

Chicago Open 2023

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+ Quasicrystal Silence (Jim Fan, Vittal Bhat, Doug Simons, Vincent Du)

Tossups

1. **Margaret Cavendish defended a version of this view by arguing that the movement of a hand prompts a bowl to move on its own. Mary Astell argued that, if this view is correct, then the “creation of material objects is superfluous” in her correspondence with John Norris. An argument for this position is often described with the slogan “conservation is continuous creation.” In response to Gottfried Leibniz’s claim that this view was a “recourse to a miracle,” a thinker argued in his (*) “elucidations” that God usually acts through general, rather than particular, volitions. Antoine Arnauld criticized that thinker, who defended this view in a book that proposes a theory of “vision in God,” arguing that God mediates perception. For 10 points, the book *The Search After Truth* defends what view championed by Nicolas Malebranche that holds that God is the true cause of all events?**

ANSWER: **occasionalism**

<Caleb Kendrick, Philosophy>

2. **This person financed a series of educational TV specials conceived by and starring Wernher von Braun to promote interest in space travel, including “Man in Space.” This person embarked on a government-funded tour of Latin America while failing to break an acrimonious strike led by Herbert Sorrell, whom this person later accused of communism before HUAC along with William Pomerance and David Hilberman. After reading Alexander P. de Seversky’s theories of (*) strategic bombing, this person produced the propaganda film *Victory Through Air Power*. This person hired New Classical architects like Philip Johnson to design buildings for the planned community of Celebration. This person conceived a utopian city that would fix urban sprawl by replacing cars with PeopleMovers. For 10 points, name this business partner of Ub Iwerks, whose “Imagineers” planned EPCOT.**

ANSWER: Walt **Disney** [or Walter Elias **Disney**]

<Henry Atkins, American History>

3. **Systems that lack this property may have eigenmode crossings at exceptional points, which have been observed in microwave cavities. Bender and Boettcher proved that PT-symmetric systems have a “pseudo” form of this property, a fact used to create “cloaking” gratings and invisible sensors. Many open quantum systems with controlled dissipation can be described by an effective Hamiltonian that lacks this property, breaking probability conservation. Any two-level Hamiltonian with this property can be expressed as a superposition of the identity matrix and the (*) Pauli matrices. If an operator A has this property, then the exponential of i times A is unitary. Observables in quantum mechanics are assumed to have this property, which implies that eigenvalues are real and eigenvectors are orthogonal. For 10 points, name this property possessed by a matrix that equals its conjugate transpose.**

ANSWER: **Hermitian** [or **self-adjoint**; prompt on **conservative** by asking “what property does that imply?”]

<Vincent Du, Physics>

4. This character sends the all-caps message “WE ARE COMING TO GET YOU” after learning of the murder-suicide of two men nicknamed Bouvard and Pecuchet. This character leaves behind a doodle that depicts a man in a dinner jacket having a cup of tea while skydiving. Poor performance at the game of Lupe Velez causes this character to often sleep in a tunnel filled with dogs, including the one-eyed Oyster. This character travels in a patched Condor plane with (*) Shannenhouse in order to kill a German geologist. After the death of his brother, this character joins the navy and becomes a radioman at Kelvinator Station. This former magician escapes Prague in a coffin and falls in love with Rosa Saks in New York. For 10 points, the Escapist is drawn by what illustrator who, in a Michael Chabon novel, works at Empire Comics with his cousin Clay?

ANSWER: Joe Kavalier [or Joe Kavalier or Josef Kavalier] (from *The Amazing Adventures of Kavalier and Clay*)
<Henry Goff, American Literature>

5. Remco Heesen and Liam Kofi Bright admit that the abolition of this process may lead to a “runaway Matthew effect” in a 2021 article titled “Is [this process] a good idea?” John Bohannon wrote a Mad Libs-style Python script to exploit this process in a 2013 exposé titled “Who’s Afraid of [this process]?” In October 2022, mass resignations occurred in response to Michael B. Eisen et al.’s announcement of efforts to weaken and publicize this process at (*) *eLife*. An initial application of this process immediately precedes the second stage in registered reports, which split this process into two parts in order to solve the file-drawer problem. An “open pre-publication” form of this process is facilitated by the arXiv (“archive”) and other preprint servers. For 10 points, a “desk rejection” may occur directly before what process by which researchers verify each other’s work prior to publication?

ANSWER: scholarly peer review [prompt on review or editing; prompt on word forms of publishing by asking “what step of the publication process?”]
<David Bass, Other Academic>

6. For two of these objects X and Y , X is less than Y if X -inverse Y admits a sigma-positive word representation in the Dehornoy (“duh-orn-WAH”) order. A group of these objects can be presented as an ordered set of generators with the relations that non-adjacent generators commute and, for adjacent generators x and y , $x y x$ equals $y x y$; thus, Artin–Tits (“AHR-tin teets”) groups can be seen as “generalized” groups of these objects. The inner automorphism group of a degree-three group of these objects is isomorphic to the modular group. The Markov theorem gives necessary and sufficient conditions for the equivalence of the closures of these objects, which can be used to represent any (*) knot according to Alexander’s theorem. These objects are typically represented as permutations that follow strings whose crossings matter. For 10 points, give these objects named for their representation as interwoven locks of hair.

ANSWER: n -braids [accept answers indicating the elements of braid groups]
<Iain Carpenter, Other Science - Mathematics>

7. After controversial policy moves, this politician often spent weeks giving soothing radio speeches and press releases called “soul-massages.” This politician defied orders by unilaterally lifting price controls on a Sunday, ensuring that OMGUS offices would be closed. This cigar-chomping “Rubber Lion” borrowed a term from the theorist Alfred Müller-Armack as a variant of “ordoliberalism.” This politician’s Atlanticist cabinet collapsed over support for the Vietnam War, leading (*) Kurt Georg Kiesinger to replace this politician as chancellor in a grand coalition with the SDU. This politician unilaterally abolished rationing in the Bizone and introduced the Deutsche Mark before becoming Minister for Economic Affairs. For 10 points, name this CDU architect of the social market economy who oversaw the “Miracle on the Rhine” under Konrad Adenauer.

ANSWER: Ludwig Erhard [or Ludwig Wilhelm Erhard]
<Henry Atkins, European History>

8. During the COVID-19 pandemic, the Duke Piano Area recorded a set of preludes that this composer wrote after failing to place in the Chopin Competition. On his 1992 recording of a piece by this composer whose subject begins “C, long G, C, short G–A–G,” Keith Jarrett played at half speed. In May 2023, Andris Nelsons completed the Boston Symphony’s recording of a cycle of pieces by this composer for Deutsche Grammophon. Tatyana Nikolayeva recorded this composer’s Opus 87 four times, a set of 24 (*) preludes and fugues that he based on her playing *The Well-Tempered Clavier*. This composer parodied Charles-Louis Hanon in a concerto written for his son’s 19th birthday. This composer’s ballet *The Limpid Stream* was labeled a “falsehood” after an episode that led him to recant another piece due to formalism. For 10 points, name this composer attacked in the *Pravda* editorial “Muddle Instead of Music.”

ANSWER: Dmitri Shostakovich [or Dmitri Dmitriyevich Shostakovich] (The pieces in the first clue are his 24 Preludes, Op. 34. The piece in the second clue is the C major fugue from his Op. 87.)
<Vincent Du and Jacob Egol, Classical Music and Opera>

9. A Michael Taussig book presents a fictional museum of this industry to draw attention to historical silence surrounding enslaved gold miners. Terms for this industry obscure its relationship to everyday politics according to a 2022 book arguing that [organizations in it] *Do Not Exist*. After several high-profile members of this industry were photographed wearing them, Ralph Lauren polo shirts became a trendy regional fashion in the 2010s. Members of this industry often collect tolls on a (*) freight train route colloquially known as “The Beast.” It’s not healthcare, but many members of this industry are devotees of Saint Jude and the folk saint Jesús Malverde. Artists like Valentín Elizalde and Chalino Sánchez popularized *norteño* ballads that prefix a term from this industry to “corrido.” For 10 points, enforcers called sicarios work in what industry whose leaders include El Chapo Guzmán?

ANSWER: drug trafficking [or narcotráfico, illegal drug trade, or narcotics; accept cocaine trade, drug cartels, or narcos; prompt on organized crime or gangs] (The first sentence refers to *My Cocaine Museum*. Oswaldo Zavaldá wrote *Drug Cartels Do Not Exist*. The musical genre is *narcocorrido*.)
<Henry Atkins, Geography>

10. In one poem, this author included equations stating that [read slowly] the title place plus the title place equals “a hole in the earth’s aura leaking rivers of madness,” and the title place minus the title place equals “the sun.” This author ended a collection with an elegy that concludes, “Dust, gathering on the seasons’ windowpanes, / covers the mirrors / and collects on your hands.” That collection by this author has sections titled “The Sorcerer of Dust” and “The Knight of Strange Words.” The lines (*) “Up to now, Earth has been drawn as a pear / I mean breast” open a poem by this author whose section addressing Walt Whitman repeatedly declares, “the hour announces the time.” This author made the first complete translation of *The Metamorphoses* into Arabic. For 10 points, “A Grave for New York” and *Songs of Mihyar* are by what Syrian poet with a mythological pen name?

ANSWER: Adunis [or Adonis or Ali Ahmad Said Esber]
<Mitch McCullar, World Literature>

11. *Specific term required.* Ian Hacking’s essay “Making Up People” lists this process as the fifth of ten engines of the title concept, after correlation, and makes reference to the modern conception of child abuse only coming about around 1960. Ivan Illich introduced the sociological term “iatrogenesis” to refer to negative effects of this process. This process is posited as a method of social control in an essay that notes that cross-cultural studies of this process often focus on anorexia in non-Western countries. Peter Conrad’s 1975 book about this process uses the example of (*) hyperkinesis and notes that the prevalence of “hyperkinetic disorder” steadily increased after the discovery of Ritalin. This process targets “deviant behavior” and is sometimes derided as “disease mongering.” For 10 points, name this process by which problems are labeled and treated as medical disorders.

ANSWER: medicalization [or pathologization; accept disease mongering until read; prompt on diagnosis by asking “Increased diagnosis is reflective of what process?”; reject “medication”]
<Ryan Rosenberg, Social Science>

12. This poem is called a “long crazy line of bullshit about death” in an elegy that ends, “I am buried here and sit by my grave beneath a tree.” A collection titled in reference to this poem includes the refrain, “All the way from Akkad, from Elam, from Sumer.” Samuel Beckett’s translation of this poem unusually preserves its rhyming couplets. A stanza of this poem that describes a “flying machine” befriended by “eagle phoenix and Chinese *pihis*” begins with the line, (*) “Christ pupil of my eye.” This poem’s second line calls one landmark a “shepherdess” and compares bridges to a “bleating flock.” This poem’s last line titles a 1948 collection by Aimé Césaire. The line “soleil cou coupé” (“so-LAY coo coo-PAY”) or “sun slit throat,” ends this poem, the first in *Alcools*. For 10 points, a walk through Paris is the subject of what poem by Guillaume Apollinaire?

ANSWER: “**Zone**” (The elegy in the first line is Allen Ginsberg’s “At Apollinaire’s Grave.”)

<Arya Karthik, European Literature>

13. The official Tuōtuō (“twoh-twoh”) resolved a dispute between three factions working in this discipline by sponsoring works from each camp. The merits of *bīānniántǐ* (“byen-nyen-tee”) and *jízhuāntí* (“jee-ch’wen-tee”) are discussed in a work on this discipline by Liú Zhǐjī (“I’yoh chuh-jee”). An apocryphal story about his response to a horse trampling a dog illustrates the stylistic changes implemented in this discipline by Ōuyáng Xiū (“oh-yahng sh’yoh”). One author linked this discipline to (*) astrology by citing the importance of occasions “when the five planets gather.” A work in this discipline from the Hàn Dynasty was produced by three members of the Bān family. The first of a post hoc grouping of 24 texts in this discipline was based on wooden and bamboo documents and was called the *Shǐjì* (“shuh-jee”). For 10 points, a “grand” work in which discipline was written by Sīmǎ Qiān (“suh-mah ch’yen”)?

ANSWER: **history** [accept *lishǐ*, **historiography**, or **biography**; prompt on **politics** or **political science** by asking “from what disciplinary perspective was it studied?”; prompt on **epigraphy** by asking “epigraphy was used as a tool to advance which discipline?”]

<Alex Fregeau, Other History>

14. A di-pinene borane complex of this functional group is commonly used to enantio·selectively add it to aldehydes. Phenyl ethers of this functional group can undergo two consecutive Claisen rearrangements to give a *para*-substituted phenolic product. Nucleophilic addition to this functional group can proceed with inversion or retention of configuration based on the hardness of the nucleophile in one reaction, which proceeds through formation of a “pi”-[this functional group] complex with a (*) palladium(0) catalyst. The beta-silicon effect stabilizes a carbo·cation intermediate in the addition of this functional group to a carbonyl in the Hosomi–Sakurai reaction. The presence of an alcohol [emphasize] *geminal* to one of these groups is essential for the Sharpless asymmetric epoxidation. For 10 points, name this functional group that consists of a methylene group adjacent to an alkene.

ANSWER: **allyl** [prompt on **crotyl**; reject “alkene,” “vinyl,” or “olefin”]

<Vittal Bhat, Chemistry>

15. With government support, a Portuguese company in this industry, HCB, forced farmers off their land and into barbed wire-enclosed settlements called *aldeamentos*. Starting in 1958, Rupert Fothergill led a six-year campaign to combat this industry’s environmental impact. In 2002, the Basilwizi Trust was founded to aid those harmed by this industry such as the Tonga people. A facility used for this industry was created with funding from VALCO and was called the “dearest dream” of a leader given a title meaning (*) “redeemer.” Mobutu Sese Seko took a seven percent kickback from a roughly one billion dollar project in this industry that supported mining in Shaba. The American Kaiser Aluminum Company helped fund a project in this industry on the Volta River. For 10 points, name this industry for which the Kariba, Cahora Bassa, and Akosombo Dams were built.

ANSWER: hydro**electricity** [or **power** or **energy**; prompt on any kind of **mining** until “mining” is read by asking “what other industry supported mining with its projects?”; prompt on **creating dams**, **engineering**, **construction**, or other similar answers by asking “for what industry was that project created?”]

<Justin Wytmar, World History>

16. Hercle, Kerberos, and Leinth flank this concept's goddess in a Perugian mirror. The Shefton Collection owns a John Ruskin-owned statue of this concept's personification standing on a globe that was discovered at Corfu's Kardaki temple. A Volterra bronze mirror depicts this concept's Etruscan goddess, Mean ("MAY-an"), attending to Uni as she suckles Hercle. The Sabine goddess Vacuna was identified with this concept whose Greek statues transitioned from a (*) "kneeling run" to an alighted pose with flowing drapery, as seen in Paionios's depiction. The usurper Eugenius restored an altar to this concept that commemorated the Battle of Actium within the Roman Senate House. Zelus, Bia, and Kratos were the siblings of this concept's personification, who was held in the Athena Parthenos's right hand. For 10 points, Roman spandrels often depicted "winged" motifs of what concept personified by Nike?

ANSWER: victory [accept Victoria; accept Altar of Victory; accept Nike until read; accept Athena Nike until "Nike" is read]

<Kevin Thomas, Beliefs>

17. A poem that begins "Methodic discord startles..." accompanies six abstract lithographs inspired by this group and created by David Bomberg. A nanny appears in a portrait of this group's founder that was created by an artist from whom this group also commissioned an illustration of a man surrounded by a wispy blue fabric. Rich watercolors were created for this group by *Mir iskusstva* cofounders Alexandre Benois and Leon Bákst. Onion domes litter a *lubok*-inspired backcloth created for this group by Natalia (*) Goncharova. A fairy stands on a winged mare amongst a group of acrobats in a commission for this group by Pablo Picasso, who created Cubist-inspired costumes for them. This group put on a 1913 *succès de scandale* in Paris for which Nicolas Roerich designed ancient Slavic folk dresses. For 10 points, many modernist artists created designs for what ballet troupe founded by Sergei Diaghilev?

ANSWER: Ballets Russes ("BAH-lay rooss") (The second line refers to Leon Bákst and his program for *Afternoon of a Faun*.)

<Vincent Du, Visual Fine Arts>

18. After his wife passed, a photographer from this country took many melancholy still-lives of glass ornaments and vases with an SX-70 gifted to him by Polaroid. A photographer born in this country took many surreal nudes in 1933's *Distortion* series, as well as *The Fork* and *Mondrian's Glasses and Pipe*. That photographer's nighttime photos of the Seine ("sen") inspired a younger street photographer born in this country who was nicknamed the "eye of Paris" by his friend, Henry (*) Miller. That photographer captured a cobblestone road gleaming with rain for the cover of his book *Paris By Night*. A photographer [emphasize] born in this country who was killed in French Indochina captured the D-Day landings in *The Magnificent Eleven* and a Republican soldier being shot in *The Falling Soldier*. For 10 points, name this home country of Brassai ("brah-sah-EE"), André Kertész ("KEHR-tayss"), and Robert Capa.

ANSWER: Hungary [or Magyarország]

<Vincent Du, Other Fine Arts>

19. A woman in this novel writes a letter declaring, "I wish I weren't as strong as a horse," and observing, "I've caught belief like a disease. I've fallen into belief like love." In this novel, a woman's diary entries compare married life to a "desert" and describe a dream of ascending a flooded staircase. Paralleling a scene in a film that he wrote, a man in this novel falls in love with a woman when she eats some (*) onions, even though her husband hates their smell. This novel's narrator calls it "a record of hate far more than of love." After a woman in this novel dies from pneumonia, the liver-spots on the cheek of the militant atheist Smythe ("smith") are healed. This novel's title event occurs when a woman makes a desperate deal with God after her lover is nearly killed by a V-1 rocket during the Blitz. For 10 points, name this novel about the relationship between Sarah Miles and Maurice Bendrix, the last "Catholic novel" by Graham Greene.

ANSWER: *The End of the Affair*

<Henry Goff, British Literature>

20. The adjectival form of this word partly names a phenomenon in which aberrant blood vessels, like the inferior vein of Sappey, produce perfusion abnormalities. By the Couinaud (“kwee-NOH”) classification, this word designates the left lateral inferior segment. The oxygen-deprived metabolic “zone” with this designation has the highest concentration of cytochrome P450 enzymes. The intercompartmental shift that produces ascites is an example of fluid (*) “spacing” named for this number. The Pringle maneuver clamps down this many structures passing through the hepatoduodenal ligament. Each corner of a hexagonal liver lobule contains a total of this many combined bile ducts and blood vessels. This is the typical number of hepatic veins that drain the liver. For 10 points, gluconeogenesis in the liver begins with a molecule containing how many carbon atoms?

ANSWER: **three** [or **third**; accept **third** inflow, segment **3**, or **third** spacing; accept portal **triad**]

<Itamar Naveh-Benjamin, Biology>

Bonuses

1. *Two answers required.* Jeanette Mageo analyzed a story of a woman named Leutogi (“lay-oo-TOH-ghee”) from one of these two archipelagos as a tale of historical economic and symbolic resistance against the power of the other. For 10 points each:

[h] Name these two island chains. An early modern empire in one of these island chains was governed from Mu’a, while the other’s island of Upolu named a line of chiefs in the former.

ANSWER: **Tonga** AND **Samoa** [accept Kingdom of **Tonga** or Pule’anga Fakatu’i ‘o **Tonga** in place of “Tonga”; accept Independent State of **Samoa** or Malo Sa’oloto Tuto’atasi o **Sāmoa** in place of “Samoa”]

[e] Leutogi’s second husband was a man from this country, which was tied with Tonga and Samoa through trade and elite marriage. The British brought thousands of Indians to this country to work on sugar plantations on Viti Levu.

ANSWER: **Fiji** [or Republic of **Fiji**, Matanitu Tugalala o **Viti**, or **Fiji** Gaṇarājya]

[m] Leutogi’s return to Samoa from Fiji represents access to this resource without Tongan mediation. In Hawai’i, this resource was used to make ‘ahu’ula and mahiole used by the elite ali’i class.

ANSWER: **feathers** [or **down**; accept **feathers** from any native birds of Hawai’i or Fiji such as, but not limited to, sega, ‘i’iwi, ‘ō’ō (any type), ‘apapane, Hawaiian mamo, woowoo, or lorikeet; prompt on **birds**]

<Justin Wytmar, World History>

2. *Description acceptable.* The title figure of the *Mwindo* epic punishes Kasiyembe for setting up traps to ruin a dance contest by performing this action to him. For 10 points each:

[m] Name this occurrence that, in the *Aeneid*, is seen as an omen of better days to come when it afflicts both Ascanius and Lavinia. Servius Tullius resists this occurrence, which was seen as a portent for his future kingship.

ANSWER: **hair** set on **fire** [accept descriptions that indicate one’s **hair** being lit on **fire** or **burning**; accept answers that indicate a ring or tongue of **fire** on one’s **hair**; accept **head** in place of “hair”; prompt on being set on **fire** by asking “what body part is on fire?”]

[h] In his quest for revenge against his father, Mwindo is forced to grow a banana forest and harvest honey from an unyielding tree for this god of death, who repeatedly sends a cowrie shell belt that fails to strangle Mwindo.

ANSWER: **Muisa**

[e] The last deity to protect Mwindo’s father is a god of this domain who loses a gambling contest for his kingdom. This domain is ruled by Olorun and Nyame, who gives the stories of the world to Anansi.

ANSWER: **sky** [or the **heavens**; accept **Sky** God]

<Ganon Evans, Beliefs>

3. This astronomer was the principal investigator on the largest project in the history of the Hubble Space Telescope, the CANDELS project. For 10 points each:

[m] Name this leader of the “Seven Samurai.” With a graduate student, this astronomer proposed that galactic luminosity scales approximately with the fourth power of the stellar velocity distribution in elliptical galaxies.

ANSWER: Sandra **Faber** [or Sandra Moore **Faber**]

[e] After the Hubble launch, Faber correctly diagnosed a 2-millimeter defect of this type in one of the mirrors. This phenomenon causes blurriness in lenses and curved mirrors.

ANSWER: **spherical aberration** [prompt on **aberration**]

[h] In a seminal paper, Faber analyzed data from dwarf spheroidal galaxies to show that dark matter did not mainly consist of neutrinos with this property. Particles with this property propagate through a medium without scattering.

ANSWER: **free streaming**

<Iain Carpenter, Astronomy>

4. The FBI launched a probe into this gangster dubbed Operation White Suit after he wore a white suit to the funeral of Allen Leung, whom he likely murdered. For 10 points each:

[h] Name this Chinatown gangster who succeeded Leung as head of the Ghee Kung Tong, which he led until his 2014 arrest for racketeering.

ANSWER: “**Shrimp Boy**” Chow [or Raymond Kwok-Cheung **Chow**]

[m] “Shrimp Boy” Chow was arrested in an FBI dragnet that also arrested state senator Leland Yee for a plot to sell the Italian mafia weapons purchased from this Islamic terrorist group, which split in the 1980s from the MNLF.

ANSWER: **Moro Islamic Liberation Front** [or **MILF**; accept **Bangsamoro Islamic Armed Forces**]

[e] As head of the Ghee Kung Tong, “Shrimp Boy” Chow repeatedly tried to get photo-ops with this then-mayor of San Francisco, whom was succeeded by Ed Lee in 2011 after he stepped down to become lieutenant governor.

ANSWER: Gavin **Newsom** [or Gavin Christopher **Newsom**]

<Caleb Kendrick, Modern World>

5. In a putative invocation of Plato’s cave allegory, this poem describes a “legion of wild thoughts” that “rest... in the still cave of the witch Poesy” and “seek... ghosts of all things that are.” For 10 points each:

[m] Name this Percy Shelley poem that opens by comparing the “feeble brook” of “human thought” to “the everlasting universe of things,” which is said to “flow through the mind” and “roll its rapid waves.”

ANSWER: “**Mont Blanc**: Lines Written in the Vale of Chamouni”

[h] In a scene from this poem by a different author, the speaker is said to have “grieved” after having “first beheld” Mont Blanc, since “a soulless image on the eye” had “usurped upon a living thought / That never more could be.”

ANSWER: *The **Prelude**, Book VI* (by William Wordsworth)

[e] One of seven spirits declares Mont Blanc “the monarch of mountains” by virtue of its “throne of rocks,” “robe of clouds,” and “diadem of snow” at the beginning of this author’s verse drama *Manfred*.

ANSWER: Lord **Byron** [or George **Gordon**, Lord Byron]

<Arya Karthik, British Literature>

6. A Helvetica-loving designer with this surname created the US National Park Service’s “unigrid” brochures, whose covers display the park’s name on a black bar above a wide shot depicting them. For 10 points each:

[h] Give this surname of the husband-and-wife Modernist designers of the only calendar in the MoMA, the Stendig. One of those designers with this surname used right angles for a 1972 New York subway map reviled by its riders.

ANSWER: **Vignelli** (“veen-YELL-ee”) [accept Massimo **Vignelli** or Lella **Vignelli**]

[e] The Vignellis’ stacking Handkerchief model of these furniture items was among the many varieties manufactured by Knoll, Inc., such as the Barcelona type designed by Lilly Reich and Ludwig Mies van der Rohe.

ANSWER: **chairs** [accept Handkerchief **chair** or Barcelona **chair**]

[m] Massimo Vignelli used red font for the left half and blue font for the right half of his 1967 logo for one of these companies. A now-defunct one of these non-governmental companies had a logo nicknamed the “blue meatball.”

ANSWER: **airline** [accept American **Airlines**, Pan-Am **Airlines**, or Pan-American **Airlines**]

<Ani Perumalla, Other Fine Arts>

7. Radhika Govindrajan's *Animal Intimacies* studies interspecies instances of this concept in Uttarakhand ("oo-tuh-RAH-kund"), exemplified by *pahari* relationships with goats, monkeys, and others. For 10 points each:

[h] Name this concept that Janet Carsten introduced to kinship studies. It describes the lived experience of kinship via interactions like care and labor, violence, and sharing of natural resources.

ANSWER: **relatedness**

[e] A chapter in *Animal Intimacies* contrasts villagers' relationship to local animals of this species with their relationship to those imported from Jersey, and discusses how a BJP ban led to an underground trade in these animals for slaughter.

ANSWER: **cows** [or **goru** or **gau** mata; accept **bovines**; prompt on **cattle**; reject "bulls"]

[m] Govindrajan's multispecies ethnography draws from the work of these two UC Santa Cruz scholars, who over the past decade have developed theories of the Plantationocene as a term for our current age. Name either of them.

ANSWER: Donna **Haraway** AND Anna **Tsing** [accept Donna Jeanne **Haraway** in place of "Donna Haraway"; accept Anna Lowenhaupt **Tsing** in place of "Anna Tsing"]

<Vincent Du, Social Science - Anthropology>

8. A protest in Hviezdoslav ("hv'YAYZ-daw-slahv") Square in this city occurred on the same day as another seeking the release of Ján Čarnogurský ("yahh char-naw-GOOR-skee"). For 10 points each:

[m] Name this city where the political movement Public Against Violence was founded with members like Milan Kňažko ("k'NYAHZH-kaw") and Vladimír Mečiar ("MAY-ch'yar") as a counterpart to another city's Civic Forum.

ANSWER: **Bratislava** [or **Pressburg** or **Pozsony**]

[e] The activism of Bratislava's Public Against Violence and Prague's Civic Forum helped bring about the end of Czechoslovakia's Communist regime and the election of this Czech writer as the country's first president.

ANSWER: Václav **Havel** ("VAHT-slahv HAH-vel")

[h] Drahomíra Dražská ("drah-ho-MEE-rah DRAHZH-skah") invented the story of this fake Czech student's death during a protest in Prague. Radio Free Europe broadcast his death as a true story, rallying support for the anti-communist cause.

ANSWER: Martin **Šmíd** ("shmeed")

<Jim Fan, European History>

9. In a poem, a man with this profession dreams that a nighttime carriage ride takes him to the battleship *Sevastopol*, whose crew forces him to operate "the device that is used to power naval ships." For 10 points each:

[h] Certain objects are called "so heavy they should be rushed / to Padua's mineralogical institute for analysis" in a poem that centers on "a father-in-law and a son-in-law" with what profession?

ANSWER: **composer** [prompt on **musician**]

[e] Tomas Tranströmer's poem "The Sorrow Gondola (no. 2)" imagines this composer and his father-in-law visiting the Grand Canal. This composer called poetry a "lonely, sullen sister" in his essay "The Artwork of the Future."

ANSWER: Richard **Wagner** [or Wilhelm Richard **Wagner**]

[m] A section of this long Tranströmer poem tells the story of an unnamed composer who keeps writing music even after suffering a stroke. This poem, which is titled for a sea, begins "It was before the time of radio masts."

ANSWER: **Baltics** [or **Östersjöar**] (Tranströmer suffered a stroke himself 16 years after writing *Baltics*. After a protracted convalescence, he then published *The Sorrow Gondola*.)

<Henry Goff, European Literature>

10. Pages of memory with this property are swapped between RAM and disk according to cache replacement algorithms that are commonly variants of Least Recently Used, or LRU. For 10 points each:

[e] Name this property of memory that, while appearing to applications as a single contiguous range, is really an OS abstraction over a combination of noncontiguous physical memory blocks and swapped-out pages.

ANSWER: **virtual** memory

[m] An inappropriate cache replacement algorithm might contribute to this situation, in which a processor's collective working set is too large, causing excessive swapping of pages in and out of memory and greatly hindering its usable capacity.

ANSWER: **thrashing**

[h] *Description acceptable.* One could minimize page faults and thus thrashing, all else being equal, by using Bélády's impossible but theoretically optimal page replacement algorithm, which evicts the item with this property.

ANSWER: the page that **will be used farthest in the future** [accept equivalent descriptive answers like "the page with the **latest expected access time**"]

<Alistair Gray, Other Science - Computer Science>

11. Boy Scouts painted thousands of messages against this practice on the sidewalks of Cincinnati in one night in 1916. For 10 points each:

[h] Name this practice, which Senator Thomas H. Carter was fined for doing in public in Helena. This practice could involve the use of a cuspidor.

ANSWER: **spitting** [or **expectorating**; accept word forms]

[e] One goal of the early 20th-century anti-spitting campaign was to curtail this disease. "Lungers" ("lung-ers") with this disease flocked to Colorado's fresh air to treat it, granting the state the nickname of the "World's Sanitorium."

ANSWER: **tuberculosis** [or **TB**; accept **consumption**]

[m] A city in this state was the first in the US to impose anti-spitting laws, while another city there levied fines as high as 25 dollars for spitting. In 1858, protesters attacked a health facility near Tompkinsville in this state, named for James Monroe's vice president Daniel Tompkins.

ANSWER: **New York** [or **NY**]

<Alex Fregeau, US History>

12. An epiphany causes Nessa to lose her obsession with this author in a Robert McGill story that uses this author's name 127 times, titled "Something Something [this author]." For 10 points each:

[e] Name this Nobel laureate whose short story collections include *Hateship*, *Friendship*, *Courtship*, *Loveship*, *Marriage* and *The Moons of Jupiter*.

ANSWER: Alice **Munro** [or Alice Ann **Munro** or Alice Ann **Laidlaw**]

[h] In this story from *Hateship*, the narrator offends her elderly cousin Alfrida by turning an anecdote about her mother's death into a published story. This story titles an anthology of Munro's work from 1995 to 2014.

ANSWER: "**Family Furnishings**"

[m] Munro was good friends with Margaret Laurence, whose most widely read novel is titled for an angel of this substance. Carol Shields presented a novel as the diaries of Daisy, whose mother has this substance as a surname.

ANSWER: **stone** [accept *The **Stone Angel***; accept *The **Stone Diaries***; reject synonyms like "rock"]

<Mitch McCullar, American Literature>

13. This phenomenon is described by namesake “tables” in the Kazusa DNA Research Institute’s CUTG database and George Washington University’s HIVE-CUTs database. For 10 points each:

[h] The “chips” tool in EMBOSS calculates the N_c statistic to measure this phenomenon for a gene that is also measured by an “adaptation index” that equals [read slowly] the product of ratios of observed frequencies to maximal frequencies, all to the power of one over a measure of length.

ANSWER: **codon usage bias** [prompt on usage **bias**; prompt on codon **usage** by asking “what feature of codon usage?”] (The statistics are effective number of codons and codon adaptation index, respectively.)

[m] Recording codon usage requires determining this region of the genome from among six choices for a given sequence. These regions that extend from a start codon to a stop codon are detected by a namesake “Finder” tool.

ANSWER: open **reading frames** [or **ORFs**; accept **ORF Finder**]

[e] Codon usage bias exists due to this phenomenon by which multiple codons code for the same amino acid.

ANSWER: codon **degeneracy** [or codon **redundancy**; prompt on **wobbling** or **wobble** base pairs or **wobble hypothesis** by asking “what phenomenon is enabled by the existence of wobble base pairs?”]

<David Bass, Biology>

14. The essay that defines these “placeless places” distinguishes between “crisis” ones like hotel rooms and boarding schools and “deviant” ones like prisons and rest homes. For 10 points each:

[h] Name these places, which the essay “Of Other Spaces” defines as a “real site” where “all other real sites can be found within the culture” and “are simultaneously represented, contested, and inverted.”

ANSWER: **heterotopias** [or **hétérotopie**]

[e] Michel Foucault states that heterotopias “undermine language” in the preface to this book, which opens with a description of *Las Meninas*.

ANSWER: *The **Order of Things**: An Archaeology of the Human Sciences* [or *Les **mots et les choses**: Une archéologie des sciences humaines*]

[m] Edward Soja’s (“SOH-juh’s”) thirdspace theory integrates Foucault’s theory of heterotopias with this other French thinker’s tripartite theory of space from his book *The Social Production of Space*.

ANSWER: Henri **Lefebvre** (“luh-FEV-ruh”)

<Mitch McCullar, Philosophy>

15. Turquoise frames an intensely blue example of these structures in the *iwan* at the entry of the Shah Mosque in Isfahan. For 10 points each:

[m] Name these honeycomb-shaped vaults common throughout Islamic architecture. These structures consist of small cells called alveoles and they are often used to decorate mihrabs.

ANSWER: **muqarnas-hâ** [accept **mocárabes** or **ahoopai**]

[h] This contemporary Iranian artist’s characteristic mirror mosaics were inspired by the muqarnas at the Shah Cheragh Mosque in Shiraz. Her sculpture *Untitled (Muqarnas)* is currently located in the High Museum of Art.

ANSWER: Monir Shahroudy **Farmanfarmaian** (“fahr-mon-fahr-mye-ON”) [or Monir **Shahroudy**]

[e] The archways in the Court of Lions and the Hall of Kings in the Palace of Lions at this fortress in Granada are dominated by elaborate muqarnas.

ANSWER: **Alhambra** [accept **al-hamrā’**]

<Iain Carpenter, Visual Fine Arts>

16. Roles of this type include dignified, “verdant-clad” *qīngyī* (“ching-yee”), a specialty of the iconic performer Méi Lánfāng. For 10 points each:

[e] *Dàn* roles in Chinese opera have what characteristic? Elizabethan acting troupes usually had adolescent boys play these roles.

ANSWER: **female** roles [accept equivalents such as **women**’s roles; accept **cross-dressing** roles, although this is no longer typically true in Chinese opera; reject “trouser roles”]

[h] The costumes of dignified *dàn* roles such as *qīngyī* typically include these long accessories. Many Chinese opera traditions include difficult dances in which performers “flick” these accessories.

ANSWER: **water sleeves** [or **shuǐxiù** (“shway-shyoh”); prompt on **sleeves**]

[m] One of Méi Lánfāng’s signature roles was as a monologuing, “drunken” one of these people named Yáng Yùhuán. In another classic opera, one of these people commits suicide with Xiàng Yǔ (“shyahng yu”) after Xiàng’s defeat by Liú Bāng.

ANSWER: **concubine** [or **consort**; accept *The Drunken Concubine*; accept *Farewell, My Concubine*; prompt on **lady**]

<Henry Atkins, World Literature>

17. John Playford is credited with coining the name for this type of piece, which Thomas Brewer may have invented with “Turn, Amaryllis, to thy Swain.” For 10 points each:

[h] Name this type of part song. One of these songs called “Glorious Apollo” was the theme of an ensemble named after these songs, which met at London’s Newcastle Coffee House.

ANSWER: **glees** [accept **glee** clubs]

[e] Many glees are characterized by their use of this voice part. This nonstandard male voice type overlaps with a mezzo soprano and sings almost exclusively in falsetto.

ANSWER: **countertenor** [or **contratenor**; reject “tenor”]

[m] The glee’s bawdier counterpart was a type of these songs called a catch. An early one of these songs whose manuscript was discovered in Reading (“RED-ing”) Abbey tells a cuckoo to sing loudly to herald the arrival of the title season.

ANSWER: **round** [or **perpetual canon** or **infinite canon**; prompt on **canon**; prompt on **rota** by asking “a rota is a form of what broader type of song?”] (The unnamed round is “Sumer is icumen in.”)

<Iain Carpenter, Classical Music and Opera>

18. The festival of Navarātrī traditionally prohibits the consumption of these plants, which are said to fuel mental lethargy and carnal desire. For 10 points each:

[m] Name this genus or any of its specific members, whose strongly flavored examples are known as the “five pungent roots” in *shōjin ryōri*. Naivedya offerings prohibit the usage of these plants during their preparation.

ANSWER: **allium** [accept specific members like **onion**, **garlic**, **leek**, **chive**, **scallion**, or **shallot**]

[h] In Hinduism, alliums like garlic and onion are associated with this concept, which is contrasted with stimulating foods and easily digestible ones. This guna is associated with dullness and inactivity in the *sāṃkhya* school.

ANSWER: **tamas** (“TUH-muss”) [accept **tāmasic**] (The other two food categories are associated with rajas and sattva respectively.)

[e] A belief in the tāmasic (“TAH-muh-sik”), sāttvic (“SAHT-vik”), and rājasic (“RAH-juh-sik”) food groups is prevalent in this ancient alternative medicine system practiced throughout India.

ANSWER: **Āyurveda** [or **Ayurvedic** medicine]

<Vittal Bhat, Beliefs>

19. Tissue imaging with minimal sample damage can be achieved using this technique's "static" mode, which most often employs a low-power caesium or gallium beam. For 10 points each:

[h] Name this technique whose static mode provides spatially resolved monolayer compositional information, a capability its small-molecule counterpart lacks.

ANSWER: **secondary ion mass spectrometry** [or **SIMS**; accept **TOF-SIMS**; prompt on mass spectrometry or MS]

[e] Dynamic secondary ion mass spectrometry is a powerful technique for profiling with respect to this parameter.

Argon sputtering in XPS allows for compositional measurement with respect to this physical parameter.

ANSWER: **depth** [or **height** or **z-axis**; accept **depth profiling**]

[m] To avoid contamination of the SIMS vacuum environment, biological samples are often prepared in this manner.

Electron microscopy of biological samples often uses this technique to avoid sample damage and preserve native structures.

ANSWER: **freezing** [or **cryopreservation**]

<Vittal Bhat, Chemistry>

20. Those who supported strict adherence to this naval tactic came to be known as "formalists" and were the dominant school of thought in British Naval warfare until the 18th century. For 10 points each:

[m] Name this naval tactic that maximized cannon firing rates and prevented friendly fire. A class of warships from the 17th-18th centuries were named for and specifically designed to use this tactic.

ANSWER: **line** of battle [or ship-of-the-**line** tactics or **line**-ahead battle]

[h] This naval commander was purportedly the first to deliberately use line of battle tactics in a crushing defeat of the Spanish navy at the 1639 Battle of the Downs. This commander died while fighting the British at the Battle of Scheveningen.

ANSWER: Maarten **Tromp** [or Maarten Harpertszoon **Tromp**]

[e] Admiral Nelson defied conventional line of battle tactics at this 1805 battle, where he charged the French line in two columns and split it into three parts before decimating the middle section of the line.

ANSWER: Battle of **Trafalgar**

<Jim Fan, Other History>