

## Chicago Open 2023

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## Editors 4

### Tossups

1. **In an incestuous moment of reconciliation, a Commandant created by this author “hung over [his daughter] as if she were his first love and held her mouth and kissed it.” At the end of a story by this author, the Emperor appends to one law the clause “if it should be the will of God.” A knight created by this author recovers from a mortal wound after losing a duel, while his opponent, the regicidal and fratricidal (\*) Jacob the Redbeard, dies from a scratch. After a man who is not Leopardo the chasseur confesses to a crime, one of this author’s characters claims she was “ready for some villain of a fellow... but not the devil.” In a story by this author, a Russian Count rescues a woman from some soldiers, only to assault her himself after she faints; that story opens with the title noblewoman putting in a newspaper a request for the father of her child to reveal himself. For 10 points, name this author of “The Marquise of O—.”**

ANSWER: Heinrich von **Kleist** [or Bernd Heinrich Wilhelm von **Kleist**] (The other story mentioned is “The Duel.”)  
<Arya Karthik, European Literature>

2. **Description acceptable. Kidawi and Rastogi developed a synthesis of acridines under these conditions. The yield of the Suzuki–Miyaura reaction drops by 55 percentage points when high-speed ball-milling is used to run it under these conditions. André Loupy pioneered the use of multimode or monomode ovens to perform reactions under these conditions. Grinding or microwave irradiation are commonly used to perform reactions under these conditions, which also often use phase (\*) transfer catalysts. Reactions performed under these conditions are described as “neat.” Along with having no catalyst, a reaction performed under this kind of condition is the goal of SF–CF reactions in green chemistry. For 10 points, name this kind of reaction condition characterized by the lack of a substance that dissolves the reactants.**

ANSWER: **solvent-free** [accept descriptions of **no solvents** or reactions run **without solvents**; accept **neat** until read; prompt on **microwave**-irradiated or any answers including the word “microwave” until “microwave” is read by asking “those reactions are also under what other condition?”]  
<Geoffrey Wu, Chemistry>

3. **A song by this artist with a Portuguese-language title begins with the straight-eighth note melody “E, high B, C, low E, low C, up to a long held F-sharp” over a Latin rhythm. Late in this artist’s career, he recorded a live album with Al Foster and Ron Carter titled for the “state of” his instrument, as well as a Grammy-winning album of Billy Strayhorn covers. Herbie Hancock made early use of the Fender Rhodes on this artist’s song “Black Narcissus.” This artist recorded *The Elements* with (\*) Alice Coltrane and played saxophone alongside Pharaoh Sanders on her album *Ptah, the El Daoud*. This artist’s switch from Blue Note to Milestone Records was marked by his album *Power to the People*. Kenny Dorham’s visit to Brazil inspired the Latin rhythms on this artist’s song “Recorda Me.” For 10 points, what tenor saxophonist’s album *Page One* contains the first recording of “Blue Bossa?”**

ANSWER: Joe **Henderson** (The first line describes Henderson’s song “Recorda Me.”)  
<Victor Pavao, Other Fine Arts>

4. A book co-authored by Walter G. Andrews coins an “age of beloveds” in the literature of this empire to compare it to similar trends in the writing of its peers. Colin Imber attacked a theory about this empire’s early history by calling the period a “black hole.” The standard Western account for decades, the “Hammer History” was a ten-volume work on this empire by Joseph von Hammer-Purgstall. An account of the final days of this empire was presented in the (\*) 36-hour Nutuk speech. Though now discredited, Paul Wittek posited that this empire’s early growth was fueled by holy war in the *ghaza* thesis. Keeping imperial successors in the Kafes (“kah-FAYSS”) and the transition from the *timariot* system to tax-farming were cited as elements of this empire’s “decline” from its 16th-century peak by Bernard Lewis. For 10 points, the legacy of what empire has been minimized in histories influenced by Mustafa Kemal?

ANSWER: **Ottoman** Empire [or Sublime **Ottoman** State, Devlet-i ‘Alīye-i ‘**Osmanīye**, **Osmanlı** İmparatorluğu, or **Osmanlı** Devleti]

<Alex Fregeau, Other History>

5. The unusual prominence of kettles in tales of these creatures is exemplified by accounts of them being carried, falling out of these creatures’ burned corpses, or moving upon their arrival. In a common motif, children defeat these creatures by becoming one of them, only to transform back by drinking boiled tallow. Four fangs pierce a trapper’s neck in a “goblin” story recounted by Theodore Roosevelt and titled for these creatures. The association of owls with these creatures may explain why their names are spelled similarly across various languages. The arrival of these lipless creatures is preceded by (\*) blizzards, and they can be killed when their icy hearts melt. Jack Fiddler was arrested for killing individuals possessed by these spirits, whose victims like Swift Runner allegedly suffered from their namesake “psychosis.” For 10 points, a gaunt, emaciated form characterizes what cannibalistic spirit from Algonquin lore?

ANSWER: **wendigo** [or **windigo**, **wetiko**, **wintiko**, or **wijigo**]

<Kevin Thomas, Beliefs>

6. Melissa L. Wender’s anthology of literature by this ethnic group is titled after the 1939 story “Into the Light” and includes the 1996 novella *Full House*. In a novel by an author from this ethnic group, a former construction worker dies as he has a vision of his granddaughter drowning in her car. That 2014 novel by an author from this ethnic group follows a homeless ghost who haunts a park outside a metro station. In another novel, a consumptive minister of this ethnicity gets three years in jail when his sexton publicly (\*) recites the Lord’s Prayer. A novel following generations of a family from this ethnic group begins, “History has failed us, but no matter;” at the end of that novel, Solomon returns from New York to join his father’s business running gambling parlors. For 10 points, a family from what diasporic ethnic group is central to *Pachinko* by Min Jin Lee?

ANSWER: **Koreans** in **Japan** [or **Korean-Japanese**, **Zainichi** Koreans, **Japanese Koreans**, **Zainichi** chosonjin, or **Zainichi** kankokujin; prompt on **Koreans** by asking “living in what country?”; prompt on **Japanese** by asking “Japanese citizens of what ethnicity?”; reject “Korean-American”] (The unnamed writers are *Tokyo Ueno Station* author Yu Miri and Kim Sa-ryang.)

<Henry Atkins, World Literature>

7. On this day, one island’s customary offering of a cup of ale was dumped into the sea in exchange for future seaweed harvests. Celebrants threw apple rinds over their shoulders to learn their future spouse’s first initial and roasted named hazelnuts in love divinations practiced on this day. The Mound of Hostages aligns with the sunrise of this day when, according to Geoffrey Keating, all bonfires except for one on the Hill of Ward were extinguished. Apotropaic (\*) “parshell” crosses made from rowan are replaced on this day. This holiday is located opposite Beltane on the Wicca Wheel of the Year. Food and drink offerings appeased the *aos sí* (“ehss SHEE”) on this liminal day when the veil thins between our world and the Otherworld. For 10 points, Halloween rituals like apple bobbing and trick-or-treating originated from what Celtic New Year that starts on October 31?

ANSWER: **Samhain** (“SAH-win”) [or **Sauin**; accept **Celtic New Year** until “Celtic” is read; accept *Nos Galan Gaef* or *Calan Gaeaf*; prompt on **Halloween**, All **Hallows** Eve, or All **Saint’s Day** by asking “what older holiday did it evolve from?”; prompt on **October 31** or **November 1** by asking “what festival occurs on that day?”; prompt on **puca night** or **spirit night**] (The island in the first line is the Isle of Lewis.)

<Kevin Thomas, Beliefs>

8. In 2019, Li et al. devised a 4-mer-cyto-pyridine/gold nanostar probe to accurately monitor this quantity via plasmon-enhanced Raman spectroscopy. Phosphorylation of the *TFEB* gene increases the transcription of a 14-subunit complex crucial to lowering this quantity. Hydroxychloroquine's anti-autoimmune effect in treating lupus is in part due to its ability to raise this quantity in APCs. Studies that demonstrate poly-ethyl-en-imine's ability to stabilize this quantity support its role as a (\*) "sponge." Most cathepsins only function within a narrow range of this quantity. Dysfunction of the V-type ATPase that regulates this quantity leads to its increase, which in turn inhibits the function of previously mannose-6-phosphate-tagged hydrolases. For 10 points, what quantity's normal value of 4 to 5 activates the proteolytic enzymes of a specific organelle?

ANSWER: lysosomal pH [or the pH inside of a lysosome; accept the pH inside of a phagosome or endosome; prompt on pH by asking "within what compartment?"]

<Itamar Naveh-Benjamin, Biology>

9. In an 1866 hoax, a skull was "found" in the foothills of this mountain range that F. W. Putnam used to claim that humans had been in the Americas since the Pliocene. The socialist Kaweah Colony was founded in this mountain range, where they named a prominent natural feature after Karl Marx. A former Confederate geology professor died in this mountain range shortly before the first of one organization's "High Trips." James D. Savage led attacks against peoples like the (\*) Ahwahneechee in this mountain range. Using his connections with *The Century* magazine, Robert Underwood Johnson popularized writings about this mountain range. An early November snowfall in this mountain range trapped the Donner Party for several months. For 10 points, name this mountain range of eastern California which names a conservationist organization founded by John Muir ("myoor").

ANSWER: Sierra Nevada [or Sierras] (The feature named after Karl Marx is better known as General Sherman, the largest extant single-stem tree.)

<Alex Fregeau, US History>

10. Susan Sontag's claim that this term is an "American metaphor" is cited disparagingly in a Tony Judt essay on its "rediscovery" after the Cold War. This term titles a 1915 book by German Democratic Party founder Friedrich Naumann that proposed an economic version of Anschluss. According to archival research by Fritz Fischer, this term described the region of economic hegemony called for by the September Program. A book whose title inverts this term presents lightly fictionalized biographies of cultural figures like Käthe Kollwitz ("KAY-tuh KOHL-vitz") and Friedrich (\*) Paulus during World War II and is by William T. Vollmann. This geographic term names a university that changed locations in 2018 after pressure from Fidesz against George Soros. For 10 points, the Visegrád Group makes up the Eastern flank of which loosely-defined geographic region that also includes Germany and Austria?

ANSWER: Central Europe [or Mittleuropa; accept Middle Europe, East-Central Europe, Europe Central, or Central European University; prompt on Europe]

<Henry Atkins, Other Academic>

11. Until 1974, tripartite committees determined the implementation of this policy in Puerto Rico. The impact of a change in this policy in Puerto Rico was the subject of a 1965 study by Reynolds and Gregory which found that it increased productivity but shrunk profits. A book about this policy argues that "dynamic monopsony" explains its impact better than supply and demand. Richard Lester's predictions about the impact of this policy in the 1940s were not confirmed until a series of natural experiments 50 years later. The book (\*) *Myth and Measurement* surveys research on this policy, including a difference-in-differences study of this policy in New Jersey and Pennsylvania by Alan Krueger and David Card. For 10 points, identify this policy that classically creates deadweight loss by preventing some labor transactions.

ANSWER: setting a minimum wage [accept answers involving changing the minimum wage; accept minimum wage increase or minimum wage decrease]

<Mike Bentley, Social Science>

12. In this story, a group's diction bizarrely elevates as they ask about a "fundamental datum" defined as "the means by which the taken-for-granted mundanity of the everyday may be transcended." George Saunders gives maxims like "A Story is Made of Things that Fling Our Little Car Forward" in an essay that uses this story as a perfect example of "rising action." The narrator begins this story with a fumbling sentence about "you know, the root systems...and also the sense of responsibility." When asked to demonstrate (\*) love-making, the narrator of this story tentatively embraces his assistant Helen. The room cheers wildly at the end of this story as the new gerbil walks through the door. For 10 points, orange trees, a dog, and an orphan all perish in what Donald Barthelme short story about escalating death in a classroom?

ANSWER: "The School"

<Arya Karthik, American Literature>

13. The battle didn't happen in this modern country, but an invasion of it was prevented when the gunpowder stores of a castle were blown up by its commander, an incident depicted on the *Carta Marina*. Control over this country was solidified through castles called *linna*, such as ones named for Hamina and Savonia. Klaus Fleming put down a rebellion in this country named after the blunt weapons used by the rebels. An English bishop named Henry was a part of an apocryphal campaign to (\*) Christianize this country. This modern country was occupied by a foreign power during two periods known as the Lesser and Greater Wraths. Eric IX legendarily led a crusade in this country, turning it away from deities like Ahto and Ukko. For 10 points, name this country that was a province of Sweden from the 13th to 19th centuries.

ANSWER: Finland [or Suomi, Republic of Finland, or Suomen tasavalta] (Per Brahe is remembered well enough to be referenced in the modern Finnish phrase *kreivin aikaan*, "in the Count's time," meaning "in the nick of time." Olaus Magnus depicted the Vyborg Blast from the lead-in on the *Carta Marina*.)

<Alex Fregeau, European History>

14. In a suite of five "Pictures" from the south of this country, a movement about a bumblebee follows one titled for a "Sigh on the Soul." A so-called *Aria* by a composer from this country was composed in a fit of self-doubt at the Villa de Medici. The chromatic melody "B-flat, [pause] fast A-B, A-flat, [pause] fast G-A, G-flat" opens a piece from this country written as incidental music for *Psyche*. Sigurd Raschèr's ("RAH-shurr's") proficiency with top tones inspired the technical demands of a (\*) *Concertino da camera* from this country. A piece from this country that calls for the nonexistent soprano saxophone in F caused a falling-out between Arturo Toscanini and its composer and was choreographed for Ida Rubinstein. In an orchestration from this country, an alto saxophone plays a sinuous G-sharp-minor melody to depict a troubadour by an "Old Castle." For 10 points, name this home country of the most famous orchestrator of *Pictures at an Exhibition*.

ANSWER: France [or French Republic or Republique française] (The first piece is Paule Maurice's *Tableaux de Provence*. *Aria* is a popular saxophone piece by Eugène Bozza. The third piece is Debussy's *Syrinx*, which is for flute but is also popular among saxophonists. The *Concertino da camera* is by Jacques Ibert. The fifth piece is *Boléro*.)

<Arya Karthik, Classical Music and Opera>

15. Stachowiak ("stah-HOH-v'yak") and Szumiński ("shoo-MEEN-skee") 2015 builds on Morales-Ramis theory to prove the non-integrability of restricted versions of this system. A ratio of lengths denoted alpha must be a root of the formula "alpha-cubed plus six alpha-squared minus four lambda-squared plus four" for slow periodic energy exchanges to occur in a type of this system developed by Nikolaus Rott. An identical pair of these systems that feature "test" and "reaction" masses are used in (\*) LIGO in order to filter out seismic noise. A central eye-shaped region in a fractal represents starting conditions for which this system takes especially long times to flip. For 10 points, name these pairs of harmonic oscillators commonly used to illustrate chaotic motion.

ANSWER: double pendulums [accept coupled pendulums; prompt on pendulums]

<Geoffrey Wu, Physics>

16. An inscription reading “in the year 318” is believed to date a statue at the site of Loriyan Tangai to the reign of this ruler. Joe Cribb has used invocations of deities like Nana and Mihr in one of this ruler’s inscriptions to challenge the traditional account of his religious beliefs. A traveler described how this ruler was predicted by a boy building a mud tower during the life of the Buddha. Though no longer favored, this ruler’s accession was once thought to have marked the start of the Saka era. The Rabatak Inscription details this ruler’s descent from (\*) Kujula Kadphises. This non-Sri Lankan ruler is traditionally credited with convening the Fourth Buddhist Council. Fāxiān reported that he saw a 400-ft stupa covered in gold and jewels named for this ruler outside modern Peshawar. For 10 points, name this ruler who from 127-150 CE oversaw the height of the Kushan Empire.

ANSWER: Kanishka I [or Kanishka the Great or Kanēške (“kah-nesh-kay”) I; prompt on Kanishka or Kanēške]  
<Alex Fregeau, World History>

17. In a poem [emphasize] set in this decade, men are told “Come... / And dance to the latest air” by “red lights” that “call madness”; that poem is titled for a “Concert Party.” “The evenings and the sunsets on the island” and “tall black ships at anchor” feature in a poem from this decade, many of whose stanzas begin with the phrases “can you recall” and “can you forget.” That poem, which describes a “hopeful, high, courageous morning,” is by May Cannan. A man swears “deep heart’s deep oaths / Polite to God” in “The Silent One,” a poem from this decade by the author of (\*) *War’s Embers*, Ivor Gurney. Edmund Blunden’s *Undertones of War*, which is set in this decade, is praised in a Paul Fussell study about *Modern Memory*. For 10 points, name this decade, during which a man posits “a pulse in the Eternal mind” and claims “there’s some corner of a foreign field / That is forever England” in Rupert Brooke’s “The Soldier.”

ANSWER: 1910s [prompt on ’10s] (The poem in the first line is Blunden’s “Concert Party: Busseboom”; the poem in the second and third lines is “Rouen.”)

<Arya Karthik, British Literature>

18. This author influenced the inclusion of a doctor’s peephole in the painting *The Addition* and of a wispy crown adorned with the letters “IMRA” in *Portrait of Madame B*. The *Beraldi Album* includes this author’s sketch of two men clapping before a burning house. On the right side of a painting inspired by this author, a thin metal scythe precariously balances on its tip in the sand. A photograph inspired by this author that depicts a close-up of an armadillo fetus was captured by Dora (\*) Maar. A woodcut created by this author depicts one of his characters in a dunce cap with a spiral affixed to his bloated stomach. A green scarf adorns this author’s best-known creation in a painting that reimagines him as a monstrous, red-bricked spinning top and whose title calls him “imperator.” For 10 points, Paul Sérusier and Pierre Bonnard helped design the set for the premiere of what author’s play *Ubu Roi*?

ANSWER: Alfred Jarry

<Itamar Naveh-Benjamin, Visual Fine Arts>

19. A breakthrough 2009 Bender et al. paper presents an algorithm for continually performing this task that explicitly avoids tracking affected regions. Purdom’s algorithm for finding transitive closures achieves quadratic time by precomputing the result of this task. A method for determining rank ordering in a round-robin tournament that minimizes upsets relies on performing this task on the feedback arc set of the tournament. The reverse of a postorder depth-first search’s iteration order is a solution to this task. (\*) Kahn’s algorithm for this task repeatedly finds a source node, removes it from the graph, and appends it to a running list; source nodes must always exist since this task is only defined for directed acyclic graphs. Resolving a dependency graph into an ordered sequence is an instance of this problem. For 10 points, name this problem of flattening a directed acyclic graph into a list.

ANSWER: topological sort [or topological ordering; accept toposort; prompt on sorting or ordering]

<Alistair Gray, Other Science - Computer Science>

20. A 2022 paper by Harvey Lederman presents an “introspective” interpretation of this thinker based on his notion of *zhi zhi* (“chuh-chuh”), or “extending knowledge.” According to legend, this thinker spent seven days doing nothing but staring at the bamboo in his garden to grasp its essence, but only succeeded in making himself ill. This thinker [emphasize] *critiqued* the idea that the concept of *gé wù* in the *Great Learning* should be construed simply as “studying things.” Together with his predecessor (\*) Lù Xiàngshān (“sh’yahng-shahn”), this thinker founded the “School of the Mind.” This thinker argued that people can acquire *li* solely through introspection, what he called *liangzhi* (“l’yahng-chuh”), or “innate knowing.” This thinker rejected the possibility of weakness of the will, a doctrine he called the “unity of knowledge and action.” For 10 points, name this Míng dynasty philosopher who was the leading critic of Zhū Xī (“chu-shee”).

ANSWER: Wáng Yángmíng [or Bó’ān, Yángmíngzǐ, or Wáng Shǒurén; prompt on Yángmíng]

<Caleb Kendrick, Philosophy>

## Bonuses

1. The use of this function of  $n$  in the statement of the prime number theorem of Hadamard and de la Vallée Poussin (“duh lah vah-LAY poo-SAHN”) improves on Chebyshev’s result that the prime counting function of  $n$  is theta of this function of  $n$ . For 10 points each:

[m] Give this function of natural number  $n$  that asymptotically equals the prime counting function, denoted  $\pi$ , of  $n$  in the common statement of the prime number theorem.

ANSWER:  **$n$  over  $\log n$**  [accept equivalents such as  **$n$  divided by  $\log n$** ; accept “ **$L$** ” or “**natural logarithm**” instead of “**log**”]

[h] This mathematician and Korobov independently proved the most recent significant improvement to the error term of the PNT. This mathematician proved a weaker version of the Goldbach conjecture for extremely large numbers.

ANSWER: Ivan **Vinogradov** [or Ivan Matveevich **Vinogradov**]

[e] A proof of this conjecture would mean that the error term in the PNT is big  $O$  of  $x$  to the power of one-half plus epsilon, the best bound possible. Per this conjecture, all nontrivial zeros of a certain function have real part one-half.

ANSWER: **Riemann hypothesis** [prompt on **Riemann**]

<Arya Karthik, Other Science - Mathematics>

2. This cartographer’s *Cosmologia* was the first of the lavish atlases of the Dutch Golden Age. For 10 points each:

[e] Name this cartographer whose cylindrical projection misleadingly implies that Greenland is almost as large as Africa.

ANSWER: Gerardus **Mercator** [or Gerard **Kremer**; accept **Mercator** projection]

[m] Mercator’s 1569 world map became the model for nautical charts because it showed these paths of constant bearing as parallel lines. This term can also refer to the confusing windrose networks of pre-modern portolan maps.

ANSWER: **rhumb** lines [or **loxodromes** or **rhumb**line networks]

[h] Mercator’s misses include his placement of this nonexistent natural feature in the middle of a large whirlpool at the North Pole. The author of *Inventio Fortunata* claimed to have seen this source of Earth’s magnetic field.

ANSWER: **Rupes Nigra** [or **Black Rock**; prompt on answers that indicate a large magnetic **rock**]

<Henry Atkins, Geography>

3. Samuel Ringgold Ward blamed the quality of decades of the United States’ relations with this country on a certain type of “hater” in Washington, D.C. For 10 points each:

[h] Name this country to which Benjamin F. Whidden led the first US legation in 1862. Later, US interest in this country grew when Frank A. Vanderlip tried to gain control of this country’s national bank.

ANSWER: **Haiti** [or Republic of **Haiti**, République d’**Haïti**, or Repiblik **Ayiti**]

[e] The threat that the Haitian Revolution and this general posed to slavery delayed its recognition. Ironically, proslavery authors like George Fitzhugh praised this general’s labor policies.

ANSWER: Toussaint **L’Ouverture** [or François-Dominique Toussaint **L’Ouverture**]

[m] The violence of the Revolution forced *The North Star*, based in this city, to carefully frame its biography of L’Ouverture. This city hosted a women’s rights convention two weeks after the one at nearby Seneca Falls.

ANSWER: **Rochester**, New York

<Alex Fregeau, US History>

4. Although she retired from opera in 2017, Renée Fleming returned in 2022 to star in the stage premiere of this opera alongside Joyce DiDonato and Kelli O’Hara. For 10 points each:

[h] Name this opera by Kevin Puts whose three isolated female leads only acknowledge each other in their final trio.

ANSWER: *The* **Hours**

[e] For *The Hours*’s final trio, Puts took inspiration from the final trio of this opera, in which Fleming had made her farewell. The Marschallin blesses the love between Sophie and Octavian in that trio from this Richard Strauss opera.

ANSWER: *Der* **Rosenkavalier** [or *The* **Knight of the Rose**]

[m] Fleming continued her return to opera by singing this role in the Paris Opera’s first production of an opera originally staged by Peter Sellars. This character sings the aria “This is prophetic.”

ANSWER: **Pat** Nixon [or **Pat Nixon**; accept **Mrs. Nixon** or Richard **Nixon’s wife**; reject “Nixon”]

<Ivone Zhou, Classical Music and Opera>

5. In a foreword to Elizabeth Smart's *By Grand Central Station I Sat Down and Wept*, Brigid Brophy compared this author's *Little Poems in Prose* to "a box of marvelous but unstrung beads." For 10 points each:

[m] Name this author of a prose poem in which a man has a fistfight with a beggar outside a bar to determine if the beggar is worthy of receiving his charity.

ANSWER: Charles **Baudelaire** [or Charles Pierre **Baudelaire**] (The prose poem is "Let's Beat Up The Poor!")

[e] Keith Waldrop's translation of *Little Poems in Prose* is named for this emotion, which Baudelaire juxtaposed with the "Ideal" in the title of the first section of *Les Fleurs du Mal*.

ANSWER: **spleen** [accept "**Spleen** and Ideal"; accept *Paris Spleen*]

[h] The preface of *Paris Spleen* also pokes fun at an Arsène Houssaye prose poem about an encounter with a man of this profession. In a poem from *Paris Spleen*, the narrator drops a flowerpot on a "Shoddy" man with this profession.

ANSWER: **glazier** [or **windowpane maker** or **vitrier**; accept any answer describing someone who works with or sells **glass**; prompt on **salesman** or street **vendor** or equivalents; prompt on **craftsman** or **artisan** or equivalents]

<Arya Karthik, European Literature>

6. A 2021 paper by Susanne Bobzien, which jokingly accuses Gottlob Frege of plagiarizing the Stoics, notes that this concept is essentially the same as Frege's notion of *Sinn*. For 10 points each:

[h] Name these "sayables" that the Stoics thought were the bearers of linguistic meaning.

ANSWER: **lekta** [or **lekton**]

[m] This philosopher, who is credited with developing Stoic logic, argued against Philo's material analysis of the conditional. Diogenes Laërtius popularized the legend that he died of laughter after seeing a donkey eating figs.

ANSWER: **Chrysippus** of Soli

[e] The Stoics rejected *modus ponens* in an attempt to avoid this paradox, which Eubulides of Miletus illustrated by asking how many grains must be removed from a heap of sand before it ceases to be a heap.

ANSWER: **sorites** paradox

<Caleb Kendrick, Philosophy>

7. The distribution of artifacts like creamware, pearlware, buttons, and furniture tacks at this place's Site 6 has been interpreted as meaning that some of its residents were independently earning money. For 10 points each:

[m] Name this place, where excavations have found that slave homes in its Mulberry Row section shrank over the final decades of the 18th century. This place's owner was born at its Shadwell Farm.

ANSWER: **Monticello** [or Thomas **Jefferson's home**; accept **farm**, **plantation**, **house**, or other synonyms in place of "home"]

[e] A stove likely used by a slave named James with this last name has been uncovered at Monticello. Thomas Jefferson had several children with James's sister Sally, who also had this last name.

ANSWER: **Hemings** [accept James **Hemings** or Sally **Hemings**]

[h] Comparing the distribution of these objects to the ceramics at Site 6 suggests that its cabins were occupied at the same time. Jefferson had slave boys aged 10 to 16 produce these objects while girls spun thread.

ANSWER: **nails** [accept wrought **nails** or cut **nails**]

<Alex Fregeau, Other History>

8. An artist made paintings with this name behind lit candles with wicks made of literal straw. For 10 points each:

[h] Name this person who titles paintings by an artist that use candles, sheaves of wheat, and lightning as representation. This is the first name in the title of a painting by that artist that shows a wheat field with a burning house in the background.

ANSWER: **Margarethe** [or **Margarete**; accept *Your Golden Hair*, **Margarete**]

[m] *Your Golden Hair*, *Margarete* was painted by this German artist who uses unusual materials such as ash and straw and is heavily influenced by the Holocaust. This artist also painted *Shulamith* and photographed *Heroic Symbols*.

ANSWER: Anselm **Kiefer**

[e] The Holocaust also influenced this artist, whose daughter Ida helped him move paintings like *White Crucifixion* out of Vichy France.

ANSWER: Marc **Chagall** [or Moishe **Shagal**]

<Young Fenimore Lee, Visual Fine Arts>



9. Verses in this form consist of four eight-syllable *pādas* (“PAH-duhs”) grouped into two hemistichs. For 10 points each:

[m] Name this verse form supposedly invented by Vālmīki after watching a hunter kill a mating bird.

ANSWER: **shlokas** [or **śloka**; accept **anustubh** or **yaktra**]

[e] Edwin Arnold’s translation *The Song Celestial* rendered this poem’s 700 *shlokas* in iambic pentameter. In this poem’s first *shloka*, the Kuru king asks Sanjaya about his sons’ deeds on the holy field of Kurukshetra.

ANSWER: *Bhagavad Gītā* [prompt on *Mahābhārata*]

[h] An author who used this language wrote a version of the *Rāmāyana* in its *kakawin* form, modeled directly on Sanskrit shlokas. Additions include the *panakawan*, four clownish stock characters from this language’s literature.

ANSWER: Old **Javanese** [or **Kawi**]

<Henry Atkins, World Literature>

10. Answer the following about using the anisotropy of magnetic susceptibility to study rocks, for 10 points each:

[m] Anisotropy of magnetic susceptibility, or AMS, measurements of this rock are bimodal with the two modes corresponding to its S- and I-types. This plutonic rock is felsic and phaneritic.

ANSWER: **granite** [accept **granitic** rocks or **granitoids**]

[h] The AMS ellipsoid determines one of this class of features in the magnetic fabric of plutonic rocks that is parallel to the flow plane during magma emplacement. L-tectonites are primarily composed of this class of fabric elements, with hardly any foliation present.

ANSWER: **lineations** [accept magnetic **lineations**]

[e] The preferred orientation of this mineral usually determines the magnetic fabric of plutonic rocks with a large degree of AMS. This mineral and hematite are the primary ores of iron.

ANSWER: **magnetite** [or **iron(II,III) oxide** or **Fe<sub>3</sub>O<sub>4</sub>**; accept **ferrous-ferric oxide** or **triiron tetraoxide**; prompt on **iron oxide**]

<Jonathen Settle, Earth Science>

11. A political cartoon depicts an agent of this king “producing...evidence against certain persons” by throwing up on them from a platform. For 10 points each:

[m] Name this king who created the Secret du Roi (“seh-CRAY du hwah”) to support his private interests that ran counter to official foreign policy. This king also supported his father-in-law Stanisław Leszczyński (“STAHN-ee-swahf lesh-CHEEN-ski”) during the War of Polish Succession.

ANSWER: **Louis XV** (“the fifteenth”) [prompt on **Louis**]

[h] As a member of the Secret du Roi, this dragoon infiltrated the court of Empress Elizabeth under the name Lia de Beaumont. This possibly transgender aristocrat spent the last 33 years of their life presenting as a woman.

ANSWER: Chevalier d’**Éon** (“sheh-vahl-YAY day-OHN”) [or Chevalière d’**Éon**; or

Charles-Geneviève-Louis-Auguste-André-Timothée d’**Éon** de Beaumont; or

Charlotte-Geneviève-Louise-Augusta-Andréa-Timothéa d’**Éon** de Beaumont]

[e] Pierre Beaumarchais (“boh-mar-SHAY”), fellow spy and acquaintance of d’Éon, ran supplies to Britain’s enemies in this conflict. Beaumarchais was injured in a carriage accident delivering news of a John Burgoyne loss in this conflict to Paris.

ANSWER: American **Revolutionary** War [accept American **Revolution** or **American War of Independence**]

<Henry Atkins, European History>

12. In the first step of the Leloir pathway, an enzyme affects this process on beta-D-galactose so that it can be phosphorylated by galactokinase. For 10 points each:

[m] Name this type of epimerization, the conversion between two diastereomers of a cyclic sugar that differ only in their configuration about the hemiacetal carbon.

ANSWER: **mutarotation** [or **anomerization**; accept word forms; accept galactose **mutarotase**]

[e] In a later step of the Leloir pathway, another epimerase acts on galactose bound to this nucleosid's diphosphate. This nucleoside, whose diphosphate is bound to glucose in glycogenesis, is formed by deaminating cytidine.

ANSWER: **uridine** [accept **uracil**]

[h] A third class of epimerase is exemplified by RmlC, which is involved in the biosynthesis of this sugar. The *Rhl* system in *P. aeruginosa* produces glycolipids containing this sugar, used as green biosurfactants in industry.

ANSWER: **rhamnose** [accept **rhamnolipids**]

<Arya Karthik, Biology>

13. Vajrayana teachings sometimes reference a fourth or fifth type of these things, including one associated with *svabhāva*, or essence. For 10 points each:

[m] Name these things which, according to a Mahāyāna doctrine, respectively manifest in three levels of reality: Dharma, *sambhōga* or bliss, and *nirmāṇa* in the physical world.

ANSWER: **bodies** of the Buddha [or **kāyas** of the Buddha; accept **forms** of the Buddha; accept **trikāya**]

[h] The ultimate body or Dharmakāya expresses the ineffable reality often referred to by this tricky term. This term is at the root of various words translated as “Buddha-nature” and appears as a set of ten aspects in Tiantai thought.

ANSWER: **tathātā** [or **thusness**, **suchness**, or **zhēnrú**; accept the **ten suchnesses**, **shí rúshì**, or **jūnyoze**; accept **tathāgatagarbha**; accept **Tathagata**]

[e] The *Sambhogakāya*, historically an addition to the *Dharmakāya* and *Nirmāṇakāya*, refers to the body that dwells in this kind of place. Those who seek to be reborn into one of these places sometimes repeat the name of Amitābha.

ANSWER: **pure lands** [or **buddha-fields**, **buddha-lands**, **buddhaksetra**, or **jingtǔ**]

<Henry Atkins, Beliefs>

14. This author wrote a series of stories for *The New Yorker* about Hyman Kaplan, a night school student who signs his name with asterisks between every letter. For 10 points each:

[h] Name this Jewish humorist whose book *The Joys of Yiddish* defines “chutzpah” as the quality of a man who murders his parents and then pleads to the court that he’s an orphan.

ANSWER: Leo **Rosten** [or Leo Calvin **Rosten**]

[e] In a story by this author, an eleven-armed Jewish alien who recommends *The Joys of Yiddish* tries to form a minyan. This “New Wave” sci-fi author wrote the story “I Have No Mouth, and I Must Scream.”

ANSWER: Harlan **Ellison** [or Harlan Jay **Ellison**]

[m] In a review of Jewish erotica, this author of *Barney's Version* notes that *The Joys of Yiddish* lacks a definition for schmutz. One of this author's characters enters film distribution in order to buy up land around a lake in Sainte-Agathe.

ANSWER: Mordecai **Richler** (The novel is *The Apprenticeship of Duddy Kravitz*.)

<Ani Perumalla, American Literature>

15. Zain, a Kuwait-based company of this type, was the sponsor of the university quiz show *Africa Challenge*. For 10 points each:

[e] Orange S.A. and MTN are what type of company? Companies of this type often focus on inexpensive prepaid services in sub-Saharan Africa due to the poor penetration of PSTNs.

ANSWER: **telecommunications** [accept **telephone** companies, **mobile** phone companies, or **cellphone** providers; prompt on **internet service providers** or **ISPs**; prompt on **information and communications technology** companies or **ICT**]

[h] High mobile uptake and low bank usage have fueled SMS-based mobile banking such as this Safaricom service. During the pandemic, the Kenyan government waived fees for this most popular money transfer service in Africa.

ANSWER: **M-PESA**

[m] The overwhelming majority of internet users in Africa have access through mobile broadband using this digital standard. Carriers such as AT&T have recently shut down their networks for this 2G standard.

ANSWER: **GSM** [or **Global System for Mobile Communications**]

<Henry Atkins, Modern World>

16. Alternatives to the existence of these particles include some type of quark being massless, which is probably not true, and CP symmetry being spontaneously broken, which would lead to a complex Higgs VEV. For 10 points each:

[m] Name these particles that are the Nambu–Goldstone bosons associated with spontaneous breaking of a theorized global  $U$ -one symmetry. The existence of these particles would resolve the strong CP problem.

ANSWER: **axions**

[e] Peccei and Quinn’s original formulation incorrectly posited that the energy scale of  $U$ -one breaking was equal to that of the breaking of a symmetry in this interaction, a unification of two fundamental forces.

ANSWER: **electroweak** interaction [reject “electromagnetic interaction” or “weak interaction”]

[h] The energy scale of  $U$ -one breaking is much larger than that of electroweak breaking in models described by this adjective, like the DFSZ and KSVZ models. Models described by this adjective admit axions light enough to agree with their lack of experimental observation.

ANSWER: **invisible** [accept **invisible** axion models or **invisible** axion theories]

<Arya Karthik, Physics>

17. Answer the following about contemporary sociological theories of racism, for 10 points each:

[e] Victor Ray’s structural theory of these institutions seeks to fill in a meso-level theory of racialization alongside societal and individual theories. Along with industries, these institutions name a branch of psychology that studies the workplace.

ANSWER: **organizations** [accept industrial-**organizational** psychology]

[h] Ray’s theory draws on the work of this Duke sociologist in conceptualizing racism as a structural phenomenon, a “racialized social system.” This sociologist’s book *Racism Without Racists* examines the “white habitus” and “Latin Americanization” of the American racial system.

ANSWER: Eduardo **Bonilla-Silva**

[m] Much of contemporary analysis of whiteness draws from the work of Peggy McIntosh, who used this metaphor for white privilege in a 1989 essay about “unpacking” this metaphorical object.

ANSWER: **invisible knapsack** [or **invisible backpack**; accept “White Privilege: Unpacking the **Invisible Knapsack**”; prompt on **knapsack** or **backpack**]

<Ryan Rosenberg, Social Science>

18. Answer the following about the mustachioed bandit Veerappan (“VEE-rup-pun”), who evaded capture in the forests of South India for nearly forty years until his death in the 2004 Operation Cocoon, for 10 points each:

[h] Along with ivory, Veerappan’s primary crime was smuggling this good of religious and commercial significance in South India. A still extant soap brand made with this good was established under Krishna Raja Wadiyar IV.

ANSWER: **sandalwood** [or **chandana**, **chandanam**, **gandha**, or **gandham**; accept **sandalwood** oil or Mysore **Sandal Soap**]

[m] In 2000, Veerappan kidnapped Kannada mega-actor Rajkumar as a hostage, demanding that Karnataka relinquish claims to the water of this river. Madras and Mysore signed the first modern agreement on this river’s use in 1892.

ANSWER: **Kaveri** River [or **Cauvery** River]

[e] Veerappan is the foremost South Indian dacoit, a type of bandit more organized than these criminals. The British suppressed these criminals in the 19th century, leading their name to be adopted into English.

ANSWER: **Thugs** [accept **thuggee**]

<Ani Perumalla, World History>

19. In Martin Crimp’s adaptation of this play, the title character bluntly observes that “the misunderstood are not necessarily artists” while ruthlessly criticizing a short play by the critic Covington. For 10 points each:

[e] Name this Molière play. David Ives’s adaptation of this play, *The School for Lies*, inverts its original ending by revealing Célimène to have been faithful to her “cantankerous lover” Alceste all along.

ANSWER: *The **Misanthrope*** [or *Le **Misanthrope***]

[h] Crimp followed his adaptation of *The Misanthrope* with this play. This play centers on a character named Anne, who is variously interpreted as a suicidal “artist,” a terrorist, a particle physicist, and a white-supremacist luxury car.

ANSWER: ***Attempts on Her Life***

[m] In Crimp’s earlier “The Treatment,” Anne uses a fork to stab one of these objects belonging to the street vendor Clifford. In a notorious scene from Sarah Kane’s “Blasted,” a soldier eats some of these objects belonging to Ian.

ANSWER: **eyes** [or **eyeballs**]

<Arya Karthik, British Literature>

20. Productions of this ballet have sometimes included the “Diana and Actaeon pas de deux” excerpted from *Le Roi Candaule* (“luh wah kahn-DOHL”). For 10 points each:

[h] Name this ballet by Cesare Pugni (“CHAY-zah-ray POON-yee”) and Jules Perrot (“zhool puh-ROH”). A variation from a flopped version of this ballet in which the ballerina rhythmically kicks a tambourine is popular in dance competitions and galas.

ANSWER: *La **Esmeralda***

[m] This ballet teacher staged the current “Diana and Actaeon pas de deux” for her production of *La Esmeralda* as a showpiece for Galina Ulanova. This instructor names the ballet method widely taught in Russia.

ANSWER: Agrippina **Vaganova** (“uh-grih-PEE-nuh vah-GAH-nuh-vuh”) [or Agrippina Yakovlevna **Vaganova**]

[e] Marius Petipa’s original staging of the “Diana and Actaeon pas de deux” actually inaccurately paired Diana and Endymion. The same inaccurate pairing is also found in *Sylvia*, a ballet by this composer of *Coppélia*.

ANSWER: Léo **Delibes** [or Clément Philibert Léo **Delibes**]

<Sheena Li, Other Fine Arts>