

FLopen 2020

Packet J: "Making Buzzing Motion While Reading the Tossup" Hall of Fame

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Tossups

1. **In a software tool that plans these things, Breslauer's method was replaced by SantaLucia's nearest neighbor method to optimize a key property of them. After being received lyophilized in tubes, these things are spun down, and then diluted to a 100 micromolar master stock. A one nucleotide clamp near their end can increase the binding specificity of these things that are designed to be free of secondary structure. These things can simply be random hexamers in a technique that has largely replaced (*) northern blots.** No thymidine, and no more than three G or C bases should be near the beginning of these things. Thermal cyclers allow for multiple parallel experiments to find these things' ideal annealing temperature. In PCR, these things bind to template DNA after denaturation. For 10 points, name these short nucleotide sequences required for DNA replication to start.

ANSWER: **primers** [accept RNA **primers**; accept DNA **primers**; prompt on oligonucleotides; prompt on oligomers; prompt on nucleic acids or nucleic acid sequences; prompt on DNAs; prompt on RNAs] (The lead-in refers to Primer3 and NCBI Primer-BLAST. The technique similar to northern blot is Reverse Transcription PCR.)
<Biology, JS>

2. **A style of folk music from this country with a name meaning "child of the field song" inspired a Texas-based band to record the album *The Universe Smiles Upon You*. In this country, the British singer Cliff Richard inspired a style of 1960s pop music called Shadow Music, which is similar to this country's style of political folk rock whose name translates as "songs of life." This is the more western of the two countries where all female performers play the curved *ranat ek xylophone* in Mahori ensembles. Music from this country's (*) khruang ("CREW-ang") sai and pi-phat classical ensembles inspired a section of a Broadway musical that retells *Uncle Tom's Cabin*; that musical set in this country features the songs "Getting to Know You" and "Shall We Dance." For 10 points, Anna Leonowens teaches King Mongkut's children while in what country, the setting of *The King and I*?**

ANSWER: Kingdom of **Thailand** [accept **Siam**] (The first clue refers to the band Khruangbin.)
<Other Arts: Auditory, TH>

3. **The book *Sacrificing Truth* claims that the excavators of this site used the bathhouse "family group" to precipitate a nationalist myth. The truth of a written account of an event at this site has been called into question because of the size of its cisterns and the similarity to events that occurred at Yodfat. A fortification at this site consisting of two parallel towers of stacked logs with an earth-filled inner trench was used to repel a (*) battering ram. Yigael Yadin led the excavation of this site with the help of volunteers recruited from classified ads. The Snake Path and a siege ramp are two ways to the top of this site, which was once defended by Sicarii who supposedly ended their own lives before they could be overtaken by the Roman Tenth Legion. For 10 points, name this mountaintop fortress that was the site of a siege during the First Jewish War.**

ANSWER: **Masada** [accept **Metsada**]
<Historiography/Archeology, TH>

4. In a novel by this author that repeatedly details a series of real-life shipwrecks, a blind man has an oracular vision of peacocks on the ocean floor and an adulterous woman searches for the lost city of Cibola. In another novel by this author, Tanis Gamuzo avenges his brother Lionheart's murder by training a pack of killer dogs while the accordionist Gaudencio composes the title piece. This author of *Boxwood* and *Mazurka for Two Dead Men* also wrote a high modernist novel in which (*) 300 characters are described in a series of vignettes taking place over three days in December 1943. This author used a grotesque style termed *tremendismo* in a novel whose title character muses about his wife Lola while awaiting execution for his murder of the pimp Stretch. For 10 points, name this Spanish author who wrote *The Hive* and *The Family of Pascual Duarte*.

ANSWER: Camilo José Cela [accept either underlined name of Camilo José Cela y Trulock, 1st Marquis of Iria Flavia]

<Long Fiction, TH>

5. An approach to two-dimensional problems for solids with this property solves the biharmonic equation for a function whose second partial derivatives give component stresses. Under further simplifying assumptions, the equations governing solids with this property are written as the three coupled Navier equations. In solids with this property, if the load on a surface section is replaced by another load with the same resultant force, then no appreciable changes will occur in the solid far away from the load point by St. Venant's principle. For isotropic, homogeneous solids with this property, the (*) stiffness matrix is written using Lamé parameters. The bulk modulus and Poisson's ratio are two of the constants for materials with this property. Stress is proportional to strain in solids with the linear form of this property. For 10 points, name this property contrasted with plastic.

ANSWER: linearly elastic [or elasticity; prompt on linear; prompt on isotropic or homogeneous until they are read by asking "what less general property do the solids possess?"] (The first clue is the Airy stress function.)

<Physics, JS>

6. An essay by this author recounts an incident in which the boxer Floyd Patterson is accosted by fans demanding an autograph, only for him to sign one as his brother Raymond. An essay by this author compares a man to "Picasso without paint, Ferrari without fuel – only worse" as he stands in sullen silence between two "fading blondes." This writer's relationship with his editor wife Nan was strained by his participatory research on orgies at the Sandstone Retreat for his book on American sexuality, *Thy Neighbor's Wife*. This author faced minor disgrace when it was revealed that Colorado (*) motel voyeur Gerald Foos fabricated many parts of his story. In this journalist's most famous piece, an aging singer worries about recording an NBC special because of his hoarse voice. For 10 points, name this New Journalist who wrote the piece "Frank Sinatra Has a Cold."

ANSWER: Gay Talese ("tuh-LEEZ")

<Other Literature, TH>

7. The *trufis*, a fleet of collective taxis, link the center of this city to smaller suburbs such as Obrajes ("oh-BRA-hays") and Barrio Rosasani. Neil Armstrong named a valley of aroused sandstone mountains south of this city after the barren landscape of the moon. An elevated transportation system constructed by Doppelmayr in this city provides a free travelling stage for emerging musicians called "Do Re Mi Teleférico." *Yatiri* aid clients in constructing *cha'llas* ("CHA-yass"), sometimes out of dried llama fetuses, in this city's (*) Witches' Market. The Plaza Murillo is located in this city, which is linked to the Yungas region by a namesake "Road of Death." The longest and highest cable car system in the world connects this city to the predominantly Aymaran city of El Alto. For 10 points, name this city that houses the seat of the Bolivian government along with Sucre.

ANSWER: La Paz [prompt on El Alto until "witches" is read]

<Geography, GP>

8. A text by Philodemus of Gadara contrasts the immediate and necessary form of this concept with an “empty” kind that persists apart from the appropriate situation. An ancient text titled for this concept is framed as a letter to the author’s brother Novatus, who had asked how to mitigate it. This is the first title concept in a Martha Nussbaum book that states that it arises from the Aristotelian notion of (*) status-injury, or down-grading. In his *Handbook*, Epictetus wrote that this concept arises from a judgement of harm followed by a desire for retribution. Seneca wrote that this emotion was a sort of “temporary madness” and that all stoics should strive to avoid it as a substitute for grief in his *De ira*. The choleric temperament is associated with, for 10 points, what strong emotion associated with the sin of wrath?

ANSWER: **anger** [accept being **angry** or **mad**; accept *Anger and Forgiveness: Resentment, Generosity, Justice*; accept **ire**; accept **rage**; accept **fururem**; accept **wrath** until it is read]

<Philosophy, TH>

9. During an event named for this natural feature, members of the Boykos and Lemkos ethnic groups were forcibly resettled in the Recovered Territories. After rejecting the German Prince Rüdiger, Princess Wanda committed suicide by drowning in this body of water. A force led by Heinrich von Plötzke carried out a notorious 1308 massacre in a castle overlooking this body of water. The (*) Amber Road trade route followed the North-South course of this river for hundreds of miles after goods crossed a sea immediately to its North. A modern-day country was known as *this river*-land after the failures of the 19th-century November and January Uprisings. A January 1945 Soviet offensive began at this river and ended at the Oder. The confluence of this river with Sola was the site of the Auschwitz concentration camp. For 10 points, name this major river of Poland that flows through Warsaw.

ANSWER: **Vistula** River [or **Wisla** Rzeka; accept Operation **Vistula**] (The third clue refers to the Gdańsk massacre.)

<Post-500 European History, TH>

10. *Description acceptable.* The toponym “Ursula” refers to the largest one of these places, all of which adhere to the TEDS standard. After he tried to set fire to a propane tank outside one of these places, cops killed 69 year-old JBGC member Willem van Spronsen. Delegation of the control of these places is carried out according to either the JEM model or the WSO model, both of which were developed by the 287(g) program. Employees at (*) Wayfair walked out to protest the company collaborating with some of these places. While boarding a plane to visit one of these places, a political figure wore a green army jacket reading “I Really Don’t Care, Do U?” The GEO Group runs one of these places near the Port of Tacoma. In September 2020, a whistleblower revealed that one of these places forced hysterectomies on its detainees. For 10 points, name these places operated by ICE.

ANSWER: **immigrant detention centers** [accept **ICE** concentration **camp**s or **ICE processing centers** or **ICE centers** or **ICE facilities** until “ICE” is read; accept **immigrant child detention centers**; accept descriptions that indicate a location where **immigrants** are **jailed** or held against their will; prompt on **camp**s or **detention centers**; reject “prisons” or “jails” alone] (Ursula refers to the address of Central Processing Center, which is 3700 W. Ursula Avenue in McAllen, Texas.)

<Zeitgeist, JS>

11. This concept and participation title a section of a book that uses neocollectivism and democratic conformism as contrasting examples of how this concept can be used to “be as a part.” In *The Morality of Happiness*, Julia Annas relates how Aquinas demonstrated the unity of the virtues by stating that this quality without justice “is an occasion of injustice.” A book that examines the ontology of this concept proposes appealing to the “God above God” as a remedy to (*) anxiety about meaninglessness and guilt; that 1952 book defines this quality as the self-affirmation of one’s existence in the face of anxiety about non-being. Ambrose listed this as one of the four cardinal virtues along with prudence, temperance, and justice. Paul Tillich wrote a Christian existentialist book titled *The [this quality] to Be*. For 10 points, name this Christian virtue that allowed David to stand up to Goliath.

ANSWER: **courage** [accept word forms; accept *andreia*; accept *fortitudo*; accept **bravery**, **fortitude**, **forbearance**, **strength**, or **endurance**; accept *The Courage to Be*]

<Religion, TH>

12. Japanese-American composer Asako Hirabayashi used spectralist techniques in composing the 24 pieces that make up her album *[this instrument] in the New Millennium*. Elisabeth Chojnacka (“hoy-NAHT-ska”) played the five challenging pieces that Iannis Xenakis wrote for an amplified one of these instruments. Two arpeggios played by this instrument gradually de-sync at the beginning of György Ligeti’s (“JURJ LIG-uh-tee’s”) piece *Continuum*. This instrument plays along with a flute, oboe, and a cello in an Elliot Carter sonata, and it acts as the solo instrument along with the (*) piano in Carter’s *Double Concerto*. This instrument is the soloist in a chamber concerto for it by Manuel de Falla and in Francis Poulenc’s (“frawn-SEESE poo-LANK’s”) néo-baroque *Concert champêtre*. The 20th-century revival of this instrument was led by players like Ralph Kirkpatrick and Wanda Landowska. For 10 points, name this plucked string keyboard instrument originally popular in the baroque era.

ANSWER: **harpsichord** [prompt on keyboard]

<Classical Music, TH>

13. A Georgia Tech professor from this country improved upon Jana et al.’s synthesis of gold nanorods by using CTAB-capped seeds to avoid the formation of spherical particles. Another chemist from this country pioneered the 4D UEM imaging technique that generates electrons below the space-charge limit with unique coherent volumes. A chemist from this country discovered that the rate of intersystem crossing is relatively large if the transition involves a change of orbital type. A landmark experiment by a chemist from this country studied the dissociation of cyanogen iodide. A scientist from this country won a Nobel for developing the use of (*) pump-probe spectroscopy to study transition states; that scientist is known as the “father of femtochemistry.” For 10 points, name this African country where Ahmed Zewail and Mostafa El-Sayed were born.

ANSWER: Arab Republic of **Egypt** [or **Misr**]

<Chemistry, JS>

14. A series of four concentric discs used alongside this technology was invented by Sergeant Francis M. Metcalf, but was never widely adopted. Luther Rose used mule teams equipped with the technology to great effect during the Battle of Spotsylvania Court House. Anson Stager oversaw a military organization dedicated to this technology. George Beardslee developed a portable system for using this technology, which proved instrumental to (*) Ambrose Burnside's forces at the Battle of Fredericksburg. Albert Meyers oversaw a wartime department that deployed this technology alongside an aerial system referred to as wigwags. The efficiency of this technology led it to gradually replace the use of line-of-sight semaphores in the US Signal Corps. For 10 points, what electronic technology enabled fast wartime communication and was invented by Samuel Morse?

ANSWER: **telegraphy** [accept electronic **telegraphs**; accept Beardslee **telegraph**; prompt on Morse code until "Samuel Morse" is read]

<US History, TH>

15. In a play titled for this character, a man is congratulated on the success of two of his children: one a bestselling novelist and the other the divorced wife of the king of potatoes with a huge alimony. In a different play, this character is chastised along with his royal friend for wearing festival clothing and has his house destroyed by soldiers. In one play, a woman declares herself to be this character before tying up her husband while a fight breaks out between dice gamblers and a character representing the People of (*) Zanzibar. In *The Phoenician Women*, this character explains that Menoeceus ("MEH-no-EH-see-us") must be killed to atone for the killing of a snake sacred to Ares, while in *Antigone* this character warns Creon of dire consequences if he does not have Polynices buried. Guillaume ("gee-YOHM") Apollinaire wrote a surrealist play titled for the "breasts of," for 10 points, what blind seer from Greek mythology?

ANSWER: **Tiresias** [accept *The Breasts of Tiresias*; accept *Les mamelles de Tirésias*] (The second clue is from *The Bacchae*.)

<Drama, TH>

16. A policy experiment implemented in Uganda found that publication of school allocations in local newspapers reduced this phenomenon by sixty percent. Colin Leys' ("lays") work on this phenomenon questions whether it is actually problematic. The greased efficiency hypothesis states that in some cases higher rates of this phenomenon can lead to accelerated economic growth. In *Why Nations Fail*, Acemoglu ("ah-jay-MOH-loo") and Robinson embrace the institutional explanation for the prevalence of this phenomenon, which is broadly divided into (*) petty and grand scales. Lawrence Lessig's book *Republic, Lost* documents instances of this phenomenon in the United States. An annual "perceptions index" quantifying levels of this phenomenon is published by Transparency International. For 10 points, name this phenomenon, the use of public power for private benefit.

ANSWER: government **corruption** [accept public-sector **corruption**; accept **bribery** or **bribes**; accept **embezzlement**; accept **graft**; prompt on fraud]

<Social Science: Political, TH>

17. A factory in Jönköping (“YAWN-shaw-ping”), Sweden is home to a company that produced the widely-plagiarized “three star” design of these objects. Elaborately-decorated wood or metal examples of these objects often kept on nightstands in the 19th century were called their “go-to-bed” types. Joshua Pusey patented a type of these objects featuring a rough surface while working for the Diamond Company. These objects or Ziploc bags name (*) a “sign” used to diagnose delusional parasitosis. Collectors called phillumenists distinguish between skillets, all-around, and single-top labels that feature the artwork on these objects, which contain objects John Walker called “Lucifers.” For 10 points, name these small containers that house “strike-anywhere” wooden objects and lend their name to a brand of toy cars produced by Mattel.

ANSWER: matchboxes [accept Matchbox cars; accept matchbooks; accept go-to-bed matchboxes; accept matchbox sign]

<Other Academic, TH>

18. A Greek-speaking merchant in this polity gained the epithet “Son of the Devil” after monopolizing the salt and fur trade while based in a wealthy district of its capital. The Portuguese Jew Joseph Nasi became a powerful diplomat and reformer while working in the court of this polity. Patriarch Gennadius II was the first Christian leader to be appointed to a position of power within this polity. Christian landlords in this polity often choose to convert to receive favorable grants for (*) *timars*. Jewish merchants flourished in the Balat district of this empire’s capital. Minority Jewish and Christian communities were tolerated under this empire’s *millet* system, though this empire’s military forced conversion of Christian boys in its *devshirme* system. For 10 points, name this religiously-diverse empire ruled by sultans in Constantinople from 1453 to 1923.

ANSWER: Ottoman Empire [accept Devlet-i ‘Alīye-i ‘Osmāniye; accept The Exalted Ottoman State; accept Osmanlı İmparatorluğu; accept Osmanlı Devleti]

<World History, TH>

19. One episode in this text has been hypothesized to represent a sexual allegory due to linguistic similarities to the modern expression “don’t hide your balls.” A brief sentence referring to “a man who goes along getting hot” appears in the list of lords that ends this text. This text describes figures alternately known as “Maker, Modeller,” or “Bearer, Begetter,” who produce the first four (*) “mother-fathers.” Scattered peoples in this text are symbolically reunited by the coming of the first sunrise, which petrifies three deities introduced after a pilgrimage to the eastern “Place of Cattails.” In this text, a pair of “daykeeper” gods use a 260-day calendar cycle to interpret religious signs, such as how the soil imprint of a net of corn indicates that Blood Moon is about to have a pair of divine twins. For 10 points, name this primary mythological text of the K’iche’ Mayan people.

ANSWER: Popol Vuh [accept Popol Wuj; accept Pop Vuh or Pop Wuj; prompt on “Council Book”; prompt on “The Light That Came from Beside the Sea,” “Our Place in the Shadows,” or “The Dawn of Life”; prompt on Qamujib’al, Sak q’aslem, or Saq petenaq ch’aq aq palo]

<Mythology, TM>

20. A romance that “wasn’t a fragile thing to be coddled, cooed over” is contrasted with an image of these animals in the poem “What I Didn’t Know Before” from *The Carrying*. The line “I like the lady [these animals] best” opens a poem that imagines a “huge beating genius machine” inside the speaker; that poem is Ada Limón’s “How to Triumph Like a Girl.” After remarking how levelled mounds “will show up on any energetic geophysical map,” the speaker relays how her ancestor was given the warrior name (*) Hopothepoya from liberating, not stealing, these animals in a poem from *An American Sunrise*. Another poem describes some of these animals “who were bodies of sand” and “were fur and teeth.” That Joy Harjo poem is titled “She Had Some [these animals].” The concluding line “Into the red / Eye, the cauldron of morning” ends a poem about, for 10 points, what type of animals exemplified by Sylvia Plath’s Ariel?

ANSWER: horses [accept types of horses like mares, stallions, colts or fillies; accept “She Had Some Horses”]
<Poetry, JS>

21. A 17th century depiction of this figure features a muddy brown circle inscribed in a vertical rectangle against a bright blue floral background. A prayerbook held in the Lilly Library contains a two-page spread that places slight variations of a depiction of this figure in a checkerboard pattern. Medieval manuscripts often depict the family tree of this person in the shape of a rose opposite a depiction of a tree. Christiane Gruber has identified a genre of paintings of this figure in which their name is written across a (*) blank or veiled face as intermediate in style between medieval veristic images and modern abstract ones. Hafiz Osman was a master of the *hilya*, elaborate calligraphy depictions of this figure. In Persian miniatures, this figure is commonly depicted with a gold leaf halo of flames while riding Buraq. For 10 points, name this man who is sometimes depicted receiving verses of the Quran.

ANSWER: Muhammad ibn Abdullāh [accept The Prophet; accept names of Muhammad]
<Painting/Sculpture, TH>

22. Lars Hörmander introduced operators named for this mathematician that generalize pseudodifferential operators. Microlocal analysis studies sets of covectors along which an object named for this mathematician does not decay. An object named for this mathematician is a special case of oscillatory integral operators. Tempered distributions are defined on Schwartz spaces, where an object named for this mathematician is an automorphism. An object named for this mathematician is a unitary operator on L^2 by the (*) Plancherel theorem. An object named for this mathematician allows convolution to be computed via pointwise multiplication. This mathematician’s transform converts spatial derivatives into factors of i times the wavenumber. For 10 points, name this French mathematician whose transform moves functions between the time and frequency domains.

ANSWER: Jean-Baptiste Joseph Fourier [accept Fourier transform; accept inverse Fourier transform; accept Fourier integral operator] (The sets are wave front sets.)

<Other Science: Mathematics, JS>

Bonuses

1. A splash panel of the protagonist falling down Suicide Alley appears in the first issue of this comic book series and again on the last page of its final issue after he encounters the god-like being Orh. For 10 points each.

[h] Name this series that follows John Difofool and his companions as they combat Technopriests and the Darkness using the title objects. It was written by Alejandro Jodorowsky (“hoh-doh-ROF-skee”) and illustrated by the French artist Moebius.

ANSWER: *The **Incal*** [or *L’**Incal***]

[e] Frank Pavich made a documentary about a failed film adaptation of this novel that would have been another Jodorowsky and Moebius collaboration. Denis Villeneuve (“duh-NEE veel-NUV”) is directing an upcoming adaptation of this Frank Herbert novel.

ANSWER: ***Dune*** [accept *Jodorowsky’s **Dune***]

[m] This Swiss artist of *Penis Landscape* and *Biomechanoiden* was slated to design sets and costumes for Jodorowsky’s *Dune*. His painting *Necronom IV* inspired the design for the Xenomorph in the film *Alien*.

ANSWER: Hans Ruedi **Giger** (“GEE-ger”)

<Pop Culture, AD>

2. This country’s villainous bowler-hat wearing leader is killed by Soviet everyman Ivan in a “World Class Struggle Championship Final” in Vladimir Mayakovsky’s poem *150,000,000* (“one-hundred and fifty million”). For 10 points each:

[e] Name this country whose “discovery” titles a Mayakovsky essay. Frank O’Hara, a poet from this country, was heavily inspired by Mayakovsky, who wrote the poem “Brooklyn Bridge” while traveling in this country.

ANSWER: **United States** of America [or **U.S.A.**; or **America**; accept “My Discovery of **America**”] (The leader is Woodrow Wilson.)

[m] In this Ivan Bunin story, an unnamed American businessman touring Europe on the cruiseship Atlantis suddenly dies onboard near Capri, after which his body is preserved in a soda water box and shipped home in the cargo hold.

ANSWER: “The **Gentleman from San Francisco**” [or “**Gospodin iz San-Franciska**”]

[h] Soviet authors Ilya Ilf and Evgeny Petrov humorously recounted their tour of the U.S. in this travelogue. This travelogue notes that most Americans live in squat, ugly buildings in small towns, in contrast to the idea of America as the land of skyscrapers.

ANSWER: ***One-storied America*** [or ***One-story America***; or ***Oдноэтажная Америка***; accept ***Little Golden America***; accept *Ilf and Petrov’s **American Road Trip: The 1935 Travelogue of Two Soviet Writers***]

<Other Literature, AP>

3. This book presents an argument that has come to be known as its author’s “Regress,” which argues that external relations are not possible since an object and its properties cannot be treated independently. For 10 points each:

[h] Name this 1893 book that drew on the work of its author’s colleagues T. H. Green and J. M. E. McTaggart. This book asserts that experience is a harmonious, supra-relational whole that its author calls the Absolute.

ANSWER: ***Appearance and Reality***

[e] F. H. Bradley’s *Appearance and Reality* is a foundational work in the British branch of this philosophical movement, which asserts that the nature of reality is purely mental. G. E. Moore wrote a “refutation” of this metaphysical position.

ANSWER: **idealism** [accept word forms; accept British **Idealism**; accept “A Refutation of **Idealism**”]

[m] Moore’s “Refutation of Idealism” rejects the idealist notion that being is equivalent to this phenomenon. John McDowell defines this phenomenon as the mind’s “openness to the world.”

ANSWER: **perception** [accept word forms; accept *esse est **percipi***; accept “to be is to be **perceived**”; accept the problem of **perception**]

<Philosophy, TH>

4. Answer the following about dance critic and historian Sally Banes, for 10 points each:

[e] Banes's book *Terpsichore in Sneakers* examines dance that drew from this late-20th century intellectual movement characterized by Jean-François Lyotard ("lee-oh-TAR") as a response to modernism.

ANSWER: **postmodernism** [accept **postmodern** dance]

[m] Postmodern dancers often utilized chance, an idea introduced by this choreographer of *Suite by Chance*, in which performers developed choreography based on the outcome of random samples like flipping a coin.

ANSWER: Merce **Cunningham** [or Mercier Philip **Cunningham**]

[h] Banes's Ph.D. dissertation traces postmodern dance to performances by dancers like Yvonne Rainer at a theater sponsored by this Greenwich Village church. This church hosted the filming of Carolee Schneeman's piece *Meat Joy* and Claes Oldenburg's first one-man show.

ANSWER: **Judson** Memorial Church [accept **Judson** Dance Theater]

<Other Arts: Visual, AP>

5. These two general classes of people are involved in a tradition called *paramparā* ("puh-RUM-puh-rah") at āshramas, where one of them may receive *prapatti* ("pruh-PUHT-tee") from the other. For 10 points each:

[m] Give any combination of the Sanskrit terms for these two types of people or their common English translations. The term "Sikh" retains the meaning of the original Sanskrit word for one of these two classes of people from which it is derived.

ANSWER: **guru** [or **teacher**; or **master**; or **guide**; or **lecturer**; or **professor**]

śishya ("SHISH-yuh") [or **student**; or **disciple**; or **seeker**]

[accept any combinations of a Sanskrit word and an English word like **guru** AND **student**]

[h] This Sanskrit term refers to any donation given by a student to their guru, which is most famously exemplified by an episode from the *Mahābhārata* in which Ekalavya ("AY-kuh-LUV-yuh") offers his severed thumb to Drona. In a different context, this word also refers to a form of Shiva who faces a unique direction.

ANSWER: **dakshinā** [or gurud**akshinā**; accept **Dakshināmūrti**] (Dakshināmūrti means "south-facing deity.")

[e] Gurus are worshipped during the month of Āshādhā ("ah-SHAH-duh") on Guru Pūrṇimā ("POOR-ni-muh"), a holiday that coincides with a fortnightly occurrence involving this celestial body known as Chandra.

ANSWER: **moon** [accept full **moon**]

<Religion, AP>

6. This technique is a double-edged sword because, while its lack of selectivity nullifies the negative effects of photoresist scumming, it creates lateral erosion if the resist profile is tapered. For 10 points each:

[h] Name this type of dry etching with purely physical character. Comparable to "atomic sandblasting," this entirely anisotropic technique energizes argon gas via a Kaufman source that is isolated from the wafer, distinguishing it from RIE and plasma etching.

ANSWER: ion **milling** [accept reactive ion **milling**; reject "reactive ion etching"]

[m] During post-etching ion implantation, dopant ions are sorted into exit ports based on their altered value for this quantity. As in cyclotrons, this quantity is given by: mass times velocity, all over charge times magnetic field.

ANSWER: **radius** of the circular path [accept **r**]

[e] Rapid thermal processing repairs the implantation-induced damage done to wafers of this element. Integrated circuits are built out of chips of this semiconductor.

ANSWER: **silicon** [or **Si**]

<Physics, TM>

7. One of these two authors poked fun at the length and subtitle of a novel by the other in a scene where Mrs. Booby exclaims “Your virtue? I’ll never survive it!” after being rebuffed by her young male employee. For 10 points each:
[m] Name these two 18th-century novelists. One of these authors introduced the character Mrs. Booby as the sister of the other’s character Mr. B--- in a novel also featuring the good-natured squire Adams.

ANSWER: Samuel **Richardson** AND

Henry **Fielding**

[e] Fielding invented a character with this first name and the surname Andrews in a comic novel that subverted many of the tropes of Richardson’s *Pamela*. The Fielding character with this name is partly inspired by an Old Testament figure with this name who has a colorful coat.

ANSWER: **Joseph** [accept *Joseph Andrews*]

[h] The narrator of this other novel remarks that their own “copious remarks and digressions” resemble that of the narrator of *Joseph Andrews*. Gordon Haight has argued that the true hero of this novel is Mary Garth, the subject of a bizarre 1853 volume in which all parts of the novel she appears in not featuring her were excised.

ANSWER: **Middlemarch**: *A Study in Provincial Life* (by George Eliot)

<Long Fiction, TH>

8. Henry Wickham was largely responsible for shifting the world production of this crop from South America to the British colonies of Ceylon and Malaya. For 10 points each:

[e] Name this good that was produced at the Fordlândia plantation in Brazil. Charles Goodyear’s development of the vulcanization process led to a boom in this crop’s production.

ANSWER: **rubber** [accept **latex**; accept **Havea** trees; accept Para **rubber**]

[h] In this plan, the British government attempted to recoup World War I debt by artificially inflating the price of rubber by limiting exports and instituting quotas in the colonies. This scheme led to the rise of synthetic rubber production in the Soviet Union, the Netherlands, and the U.S.

ANSWER: **Stevenson** Plan [accept **Stevenson** Restriction Scheme]

[m] This American company began its research on synthetic rubber largely because of the Stevenson Plan. Wallace Carothers’s group at this company invented the synthetic rubber neoprene.

ANSWER: **DuPont** [accept E. I. **du Pont** de Nemours and Company]

<Commonwealth/International History, TH>

9. Symptoms of this disease, like bronze skin and diabetes, typically onset between 30 and 50. For 10 points each:

[m] Name this genetic disease known as the “Celtic Curse.” This hereditary disease is tested for by measuring levels of liver enzyme activity, ferritin in serum, and transferrin saturation.

ANSWER: primary **hemo-chromatosis** [accept hereditary **hemochromatosis**; accept genetic **hemochromatosis**; prompt on **iron overload** disease; reject “secondary hemochromatosis”]

[e] Another symptom of hemo-chromatosis is this general disorder in the first, second, and third MCP and PIP joints. The rheumatoid form of this disorder is an autoimmune disease.

ANSWER: osteo**arthritis**

[h] Treatment of hereditary hemo-chromatosis includes chelation, dietary changes, and this procedure. Regularly performing this procedure is the most common treatment for poly-cythemia vera.

ANSWER: **phlebotomy** [accept **drawing blood**; accept **blood withdrawal**; accept **venesection**]

<Biology, JS>

10. This composer's pupils Charles Bordes ("bord") and Alexander Guilmant founded the Schola Cantorum in 1894 to promote his compositional ideas against the reactionary nature of the Paris Conservatory. For 10 points each:
[m] Name this Catholic composer and pedagogue whose fondness for employing cyclic form is exemplified by his *Symphony in D minor*.

ANSWER: César **Franck** [or César-Auguste-Jean-Guillaume-Hubert **Franck**]

[e] The Franckians at the Schola Cantorum sought to rehabilitate the long melodic lines used in this style of monophonic medieval church music, named for a 6th-century pope.

ANSWER: **Gregorian chant** [prompt on **plainchant** or **plainsong**]

[h] This foremost pupil of Franck promoted Gothic-era music theory notions in his *Cours* ("kooor") *de composition musicale* and wrote a trio of symphonic poems based on Schiller's *Wallenstein*.

ANSWER: Vincent **d'Indy** ("dan-DEE") [or Paul Marie Théodore Vincent **d'Indy**]

<Classical Music, TH>

11. Answer the following about Florida Men with utopian ambitions, for 10 points each:

[e] The company that bears this man's name recruited architects like César Pelli and Robert Venturi to design buildings for the planned town of Celebration, Florida. Another Florida complex named for this man contains Epcot.

ANSWER: Walt **Disney** [or Walter Elias **Disney**; accept Walt **Disney** World Resorts]

[m] Cyrus Teed, a spiritualist and Hollow Earth theorist who assumed this Hebrew name, established a utopian community in Estero, Florida. This is also the surname of a man who led an organization founded by Benjamin Roden at the Mount Carmel Center.

ANSWER: **Koresh** [accept David **Koresh**]

[h] Moses Elias, a Moroccan Sephardic Jew with this surname, founded the earliest Jewish agrarian settlement in the United States in the Florida Territory. Bernard, a rabbi with this surname, was a major innovator in Kosher certification in the US while heading OK Kosher.

ANSWER: **Levy** [accept Moses Elias **Levy**; accept Rabbi Bernard **Levy**]

<US History, TH>

12. VLIW architectures are designed to exploit parallelism at the level of these things. For 10 points each:

[m] Name these things thought of as the "words" of a computer's machine language. In MIPS, the set of these things includes subtract, add immediate, load word, move, branch on equal, and many more.

ANSWER: machine **instructions** [accept **instruction** set or **instruction** set architecture; accept **instruction**-level parallelism]

[h] Instruction-level parallelism is enhanced by this type of execution that requires a dynamically scheduled pipeline set up with parallel reservation stations and functional units. Tomasulo's algorithm uses a reorder buffer and a commit stage to implement this type of execution while maintaining program correctness.

ANSWER: **out-of-order** execution [prompt on **dynamic** execution]

[e] Compilers unroll these control structures to increase instruction level parallelism. These control structures run infinitely if their termination condition is never met.

ANSWER: **loops** [accept for **loops**]

<Other Science: Computer Science, JS>

13. Answer the following about the historical origins of modern European irredentist movements, for 10 points each:
[e] Fringe organizations in both Lithuania and Germany claim control of this Russian exclave that was seized by the Soviet Union after World War II. Russia controversially deployed nuclear weapons in this Baltic oblast in 2016.

ANSWER: **Kaliningrad** Oblast

[m] Irredentist interest group Karjalan Liitto makes claims on a province ceded during this conflict. The false flag attack on one side's village of Mainila created a casus belli for this conflict, whose other side was led by Risto Ryti.

ANSWER: **Winter** War (The province is Karelia.)

[h] Some far-right political organizations in Italy still claim control of Trieste, which had its political status settled in this 1975 treaty between Yugoslavia and Italy.

ANSWER: Treaty of **Osimo** [accept **Treaty on the delimitation of the frontier for the part not indicated as such in the Peace Treaty of 10 February 1947**]

<Post-500 European History, ZK>

14. In a sequel to this poem, the speaker describes "blurred playground noises" and "black stockinged nurses" while taking a walk in the park to avoid work, but admits that shirking "doesn't suit me." For 10 points each:

[h] Name this poem that asks "why should I let the [title creatures] squat on my life" before mentioning the wives of pensioners who are "as skinny as whippets."

ANSWER: "**Toads**"

[e] "Toads" is by this British poet who also wrote that "Sexual intercourse began / In nineteen sixty-three" in the poem "Annus Mirabilis." He also wrote "This Be the Verse."

ANSWER: Philip **Larkin**

[m] This poem by another author concludes by calling some frogs "great slime kings [...] gathered there for vengeance." This poem titles a collection that also contains "Blackberry-Picking" and "Digging."

ANSWER: "**Death of a Naturalist**" (by Seamus Heaney)

<Poetry, TH>

15. These two concepts title a Keith Thomas book about the "decline" of one of them as a result of the other in 16th and 17th-century England. For 10 points each:

[h] Name these two related anthropological concepts that Mauss and Hubert differentiated by claiming that one was bound up to social structure while the other focused on individual actions meant to influence events.

ANSWER: **magic** AND

religion

[accept **Religion and the Decline of Magic**]

[e] The first wide-ranging anthropological study of magic and religion was this 1890 book by James Frazer. This book, named for an object from the *Aeneid*, argued that religion evolved out of magic rather than the two coexisting, as posited by later treatments.

ANSWER: *The **Golden Bough***

[m] In *The Golden Bough*, Frazer makes a distinction between sympathetic magic, which relies on mimicry and resemblances, and *this* type of magic, which relies on the linkage of two objects or people. The "law" concerning this type of magic states that linkages can only be severed by set rituals, such as exorcism.

ANSWER: **contagious** magic [accept the law of **contagion**]

<Social Science: Sociology/Anthropology, TH>

16. International style adopters of these features took inspirations from the similar *mashrabiya* found in vernacular Arabic architecture. For 10 points each:

[h] Give the two-word French language term for architectural elements put in place to shade buildings and prevent overheating. Le Corbusier popularized the use of concrete examples of these features in the designs for his many buildings in Chandigarh.

ANSWER: ***brise soleil*** (“BREEZE soh-LAY”) [prompt on sun breakers]

[e] A grid of 240 motor-controlled apertures form a hightech *brise soleil* in Jean Nouvel’s design for the Arab World Institute in this city. The Centre Pompidou is another example of “High Tech” architecture in this European city.

ANSWER: **Paris**, France

[m] Curvy aluminum *brise soleils* shade many of the buildings in Valencia’s City of Art and Sciences, a complex designed by Felix Candela and this Spanish architect also known for designing the Turning Torso tower in Malmö.

ANSWER: Santiago **Calatrava** [or Santiago **Calatrava** Valls]

<Other Arts: Visual, TH>

17. Molly Millions, a recurring character in this author’s oeuvre with blades attached to her fingers, was introduced in a short story in which she works alongside a dolphin hacker addicted to heroin. For 10 points each:

[m] Name this author who pioneered cyberpunk with his short story “Burning Chrome,” in which he coined the word “cyberspace,” and a trilogy of novels set in the Sprawl.

ANSWER: William **Gibson** [accept William Ford **Gibson**] (The story is “Johnny Mnemonic.”)

[e] Although more widely known for his fiction, Gibson had a hit in 1993 with his essay “Disneyland with the Death Penalty,” a *Wired* cover story discussing the consumerism and authoritarianism of this Southeast Asian city-state.

ANSWER: **Singapore** [or **Singapura**]

[h] In Gibson’s story “The Gernsback Continuum,” a photographer is hired to document areas that feature this specific aesthetic, which describes the flashy future envisioned by American authors of the 1940s and 1950s.

ANSWER: **Raygun Gothic** [reject “Gothic”]

<Short Fiction, AP>

18. This artist had a relationship with poet Edwin Arlington Robinson while working at the MacDowell Artist Colony, where she painted *The Dreamer* and *The Porch*. For 10 points each:

[h] Name this New York and Philadelphia-based painter of the turn-of-the-20th century, known for her realist depictions of the New Woman in paintings like *Shoe Shop* and *Shop Girls*.

ANSWER: Elizabeth **Sparhawk-Jones** [prompt on partial answers]

[e] Sparhawk-Jones’ *Shoe Shop* is similar to William Glackens’ *The Shoppers*. Glackens was a member of this school of realist New York City painters that also included John Sloan and Robert Henri (“HEN-rye”).

ANSWER: **Ashcan** School [or The **Eight**]

[m] Sparhawk-Jones was longtime friends with this queer painter of many New Mexico and Maine landscapes. This artist included an iron cross in his colorful abstract *Portrait of a German Officer*.

ANSWER: Marsden **Hartley**

<Painting/Sculpture, TH>

19. Answer the following about ways to synthesize nanoparticles, for 10 points each.

[e] Intracellular synthesis of nanoparticles of this metal from fungi can be visually detected when hyphae (“**HAI-fee**”) turn a purple-red color. Samples for electron microscopy are commonly coated with nanoparticles of this precious metal.

ANSWER: **gold** [or **Au**]

[h] The properties of the nanoparticles synthesized using this process depend on competing processes like Ostwald ripening and aggregation. Iron oxide nanoparticles are often synthesized with this process, which induces normally soluble particles to react and simultaneously undergo nucleation, growth, and aggregation.

ANSWER: **coprecipitation** [prompt on **precipitation**]

[m] When synthesizing nanoparticles in suspensions, this phenomenon is applied to make sure they are evenly dispersed. Cavitation induced by this phenomenon breaks up agglomerates of nanoparticles.

ANSWER: **sound** [or **sound waves**; accept **ultrasound**; accept **sonication**; accept **ultrasonication**; accept **acoustic vibrations**; prompt on **vibrations**]

<Chemistry, JS>

20. A Detroit business of this type founded by John K. King is housed in an abandoned four-story glove factory. For 10 points each:

[e] Name these businesses that include Powell’s in Portland, The Strand in New York City, and City Lights in San Francisco.

ANSWER: **bookstores** [accept independent **bookstore** or **bookshops**]

[h] Bobby Seale hosted an event for his book *Power to the People* in this bookstore named for a black activist. After being evicted from San Francisco’s Fillmore district, this oldest independent Black bookstore in the U.S. moved to Oakland, around the corner from the MacArthur BART Station.

ANSWER: **Marcus Books** [or **Marcus Bookstore**] (named for Marcus Garvey)

[m] This city is home to Quimby’s, a store specializing in comics, graphic novels, zines, and small-press books, whose mascot is a mouse of the same name independently created by Chris Ware. Myopic is a used bookstore in this city.

ANSWER: **Chicago**, Illinois

<Geography, JS>

21. This linguistic phenomenon is most widely encountered in Icelandic, in which hundreds of common verbs cause it to occur. For 10 points each:

[h] Name this rare linguistic phenomenon, in which certain verbs render their subjects into non-nominative cases.

The “Me” in the ungrammatical English sentence “Me do not like this linguistic bonus” could be described by this term.

ANSWER: **quirky** subjects [accept **quirkiness**]

[m] Like ordinary nominative subjects, quirky subjects pass a subject-oriented anaphora test named for this general linguistic phenomenon, which specifies how pronouns relate to antecedents. Along with government, this phenomenon names a syntactical theory popularized by Noam Chomsky in the 1980s.

ANSWER: **binding** [accept anaphora **binding**; accept pronoun **binding**; accept word forms like being **bound**; accept government and **binding** theory; prompt on **GB** or **GBT**]

[e] Transitive verbs that instigate quirky subjects to not affect their sentences’ direct objects, which take this case in languages like Latin and German. English’s oblique case merges the function of this case and the dative.

ANSWER: **accusative** case [accept **ACC**]

<Social Science: Linguistics, TH>

22. Blueprints for centrifuges used to enrich uranium were stolen by this scientist in the 1970s and later used to begin Pakistan's nuclear weapons program. For 10 points each:

[h] Name this nuclear physicist who ran a nuclear black market after assisting Pakistan in developing nuclear weapons. His black market, the best known incident of non-state nuclear proliferation, sold uranium and centrifuge blueprints to Iran, North Korea, and Libya.

ANSWER: Abdul Qadeer Khan [or A. Q. Khan; prompt on Khan]

[m] Khan worked for Pakistan's nuclear weapons program after this Prime Minister stated his intent for Pakistan to develop nuclear weapons at any cost, even if Pakistanis had to eat grass.

ANSWER: Zulfikar Ali Bhutto [prompt on Bhutto]

[e] Khan's nuclear black market was exposed in 2004 when this Libyan leader acceded to the demands of the International Atomic Energy Agency to dismantle his state's nuclear program and reveal its suppliers.

ANSWER: Muammar Gaddafi [or Muammar Qaddafi; or Muammar Qadhafi]

<World History, ZK>