illustrated pictures. This kingdom ended the pillaging march of the army of the Jew-slaughtering Count Emicho (“EM-ick-oh”) during the People’s Crusade. A ruler of this kingdom won the Battle of Gvozdu Mountain against Petar Snačić (“SNAH-chitch”), establishing a personal union with a neighboring kingdom to the south. The first ruler of this kingdom set up the position of *ispán* (“EESH-pahn”) to administer local counties. The reign of its second king, Peter the Venetian, was briefly interrupted by the rule of its first palatine, Samuel (*) Aba. This kingdom’s *Chronicon Pictum* includes a picture of Attila the Hun atop its throne, and describes the erudition of one of its rulers, Coloman the Book-Lover. This kingdom underwent an extensive conversion to Christianity under a king who received his crown from Pope Sylvester II on Christmas Day, 1000 AD. For 10 points, name this kingdom ruled by the Árpád dynasty under kings such as Stephen I.

ANSWER: Kingdom of Hungary [or Magyar Királyság]

<CP, European History>

13. This man claimed that by the year 2010, English PhDs will never want to hear the terms “binary opposition” or “hegemonic discourse,” at the end of an essay offering eleven theses defining the “humanistic intellectual.” This man wrote another piece in which a historian from the year 2094 recounts the history of the U.S. to define the concept of “fraternity.” Both of those essays appear in a book in which this author described abandoning Platonism at age 20, and going to the Hutchins College at the University of Chicago at the age of 15 to reconcile the “nobility” of the title flowers with the Russian author of *Literature and Revolution*. This author’s essay (*) “Trotsky and the Wild Orchids” appears in *Philosophy and Social Hope*, which also discusses this author’s book rejecting the idea that knowledge as something that has a “theory” for a basis, and that the “truth” corresponds to objects in the external world. The Platonist conception of the “mind” as an object that “reflects” reality is argued against in, for 10 points, what American philosopher’s book *Philosophy and the Mirror of Nature*?

ANSWER: Richard Rorty [or Richard McKay Rorty]

<IJ, Philosophy>

14. The term “fiscal envelope” refers to a billion-dollar limit on the value of land claims by this ethnic group. The revitalization movement of this ethnic group’s language was the first to use immersion-based “language nests.” Activists from this ethnic group occupied Raglan Golf Course and Bastion Point after Whina (“FEE-nuh”) Cooper led a 1975 march in support of this ethnic group’s land rights. In 2004, a party representing this ethnic group was formed to defend its claims on its country’s foreshore and seabed. A tribunal led by Eddie Durie sided with this ethnic group’s fishing rights in its rejection of a synthetic fuels plant promoted by the (*) Think Big economic strategy. A national referendum recently rejected a flag featuring this ethnic group’s symbol of a *koru*, or an unfurling silver fern. A 1975 act established a tribunal to investigate breaches of an 1860 treaty signed by chiefs of this ethnic group and William Hobson. For 10 points, Waitangi Day commemorates a treaty between the British and what indigenous ethnic group of New Zealand?

ANSWER: Māori

<EC, World History>

15. A god who took the form of this creature was honored in the Netjeryt (“net-JAIR-it”) festival, in which participants wore necklaces of onions. According to Herodotus’s *Histories*, this was the smaller of two animals for which the penalty for killing them was death regardless of intent. On the Narmer Palette, one of these creatures with a human hand holds a rope binding the head of Lower Egypt. A god who also had an angry, bull-like aspect called Buchis was usually depicted with this animal’s head. The Narmer Palette was discovered at a cult center named for these animals called (*) Hierakonpolis (“hy-ruh-CON-puh-liss”). The Memphite funerary god Seker (“SECK-ur”) took this form. A pair of large, black granite sculptures of these animals are located at a temple in Edfu, whose western wall depicts a god with the head of this animal harpooning a rival in the form of a hippopotamus. That god with this animal’s head had four sons who protected canopic jars, and painted another god’s boat to look like stone to win a race. Unlike the ibis, this sacred bird could not be raised in captivity. For 10 points, name this bird, a symbol of royalty in ancient Egypt that provided the head of Horus.

ANSWER: falcons [or hawks; prompt on birds]

<AK, Legends>

16. An instrument of this type is traditionally decorated with mica, depicts a leaf of the Bodhi tree, and is paired with the *pattala* xylophone. Félix Pérez Cardozo composed *Tren lechero* (“train lay-CHAY-roh”) and arranged *Pájaro campana* (“PAH-hah-roh kahm-pah-nah”) for an instrument of this type. A composer for an instrument of this type coined the term “planxty” for a lively piece and wrote *Lament for Owen Roe*. The blind Turlough O’Carolan (“TUR-lock oh-CAROL-in”) played this type of instrument, which includes the Burmese *saung* and Paraguay’s national instrument. The Ugandan *enanga* is an arched type of this instrument, while the West African *kora* exemplifies a class of (*) chordophones that combine features of the lute and this instrument. An instrument with this word in its name is played by striking a flexible metal reed and using the performer’s oral cavity to produce overtones; that instrument is the Jew’s [this term]. Trinity College houses a medieval Irish example of an instrument of this type called the *cláirseach* (“KLAR-shuck”) which appears on the logo of Guinness. For 10 points, name this plucked instrument whose Western pedal variety contains forty-seven vertical strings.

ANSWER: harp [prompt on chordophone or string instrument; accept saung, arpa paraguaya, Paraguayan harp, Gaelic harp, Celtic harp, cláirseach, Jew’s harp, jaw harp, pedal harp]

<EC, Other Art (Auditory)>

17. David Brion Davis has written extensively on this phenomenon and founded the Gilder Lehrman Center for the study of this phenomenon. George P. Murdock’s analysis of 186 world cultures inspired Harvard’s Orlando Patterson to write a book linking this phenomenon to “social death.” The first known English-language book with the word “sociology” in its title labels this phenomenon “the very best form of socialism.” This phenomenon was controversially compared to Nazi concentration camps in a 1959 book by (*) Stanley Elkins. This phenomenon’s economic benefits are defended by George Fitzhugh’s *Cannibals All!* This practice’s economic implications are analyzed in Stanley Engerman and Robert Fogel’s *Time on the Cross*. “The Story of Clyde Ross” and Chicago’s redlining are discussed in an essay making “The Case for Reparations” for this practice, written by Ta-Nehisi (“TAH-nuh-HAH-see”) Coates. For 10 points, name this practice euphemistically known as “our peculiar institution” in the American South.

ANSWER: slavery

<RK, Social Science>

18. This case’s defendant characterized the plaintiff’s argument as a “crack-in-the-door” that would lead to a “Pandora’s Box” of overturned laws. Attorney for the defense Laurence Tribe quoted Robert Frost’s “The Death of the Hired Man” in response to a question about a motel room, toilet, and automobile posed by Lewis Powell in this case. Harry Blackmun’s dissenting opinion in this case criticized Warren Burger’s concurring

opinion that “Judeo-Christian moral and ethical standards” and “millenia of moral teaching” justified one of (*) Georgia’s laws. The plaintiff in this case sued after Atlanta police officer Keith Torick visited his apartment to serve an expired warrant for failure to pay a fifty-dollar fine and witnessed him engaging in oral sex with another man. The 2003 case *Lawrence v. Texas* overturned, for 10 points, what 1986 Supreme Court case that upheld an anti-sodomy law?

ANSWER: Bowers v. Hardwick [accept either underlined part]

<IJ, American History>

19. **A poet from this country described a Woman in Black who repeats “Let me come with you” in a solemn conversation with a Young Man who may in fact be her deceased husband in the poem *Moonlight Sonata*. Edmund Keeley primarily translates poets from this country, including one who proclaimed “Wherever I travel, [this country] wounds me” and wrote a 24-poem cycle that quotes the line “Remember the baths where you were murdered” before stating “I woke with this (*) marble head in my hands.”** A poem from this country tells the addressee to listen to the “exquisite music” of a “strange procession” and to say goodbye to “the Alexandria you are losing.” Another poem from this country describes figures “bored by rhetoric and public speaking” who “were a kind of solution” to the inactive Senate “assembled in the forum.” Those poems are “The God Abandons Antony” and “Waiting for the Barbarians.” For 10 points, name this home country of George Seferis, Yiannis Ritsos, and Constantine P. Cavafy (“kuh-VAH-fee”).

ANSWER: Greece [or Hellas; or the Hellenic Republic; or Ellinikí Dimokratía]

<RK, Poetry>

20. **Bilal Haq and Peter Vail measured sea levels dating back to this geologic period. This period saw the beginning of the rise of durophagous and drilling predators in benthic ecosystems, in what Geerat Vermeij (“GAY-rot vur-MY”) termed the “marine revolution.” The beginning of this period included the first and fastest decrease in the carbon-13 to carbon-12 isotope ratio of carbonates. Early in this period, about ninety percent of land animals were the synapsid *Lystrosaurus* (“lis-tro-SOR-us”). The acidification of swamps by sulfur dioxide is theorized to have caused the lack of (*) coal in the fossil record at the beginning of this period. Pangaea split into Laurasia and Gondwana during this period. An event preceding this period is theorized to have been caused by the eruption of the Siberian Traps, that event preceding this period wiped out the remaining trilobite population. For 10 points, name this first period of the Mesozoic era, which occurred after the “Great Dying” at the end of the Permian.**

ANSWER: Triassic Period

<RD, Other Science (Earth)>

Bonuses

1. Answer some questions about the conditions required for a sequence to be convergent and the properties it may have, for 10 points each:

[10] If a sequence is convergent, then the sequence has one of these. A sequence has an “upper” one of these if there exists a number M such that every term in the sequence is less than or equal to M .

ANSWER: **bounds**

[10] If a sequence has this property, then it is convergent if and only if it is bounded, according to a namesake convergence theorem. For example, if a sequence has one form of this property, it must be bounded and converge to its supremum or be unbounded and tend toward infinity.

ANSWER: **monotone** [or **monotonicity** or other word forms]

[10] This condition establishes convergence for a sequence s if and only if for all positive epsilon, there exists a point in the sequence beyond which the difference between two terms of s is less than epsilon. It’s particularly useful because it doesn’t reference the actual limit value.

ANSWER: **Cauchy** criterion [or being a **Cauchy** sequence]

<JX, Math>

2. Answer some questions about how BCS theory models superconductivity, for 10 points each:

[10] A fundamental result of BCS theory is that electrons condense into Cooper pairs, as the system’s creation and annihilation operators cause electrons to behave like these integer-spin particles instead of like fermions.

ANSWER: **bosons**

[10] Near the critical temperature, BCS theory results in the specific heat capacity having a temperature dependence given by this function. In a superconductor, the B-field scales with this function of open quantity negative x over the penetration depth close quantity.

ANSWER: **exponential** [or **e to the x** ; accept **e to the negative- x**]

[10] In BCS theory, the Hamiltonian’s eigenfunctions can be found by applying the mean-field approximation to write H as a product of creation and annihilation operators, casting the result into matrix form, and diagonalizing the matrix using this unitary transformation.

ANSWER: **Bogoliubov** (“bo-go-LEW-boff”) transformation

<AK, Physics>

3. A staircase consisting of wide bands known as a *cordinata* (“kor-doh-NAH-tah”) leads up to an oval shaped piazza on this location framed by three palazzi (“pah-LOT-see”). For 10 points each:

[10] Name this physical location, the site of that piazza, whose central ten-pointed star is topped by an equestrian statue of Marcus Aurelius.

ANSWER: **Capitoline** Hill [or **Campidoglio**]

[10] This man designed the *cordinata* staircase and the Piazza del Campidoglio (“com-pee-DOHL-yoh”). This Renaissance architect also designed a Mannerist staircase for the Laurentian Library and sculpted a seventeen-foot tall marble *David*.

ANSWER: **Michelangelo** [or Michelangelo di Lodovico **Buonarroti** Simoni]

[10] Michelangelo used a dark sandstone known as *pietra serena* (“PYAY-trah say-RAY-nah”) for the pilasters of the *Sagrestia Nuova*, or New Sacristy (“SAC-ruh-stee”), of this Florentine basilica. This basilica is also part of the same complex as the Laurentian library.

ANSWER: Basilica di **San Lorenzo**

<AK, Other Art (Architecture)>

4. A slave drowns herself after a member of this family rapes the daughter that resulted from her own rape by the same member of this family. For 10 points each:

[10] Name this family whose inheritance is repudiated by Ike after he reads the ledgers kept by his father and uncle,

Buck and Buddy.

ANSWER: **McCaslin** family [accept Isaac **McCaslin** or Ike **McCaslin**]

[10] Ike renounces his inheritance in favor of Cass Edmonds after a long argument with Cass in the fourth section of this Faulkner novella. The first three sections of this work describe the hunt for the title animal, Old Ben.

ANSWER: “The **Bear**”

[10] The hunt occurs on land owned by Major de Spain, who bought it after the death of this character. This character cheated Ikkemotubbe (“IK-eh-meh-TOOB-eh”) out of the land after arriving in Yoknapatawpha (“YAHK-nuh-puh-TAW-fuh”) County from the West Indies.

ANSWER: **Thomas Sutpen** [accept either underlined portion]

<JK, Short Fiction>

5. Answer some questions about disguises Zeus took when seducing women other than Hera, for 10 points each:

[10] Zeus took the form of a satyr when seducing this woman, who later birthed twins that her uncle forced her to leave near Mount Cithaeron (“SITH-uh-ron”). The mortal father of those twins, Epopeus, was a king of the city of Sicyon (“SIH-shee-on”) that became this woman’s cult site.

ANSWER: **Antiope**

[10] Callisto was turned into a bear after Zeus seduced her while disguised as this goddess, with whom Callisto had been hunting. This goddess of the hunt was the sister of Apollo.

ANSWER: **Artemis**

[10] Zeus fathered the Muses when he seduced Mnemosyne (“ni-MOSS-in-ee”) in the form of a member of this profession. Odysseus wakes up confused and is told he’s in Ithaca by Athena disguised as a man in this profession, also shared by a figure who bore a goddess fifty daughters during his eternal sleep on Mt. Latmus.

ANSWER: **shepherds** [or **herdsman**; do not accept or prompt on “swineherd” because Eumaeus appears later] (The eternally-sleeping shepherd is Endymion.)

<JX, Legends>

6. John Trudell broadcast a show titled *Radio Free* [this place] and rejected Interior Secretary Wally Hickel’s proposal to make this place a national park. For 10 points each:

[10] Name this place where the Indians of All Tribes intended to build a cultural center, arguing that the Treaty of Fort Laramie had given them rights to the land. They issued a proclamation claiming that this place was like a reservation as it lacked running water, employment, and health care facilities.

ANSWER: **Alcatraz** Island

[10] The American Indian Movement led this 1978 march, which began with the ceremonial loading of the Sacred Pipe at Alcatraz and ended five months later at the Washington Monument. This march helped defeat eleven Congressional bills restricting Native rights and access to social services.

ANSWER: The **Longest Walk**

[10] The AIM also led the 1973 occupation of this South Dakota town on the Pine Ridge reservation, where federal cavalry killed over 150 Lakota during the Ghost Dance War.

ANSWER: **Wounded Knee**

<EC, American History>

7. Bernardo de Balbuena wrote an acclaimed poem praising this city’s “grandeur.” For 10 points each:

[10] Name this city. An author working in this city wrote a poem addressing people who want their lovers to be Thaïs (“tah-EES”) and their wives to be Lucretia and who “adjoin flesh and world and devil,” titled “You Foolish Men.”

ANSWER: **Mexico** City [or *Ciudad de México*]

[10] This long philosophical poem by the Baroque Mexican author of “You Foolish Men” opens by describing the “pyramidal death-born shadow” of “vain obelisks.” It ends with the statement “The World illuminated and I awake.”

ANSWER: **First Dream** [or **Primero sueño**]

[10] Bernardo de Balbuena's *Mexico's Grandeur* is framed as a reply to one of these people. This was the vocation of Sor Juana Inés de la Cruz, the author of *First Dream*.

ANSWER: **nun** [or **sister**; accept equivalents]

<RK, Poetry>

8. This man was the first Christian to compile a biblical canon, consisting of his namesake gospel and a group of ten Pauline epistles called the *Apostolikon*. For 10 points each:

[10] Name this founder of a heretical Christian movement who rejected the Old Testament, teaching that Jesus came to reveal a new and different God who was purely benevolent toward humans.

ANSWER: **Marcion** ("MAR-shun") of Sinope

[10] The Gospel of Marcion was an edit of this canonical gospel, ascribed to a namesake physician. This gospel is generally thought to share an author with the Acts of the Apostles, both of which are addressed to Theophilus.

ANSWER: Gospel of **Luke** [or Gospel According to **Luke**]

[10] Bart Ehrman's ("UR-min's") *Lost Christianities* contrasts Marcion's followers with this other movement, which emphasized Jewish customs and rejected Paul's writings. Its name derives from a Hebrew word meaning "the poor."

ANSWER: **Ebionites** [or **Ebionaiot**]

<WC, Religion>

9. A civil war between Yumtän and Ösung led to the collapse of this empire during the Era of Fragmentation. For 10 points each:

[10] Name this empire which, at its height under Ralpacan ("rahl-pah-chahn"), stretched from Yunnan ("yoon-nahn") to the Fergana Valley. It was often at odds with the neighboring Tang Empire.

ANSWER: **Tibetan Empire** [or **Bod Chen Po**; or **Tüfan**]

[10] Under Trisong Detsen, the Tibetan Empire briefly occupied the Tang capital of Chang'an ("chong-ahn") in 763, after the Tang were weakened by this massive rebellion led by a namesake Sogdian general who established the short-lived Yan ("yen") dynasty.

ANSWER: **An Lushan Rebellion** [or **An-Shi Rebellion**; or **Tianbao Rebellion**]

[10] This first emperor of the Tibetan Empire sponsored the creation of the Tibetan alphabet and possibly conquered Zhang Zhung ("jong jung"), the center of the Bon religion. He also introduced Buddhism to the region and built the Jokhang temple in Lhasa.

ANSWER: **Songtsen Gampo** [or **Songtsän Gampo**; or **Srong-btsan-sgam-po**; or **Srong-brtsan-sgam-po**]

<EC, World History>

10. Tom Wolfe mockingly described how this man would give his students pieces of newspaper to create art, leave the room for an hour, only to come back to praise a simple tent over Gothic castles for using "the soul of paper." For 10 points each:

[10] Name this artist who wrote a textbook on color while at Yale in 1963. During that time, this artist created a series of geometric white on black wireframe engravings known as *Structural Constellations*.

ANSWER: Josef **Albers**

[10] Albers led the aforementioned paper exercise while teaching the introductory *Vorkurs* ("FORE-koorss") at this German art school founded by Walter Gropius. He also met his wife, the textile artist Anni Albers, in this institution's glass workshop.

ANSWER: the **Bauhaus** [or Staatliches **Bauhaus**] (The Wolfe book is called *From Bauhaus to Our House*.)

[10] After the Nazis shut down the Bauhaus in 1933, Philip Johnson got Josef and Anni Albers positions in the painting program of this school. Throughout their time at this North Carolina art school, they repeatedly took trips to Mexico to study pre-Columbian art, inspiring Albers's series *Homage to the Square*.

ANSWER: **Black Mountain College**

<AK, Painting/Sculpture>

11. Near this play's end, the central character gives a speech urging Maria to "not lose your hope, your love of life and your trust in people." For 10 points each:

[10] Name this Czech play in which Josef Gross cannot read a note because it is written in the "strictly scientific" language Ptydepe ("PTDP") that has a grammar of "maximum rationality," despite him later incorrectly calling a situation a "hutput zexdohyt."

ANSWER: The Memorandum [or Vyrozumění; or The Memo]

[10] This playwright satirized bureaucracy in *The Memorandum*. Hugo Pludek attends the title event in search of Mr. Kalabis in his play *The Garden Party*.

ANSWER: Václav ("VAHTS-lahv") Havel

[10] Havel created this thinly-veiled autobiographical character who is forced to work at a brewery and is offered the task of writing reports for the secret police in the play *Audience*, the first of four plays Havel wrote about this man.

ANSWER: Ferdinand Vaněk [accept either underlined portion]

<JN, Drama>

12. Maximilian Emanuel was forced to cede power to his wife, the Polish Theresa Sobieska, after signing this treaty. For 10 points each:

[10] Name this treaty which removed Bavaria from the War of the Spanish Succession.

ANSWER: Treaty of Ilbersheim ("ILL-burss-heim")

[10] The Treaty of Ilbersheim came as a result of this battle, a 1704 victory for Grand Alliance forces under Eugene of Savoy and the Duke of Marlborough over French forces commanded by the Duc de Tallard ("tah-LAR").

ANSWER: Battle of Blenheim ("BLEN-um")

[10] This earlier victory for Eugene of Savoy during the Great Turkish War led to the signing of the Treaty of Karlowitz, which ended Ottoman domination of Central Europe.

ANSWER: Battle of Zenta

<BL, European History>

13. A book illustrates these two attitudes by contrasting a Tennyson poem about plucking a flower with a Bashō haiku about seeing a flower. For 10 points each:

[10] Name these two attitudes which title that 1976 Erich Fromm book. A French philosopher linked these attitudes with problems and primary reflection on the one hand, and mystery and secondary reflection on the other hand.

ANSWER: having and being [accept answers in either order; accept To Have or to Be? or Being and Having]

[10] This is the aforementioned French philosopher, a Christian existentialist who wrote *Being and Having* and *The Mystery of Being*.

ANSWER: Gabriel Marcel [or Gabriel Honoré Marcel]

[10] Fromm claims that human character can change from the having mode to the being mode given four conditions on overcoming ill-being, which correspond to the Four Noble Truths of this philosophical tradition.

ANSWER: Buddhism

<EC, Philosophy>

14. The creator of this concept gave examples of its consequences in the Barcelona Airport, the Madrid Atocha station, and the architecture of Rem Koolhaas ("KOHL-hoss"). For 10 points each:

[10] Name this concept which Manuel Castells ("mun-WELL kuh-STAILSS") defined as a type of space that allows for "simultaneity of social practices without territorial contiguity."

ANSWER: space of flows [or *el espacio de los flujos* or *l'espai dels fluxos*]

[10] Castells applied the concept of the space of flows to the "information" type of these constructs, and wrote a book about the rise of a society named for these constructs. Social actors and the ties between them make up the "social" form of this construct.

ANSWER: **networks**

[10] Alain Touraine (“ah-LAN too-REN”), a major influence on Castells, coined this term for a condition in which services yield greater wealth than manufacturing. A Daniel Bell book is named for the “coming of” this condition.

ANSWER: **post-industrial** society [or *société post-industrielle*]

<JN, Social Science>

15. Free-trade zones are often established to facilitate this process. For 10 points each:

[10] Identify this process in which goods are brought into a port before being re-exported. Ports that specialize in this process are sometimes known as entrepôts, and Singapore is the busiest port for this process today.

ANSWER: **transshipment**

[10] This free port city was once the major Middle Eastern coaling station on the British sea routes to India, which led it to become a major transshipment port. Ships passing through the Bab-el-Mandeb would often stop in this city, where Khormaksar Airbase near the Crater district later became a stopover for flights to Singapore.

ANSWER: **Aden** (“AH-den”)

[10] This city is developing Al Maktoum International Airport as a cargo hub linked with its nearby sea port at Jebel Ali, which is today the busiest transshipment port in the Middle East. The airline Emirates is based at this city’s other international airport, which is likewise the busiest airport for transshipment in the Middle East.

ANSWER: **Dubai**

<MC, Geography>

16. Emilio de Cavalieri and Jacopo Peri collaborated on a set of works in this genre to accompany Girolamo Bargagli’s (“bar-GAHL-ye’e’s”) *La Pellegrina* for the 1589 marriage of Ferdinand I de Medici and Christine de Lorraine. For 10 points each:

[10] Name these precursors of *opera buffa* (“BOO-fuh”) performed between the acts of *opera seria*. The “War of the Buffoons” was caused by Giovanni Pergolesi’s *La Serva Padrona*, one of these works paired with *Il Prigionier* (“pree-joh-NYAIR”) *Superbo*.

ANSWER: **intermezzo** [or **intermezzi** or **intermedio** or **intermedi**]

[10] This *verismo* opera by Pietro Mascagni (“mah-SKON-ye’e”), often double-billed with Ruggero Leoncavallo’s *Pagliacci* (“pahl-YAH-chee”), contains an oft-excerpted instrumental intermezzo that Martin Scorsese used in *Raging Bull*’s opening.

ANSWER: ***Cavalleria Rusticana***

[10] Many of this composer’s *dramma giocoso* written with Carlo Goldoni, such as *L’Arcadia in Brenta* and *Arcifanfano Re dei matti*, were performed as intermezzi in Rome. This native of Burano, who had earlier worked with Metastasio on many *opera seria*, also composed a number of harpsichord sonatas and concertos.

ANSWER: Baldassare **Galuppi**

<RK, Opera>

17. The first novel in this series reimagines Leontes as a hedge fund manager and Polixenes as the video game designer Xenon, and is Jeanette Winterson’s *The Gap of Time*. For 10 points each:

[10] Name this project started in 2015 by a British printing house that seeks to update the works of an English playwright.

ANSWER: ***Hogarth Shakespeare***

[10] In the most recent novel from the series, Edward St. Aubyn rewrites this character as media mogul Henry Dunbar. This character also inspired Larry Cook, who divides his farm among his three daughters in Jane Smiley’s 1991 novel *A Thousand Acres*.

ANSWER: King **Lear**

[10] This author contributed to the project with her *The Tempest*-inspired *Hag-Seed*. She gave voice to twelve maids hanged by Odysseus in a 2005 novel that kickstarted the *Canongate Myth Series*.

ANSWER: Margaret **Atwood** [or Margaret Eleanor **Atwood** (That novel is *The Penelopiad*.)]

<RK, Long Fiction>

18. This gang was founded by William Poole, also known as “Bill the Butcher,” who was later shot by John Morrissey during a gambling dispute involving boxing. For 10 points each:

[10] Name this nativist group, which competed with other fire companies to put out blazes in mid-nineteenth century Manhattan. They also fought other gangs in the Five Points slum, which was located just west of their namesake neighborhood.

ANSWER: the **Bowery Boys**

[10] The Bowery Boys most often clashed with this rival lower-class gang, a splinter group off the Roach Guards. This gang was responsible for the largest riot in New York City’s history before the 1863 draft riots.

ANSWER: the **Dead Rabbits** [prompt on the **Black Birds**]

[10] Members of the Dead Rabbits were of this mostly-Catholic ethnicity. A common historical claim of discrimination against these people was the ubiquity of job postings that stated that “No [members of this people] Need Apply.”

ANSWER: **Irish**-Americans [accept No **Irish** Need Apply]

<BL, American History>

19. This specific technique can use iTRAQ (“eye-track”) reagents for labeling, but more often uses namesake isobaric duplex or sixplex tags. For 10 points each:

[10] Name this technique in which a product ion is produced from a precursor ion via fragmentation and is subsequently run through a second analyzer. This technique is used after liquid chromatography in protein sequencing.

ANSWER: **tandem mass spectrometry** [or **tandem MS**; or **MS MS**; or **MS2**; or **MS squared**; or **MSn**; prompt on **mass spectrometry** or **MS**; prompt on top-down **proteomics**]

[10] In protein sequencing using tandem MS, peptide fragments containing the C-terminus are labeled *x* through *z*, while fragments containing the N-terminus are labeled *a* through *c*. The terms C-terminus and N-terminus refer to the carboxylic acid and amine groups that define these molecules, the building blocks of proteins.

ANSWER: **amino acids**

[10] Tandem MS can use a configuration notated as two capital versions of this letter representing mass analyzers separated by a lowercase version of this letter representing the collision cell. This letter is used in that notation due to the device used in those elements.

ANSWER: **q** [or **Q**; or **QqQ**; or **quadrupole**]

<AK, Chemistry>

20. In the process mediated by this protein, the AP2 (“A-P-two”) complex triggers cargo internalizing via IP3 signaling and subsequently binds to this protein. For 10 points each:

[10] Name this protein that arranges into a trimeric triskelion and forms a structure that is later broken up in the cytoplasm.

ANSWER: **clathrin** coat

[10] The clathrin coat in that process of endocytosis surrounds one of these structures, lipid bilayer bubbles that transport molecules throughout the cytoplasm of the cell.

ANSWER: **vesicles**

[10] During clathrin-mediated endocytosis, this GTPase (“G-T-P-ase”) is responsible for the scission of the vesicle from the membrane as it polymerizes into a helical tube that constricts the neck of the vesicle in twisting motion.

ANSWER: **dynamain**

<AK, Biology>