

Chicago Open 2023

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Editors 3

Tossups

1. *Description acceptable.* This location's gates were guarded by two twins who "tear out the heart and compress the kidneys" while chopping up passersby. It's not a mountain range, but a trio of mountaintops are depicted in a pictograph representing this location, which was home to a god whose name translates to "An's canal inspector." The ability to obtain water in this location is dependent on the amount of children one has. A deity learned the secrets of sex after tasting the fruits of this location. Kakka decreed that a god must stay in this location after he made love to its ruler for (*) 7 days. A hero dropped his *pukku* and *mikku* into this location, whose residents include the *galla* and *Neti*. The *abzu* resides above this location, where a proud goddess once rotted on a hook on the Annunaki's orders during her descent. For 10 points, dust and clay are consumed by the residents of what realm ruled by Nergal and Ereshkigal?

ANSWER: ancient **Mesopotamian underworld** [accept **Akkadian**, **Sumerian**, or **Babylonian** in place of "Mesopotamian"; or **Kur**, **Irkalla**, **Kukku**, **Arali**, **Kigal**, or **Eretsu**; accept **kur-nu-gi-a**; prompt on **underworld**, **netherworld**, or **hell** by asking "which culture's underworld/netherworld/hell?"] (The twins are Meslamta-ea and Lugal-irra; "An's canal inspector" is Ennugi/Gugalanna; the proud goddess is Ishtar.)

<Kevin Thomas, Beliefs>

2. This author describes how "The names of seashore towns run out to sea, / the names of cities cross the neighboring mountains" in a poem that opens "Land lies in water; it is shadowed green." This author observes a lit-up city as "bright turgid blood" and "green and luminous / silicate rivers" in a poem set at night in an overhead plane. A collection by this poet opens with question-and-answer lessons from a 19th century textbook, such as "*What is the (*) Earth?* / The planet or body on which we live." In a poem by this author that repeats the date "February 1918," the speaker looks at photographs of a volcano and "horrifying" breasts while reading *National Geographic* in a dentist's office. For 10 points, name this poet whose collection *Geography III* contains "In the Waiting Room" and the villanelle "One Art."

ANSWER: Elizabeth **Bishop** (The first two poems are "The Map" and "Night City.")

<Henry Atkins, American Literature>

3. *Two answers required.* After the vascular supply to both of these organs is ligated, a splenectomy is performed in the Sugiura procedure. Tumors affecting the interface between these organs are categorized as type II by the Siewert classification. A Heller myotomy can correct a condition in which the dilation of one of these organs tapers in a "bird's beak" pointed towards the other. The junction between these organs is narrowed by a (*) Nissen fundoplication. The mucosa of these organs transitions at the Z-line, which is the region most vulnerable to Mallory–Weiss tears. A substance released by one of these organs can produce salmon-colored patches in the other. H2 blockers are less effective than omeprazole ("oh-MEP-ra-zol") in managing a condition involving these organs that, when left untreated, can cause a metaplastic change named for Norman Barrett. For 10 points, acid can reflux between what two digestive organs?

ANSWER: **esophagus** AND **stomach**

<Itamar Naveh-Benjamin, Biology>

4. In one essay, this author describes a fishpond containing “dace that darted to and fro” and a “great sulky pike hanging midway down the water.” This author notes “she woundeth and excoriateth the lips that approach her—like lovers’ kisses she biteth,” in a mock-heroic evaluation of the taste of pineapple. In arguing that “One would not, like Lear, ‘give everything,’” this author tells of how they regretted giving a beggar a (*) “plum-cake” their aunt made for them. A reverie is interrupted by the declaration, “The children of Alice call Bartrum father,” in this author’s essay “Dream-Children.” This author asks whether it is morally justified to whip an animal to death to improve its flavor at the end of an essay in which the Chinese cowherds Bo-bo and Ho-ti repeatedly burn down their hut to make the title food. For 10 points, name this author, who used the pseudonym Elia to write “A Dissertation Upon Roast Pig.”

ANSWER: Charles **Lamb**

<Arya Karthik, British Literature>

5. A cartographic school working in this language is noted for its lack of interest in areas outside its cultural zone and produced works like *Routes of the Realm* and *Pictures of the Climates*. A scholar who primarily wrote in this language hypothesized the existence of a continent between Europe and Asia after calculating the radius of the earth from measurements taken in the Salt Ranges. *The Wonders of Creatures* was written in this language, which describes a ferocious, one-horned rabbit given to (*) Alexander the Great. Texts in this language describe an Indian Ocean island containing trees that grow people. This is the language of the *Tabula Rogeriana*. The island of Waqwaq was written about in this language. A 9th- and 10th-century “translation movement” brought the works of Ptolemy into this language. For 10 points, name this language of most of the scientific texts of the House of Wisdom.

ANSWER: **Arabic** [or al-‘**arabiyah** or ‘**arabi**] (The school in the lead-in is the Balkhi School.)

<Alex Fregeau, World History>

6. In a different artist’s letters, this painting is compared to François Coppée’s poem “Douleur Bercée” (“doo-LURR burr-SAY”) as an example that its artist could “make poetry — be a poet.” Jacob Zwarts argued that this painting’s subjects were intended to appear on the cover of a Spanish poetry collection by Miguel Barrios. This painting shares its title with a tronie whose subject wears large pearl earrings and rests her hands on a black picture frame on the bottom. Vincent van Gogh claimed he would give up 10 years of his life to spend two weeks viewing this painting with (*) “only a dry crust of bread to eat.” The art dealer Adriaan van der Hoop’s interpretation of a gifted necklace is the source of this 1667 painting’s common, but inaccurate title. A man in bright gold places his hand over the chest of a younger woman in a red dress in this Rijksmuseum mainstay. For 10 points, Isaac and Rebecca are the likely subjects of what tender painting by Rembrandt?

ANSWER: *The **Jewish Bride*** [or *Het **Joodse bruidje***; accept *Portrait of a Couple as **Isaac and Rebecca*** or ***Isaak en Rebekka*** until “Isaac” is read]

<Ganon Evans, Visual Fine Arts>

7. *Two answers required.* Assuming that the number of particles is a continuous quantity yields these two scientists’ approximation for the degeneracy of energy states in a gas in a box. An ODE named for these scientists models charge density of positive ions when charge vanishes at finite radius and neutral atoms when charge vanishes only asymptotically. When the ratio of the wave vector to a quantity named for one of these scientists vanishes, the long-distance limit of Lindhard theory named for these scientists applies. A model named after these scientists predicts that kinetic energy is proportional to the integral of electron density to the five-thirds power. A predecessor to (*) DFT is a semiclassical model of electronic structure of many-body systems named for these scientists. For 10 points, name these two physicists, one of whom names a type of special relativistic precession, and the other of whom names a national lab in Batavia, Illinois.

ANSWER: Llewellyn **Thomas** AND Enrico **Fermi** [accept Llewellyn Hilleth **Thomas** in place of “Llewellyn Thomas”; accept **Thomas–Fermi** model, **Thomas–Fermi** screening length, **Thomas–Fermi** approximation, **Thomas–Fermi** equation, or **Thomas–Fermi** screening; prompt on **TF** model]

<Geoffrey Wu, Physics>

8. **Members of this family made a series of tontines, or “mortality lotteries,” with fellow “Musketeer” Bill Frohlich. In the 1950s, a member of this family bribed the official Henry Welch while pioneering a form of direct marketing at the advertising firm William Douglas McAdams. A secretary with the pseudonym “Ann Hedonia” scoured internet forums for this family, as disclosed in a 2021 book by Patrick Radden Keefe. Laura Poitras’s documentary (*) *All the Beauty and the Bloodshed* recounts protests against this family by Nan Goldin’s P.A.I.N. Group. This family, who names an Asian art gallery in DC that’s adjacent to the Freer Gallery, paid \$6 billion in a 2022 settlement that reorganized their company into the public-benefit corporation Knoa. For 10 points, a wing at the Met was formerly named after what family profited off the spread of OxyContin as owners of Purdue Pharma?**
ANSWER: **Sackler** family [accept specific family members such as Arthur **Sackler**] (Patrick Radden Keefe’s book is *Empire of Pain*.)
<Tim Morrison, Modern World>

9. **The widespread use of black pepper in place of these objects in Renaissance Germany led to people in a certain profession being called “peppermen.” Edward I began a tradition in which these objects underwent trial by jury, the Trial of the Pyx. After adapting a top-secret process learned by Aubin Olivier (“oh-BAN oh-leev-YAY”) in Augsburg, Eloy Mestrelle introduced machine-made or “milled” versions of these objects to England. Henry VIII secretly ordered the production of shoddy types of these objects called (*) testoons. Most European countries were unable to produce these objects during a 15th-century “Great Famine” largely weathered by Venice and Portugal. Production of these objects resumed when transatlantic trade began from new sources like Zacatecas and Potosí. For 10 points, fraudsters clipped what objects, which in Renaissance Europe included groats, guilders, and florins?**
ANSWER: **coins** [accept **currency**, **money**, silver **coins**, or gold **coins**; accept specific coins such as **pennies**, **sovereigns**, or **livres**; prompt on **bullion**, precious **metals**, **silver**, or **gold**]
<Henry Atkins, European History>

10. **The Clayton canonical vine copula can be used to minimize these constructs’ CVaR when regime switching occurs. According to Roll’s Critique, an all-encompassing example of these constructs is unobservable. A continuous-time case of a problem concerning these constructs was created by Robert C. Merton, who also analytically proved the separation theorem of these constructs by explicitly deriving their (*) efficient frontier. A defensive exposure strategy for these constructs can use factor rotation. A common method for optimally allocating these constructs include a clustering step and a risk assignment step. The standard mean-variance framework of these constructs is the basis of Harry Markowitz’s modern theory of them, which maximizes the return for any given volatility and assumes only long positions. For 10 points, name these collections of financial positions taken by an investor.**
ANSWER: financial **portfolio** [or market **portfolio**; prompt on financial **assets**, financial **positions**, **stocks**, **bonds**, or **mutual funds**]
<Ankit Aggarwal, Social Science>

11. **Hundreds of this artist’s answering machine tapes were acquired by Chris McKim for a 2020 documentary that features numerous interviews with Fran Lebowitz. This artist was awarded one dollar in damages after suing the American Family Association for using his work out of context. A film by this artist and Richard Kern was based on an incident where this artist’s father force-fed him his pet rabbit. The Smithsonian censored eleven seconds of a video work by this artist in which (*) ants crawl over a crucifix. A recent retrospective of this artist at the Whitney titled *History Keeps Me Awake at Night* featured several photos of him by Peter Hujar. This artist created an untitled photograph depicting buffaloes falling off a cliff that was used as cover art on U2’s single “One.” For 10 points, name this New York photographer of *A Fire in My Belly* who died of AIDS in 1992.**
ANSWER: David **Wojnarowicz** (“voy-nuh-ROH-vitch”) [or David Michael **Wojnarowicz**]
<Mike Bentley, Other Fine Arts>

12. A paper by Mayor et al. analyzed the inscription “Khukhospi” (“hoo-HOH-spee”) on one of these objects as an Abkhazian name meaning “Battle-Cry” instead of a string of nonsense sounds. Heinrich Dressel carried out an influential study of these objects at a site covering 200 years of the Roman Empire. The use of resin with these objects led to the creation of a product called *retsina* still made today. A style of these objects found primarily at Etruscan sites were the [emphasize] largest objects produced by (*) Nikosthenes. A *prothesis* scene is depicted on one of these objects found in Athens’s Dipylon cemetery. Despite the massive number of these objects broken to form Monte Testaccio (“tess-TAH-choh”), most were likely used for more than one sea voyage. For 10 points, name these objects used to store commodities like wine and olive oil in the ancient Mediterranean.

ANSWER: amphoras [or amphorae or amphoreus; prompt on pottery, vases, ceramics, containers, urns, or pots]
<Alex Fregeau, Other History>

13. In a novel, this person publishes a few “pseudo-poems” randomly generated on an Atlas Computer from *The Heights of Macchu Picchu*. Another novel begins with excerpts from this person’s notebooks interrupted by annotations like “to be expanded on: his father’s response to the times as compared to his own.” After this person’s death, Julia and other acquaintances from the 70s describe how this person was “not built for love” in interviews with his unscrupulous biographer, Mr. Vincent. This fictionalized person is the protagonist of an (*) “autobiographical” (“OH-truh biographical”) trilogy of novels that depict him writing a thesis on Ford Madox Ford and working for IBM after graduating from the University of Cape Town. For 10 points, name this real-life author of *Boyhood*, *Youth*, and *Summertime* whose other fictional alter egos include Elizabeth Costello.

ANSWER: J. M. Coetzee [or John Coetzee or John Maxwell Coetzee; reject “Elizabeth Costello”] (“John Coetzee” does in fact die between *Youth* and *Summertime*.)
<Henry Atkins, World Literature>

14. *Description acceptable*. In “A New Refutation of Time,” Jorge Luis Borges praises this statement’s “dialectical skill” while discussing the memories conjured by his walks around his neighborhood. In the final paragraph of *Fear and Trembling*, Søren Kierkegaard uses this statement and a later refinement of it to illustrate the philosophical impulse to “go further.” Jonathan Barnes stated his preference among Diels and Kranz’s three renderings of this statement by citing its originator’s similar passage about an emulsified drink disintegrating. This statement was strengthened to a seemingly (*) nonsensical version by a radical disciple of its originator named Cratylus. This statement is the best-known illustration of a “weeping philosopher’s” view that *panta rhei*, or “everything flows,” as well as his doctrine of flux. For 10 points, name this aphorism attributed to Heraclitus about entry into a body of water.

ANSWER: you cannot step in the same river twice [accept equivalent descriptions that mention the inability to enter the same river twice or that a river is never the same twice; accept panta rhei or everything flows until read; prompt on Heraclitus’s doctrine of flux] (Cratylus amended Heraclitus’s claim to “you cannot step in the same river even once.”)

<Tim Morrison, Philosophy>

15. This species can detoxify sulfur mustard in a zirconium (IV) MOF platform with pyrene linkers. The Jin and Tsien labs developed a genetically encoded tag called miniSOG for generating this species, which induces di-amino-benzidine polymerization for photodynamic therapy. This species can be trapped by reacting it with tetramethyl piperidone to form nitroxide radicals detectable by EPR. A xanthene-anthracene dyad called DMAX can sense this species by forming a bridged (*) peroxide via a classic four-plus-two cycloaddition. This species’s one-delta-g state converts to its one-sigma-g-plus state to vacate a pi-star antibonding orbital. Methylene blue and Rose Bengal photosensitizers are used to produce this species, which is paramagnetic due to having unpaired electrons. For 10 points, name this reactive oxygen species, the excited state of the more common triplet oxygen.

ANSWER: singlet oxygen [or dioxygen(singlet) or dioxidene; accept 1O2 or 1[O2]; prompt on oxygen, O2, diatomic oxygen, or dioxygen until “oxygen” is read; prompt on reactive oxygen species or ROS; reject “triplet oxygen”]

<Allan Lee, Chemistry>

16. *Description acceptable.* This design names a method in which the violation of the assumption that epsilon equals one results in an inflation in the degrees of freedom that is addressed by the Greenhouse–Geisser correction. That method named for this design fails when Mauchly’s W is large. The assumption of equality among the variances of the pairwise differences between levels of each within-subject factor is called sphericity and appears in a form of ANOVA named for this design that has greater power than (*) multivariate ANOVA with the results of this task collapsed into correlated random vectors. To assess the results of data collected under this design, the observed proportional agreement and the expected agreement by chance are used to calculate Cohen’s kappa. Longitudinal studies employ this design over time. For 10 points, name this experimental design whose consistency is measured as reliability.

ANSWER: repeated measures design [accept answers describing taking measurements of the same quantities multiple times; accept word forms and rough equivalents in place of “measurements,” like “measuring” or “observations” or “ratings”; accept repeated measures ANOVA; accept longitudinal data or longitudinal study before “longitudinal” is read; accept panel data or panel studies; prompt on measurements alone; prompt on rANOVA]

<David Bass, Statistics>

17. This person aided Lotta Crabtree while living nearby in Grass Valley. Men line up to see this person in a cage at the end of a film whose frame story involves a Circus Master played by Peter Ustinov. This author of the cosmetic book *The Arts of Beauty* is depicted singing, “from the courtyard, I floated in and watched it go down” and describes being “called to Castlemaine by the silver dollar” in Joanna Newsom’s song “Have One on Me.” This person titles a 1955 film by (*) Max Ophüls, which depicts her affair with Franz Liszt. This woman chased Ballarat newspaper editor Henry Seekamp with a whip for a negative review. After she was made the Countess of Landsfeld, this woman successfully lobbied for the 1848 closure of Munich University. This woman was best known for a routine where she lifted her skirt in search of insects. For 10 points, what performer of the “Spider Dance” was a mistress of Ludwig I of Bavaria?

ANSWER: Lola Montez [or Lola Montès or Eliza Rosanna Gilbert; accept the Countess of Landsfeld until read; prompt on Lola]

<Tim Morrison, Other Academic>

18. One of this author’s characters first appears running into a house and falling flat on his face, after which he invites a friend to the “English Club.” After noting that she “fear[s] love as [she does] the devil,” a maid created by this author admits to loving “Petroushka the butler.” A play by this author opens with a servant warning two lovers that they’ve stayed up until dawn playing the flute and piano. Nine scenes in that play’s third act depict the spread of rumors of one character’s (*) madness. A chapter of a Soviet novel ends with Archibald Archibaldovich holding balyk under his arms outside a burning building named for this author. In a verse drama by this author, a secretary’s fall from a horse is witnessed by his rival in love, Colonel Skalozub. A character protests, “Dostoevsky is immortal!” while entering a “House” named for this author. For 10 points, MASSOLIT’S headquarters are in the house of what author of *Woe from Wit*?

ANSWER: Alexander Sergeevich Griboedov [or Alexander Griboyedov; accept Griboedov’s; accept the Griboedov house]

<Arya Karthik, European Literature>

19. *Description acceptable.* **Certain provisions of this policy caused many opponents to found nominal “apothecary shops” that were sparsely stocked with a few dry goods. Opponents of this policy formed roving guerilla bands like the “Red Strings,” also known as the Heroes of America. By expanding the size of state civil service, the anti-administration governors Joseph Brown and Zebulon Vance were able to stonewall implementation of this policy. The second bill enacting this policy added an unpopular exception dubbed the (*) “Twenty Negro Law.”** This policy, the first of its kind in North America, preceded a Northern counterpart that sparked a violent riot among Irish residents of New York in 1863. For 10 points, substitution sidestepped what policy used to reinforce the Army of Northern Virginia?

ANSWER: **conscription** in the **Confederate** States of America [accept the **draft** in place of “conscription”; accept the **Confederacy**, **CSA**, **Southern**, or the government of Jefferson **Davis** in place of “Confederate”; prompt on **conscription** or the **draft** alone by asking “under what government?”; reject “US conscription,” “American conscription,” “Union conscription,” or other answers that suggest conscription in the North]

<Henry Atkins, US History>

20. **A baritone with this title wishes to be “not only a loving husband... But your friend and consoler always” in an aria that ends with the plea “Trust me!” Dmitri Hvorostovsky sang that aria and one from *Don Carlos* to win the Cardiff Singer of the World competition, and he made his Met debut as that character with this title.**

Konstantin Shilovsky wrote the text for an aria in which a bass with this title compares his wife to a radiant angel, “All ages surrender to love.” The officer (*) Yeletsky has this title and sings “Ya vas lyublyu” to Lisa in *The Queen of Spades*. The chorus “Fly away on the wings of the wind” is excerpted in an orchestral piece from an opera whose protagonist has this title and is married to Yaroslavna. A girl who sings the Letter Scene marries a general with this title in an opera by Tchaikovsky. For 10 points, what noble title names the unfinished opera that includes the *Polovtsian Dances*, by Alexander Borodin?

ANSWER: **prince** [or **knyáz**; accept **Prince** Yeletsky, **Prince** Gremin, or **Prince** Igor; prompt on **general** or **officer** until “general” is read by asking “what non-professional title?”]

<Ivone Zhou, Classical Music and Opera>

Bonuses

1. Economou et al. 2012 observes an activator-inhibitor system of FGF and SHH involved in the creation of palatal rugae, the first known evidence for one of this scientist's theories. For 10 points each:

[e] Name this scientist who wrote "The Chemical Basis of Morphogenesis" to theorize the formation of his namesake "patterns" via cellular differentiation.

ANSWER: Alan **Turing** [or Alan Mathison **Turing**; accept **Turing** patterns]

[h] In his paper, Turing classifies the behavior of activator-inhibitor systems in this configuration of tissue into six cases, based on wavelength and whether the asymptotic behavior is stationary or oscillatory.

ANSWER: continuous **ring** of tissue [generously accept synonyms for **ring** like **loop** or **circle**]

[m] After solving his equations for morphogenesis in a ring of tissue, Turing attempted to model this process using spherical harmonics. This process involves movements such as delamination, epiboly, and involution.

ANSWER: **gastrulation** [accept word forms; prompt on **embryonic development** or **embryogenesis**]

<Arya Karthik, Biology>

2. This term has been used to describe both the spirits of ancestors in general and a specific ethnic group, with some scholars contending that the latter was the invention of European missionaries. For 10 points each:

[h] Name this term applied to the [emphasize] *earliest* people described in the *Tantara ny Andriana*. The [emphasize] *earliest* royal burials at Ambohimanga Hill are traditionally claimed to be of rulers known by this term.

ANSWER: **Vazimba** [or **Vazimba** people]

[e] Andrianjaka allegedly drove a Vazimba group off of Ambohimanga Hill to establish this city. Radama I of the Merina Kingdom ruled from this city and invited Western missionaries to preach there.

ANSWER: **Antananarivo**

[m] Legend claims that the Vazimba did not eat this animal breed and that it was Merina king Ralambo who discovered how good they tasted. Though now found in much of East Africa, this breed originated in South Asia.

ANSWER: **zebu** [or **indicine cattle**, **humped cattle**, or *Bos taurus indicus*; accept **indicine cows** or **humped cows**; prompt on **cows**; prompt on answers for different ages/sexes of cows such as **cattle**, **bulls**, **calves**, **steers**, etc.]

<Alex Fregeau, World History>

3. Unlike classical logic, which can be viewed algebraically as a Boolean algebra, this logic can be viewed as a Heyting algebra that treats negation as a pseudo-complement. For 10 points each:

[m] Identify this logic weaker than classical logic, which does not validate double negation elimination or excluded middle. This logic is typically given a semantics based on the BHK interpretation.

ANSWER: **intuitionistic** logic [accept **intuitionism**; reject "mathematical intuitionism"]

[e] This logician gave a relational semantics for intuitionistic logic based on the relational semantics for modal logic he discovered as a teenager. In honor of this logician, the minimal normal modal logic is named K.

ANSWER: Saul **Kripke** [or Saul Aaron **Kripke**]

[h] Kit Fine developed a realist semantics for intuitionistic logic based on these states that "exactly verify" propositions. Mulligan, Simons and Smith introduced them in a 1984 defense of the correspondence theory.

ANSWER: **truthmakers** [or **truthmaker** semantics or **truthmaker** theory]

<Caleb Kendrick, Philosophy>

4. In an interview, this film's cinematographer Robby Müller likened himself to a pianist in discussing how he constructed a scene of a man seeing his reflection imposed on a woman's face in the one-way glass of a peep show. For 10 points each:

[m] Name this film whose opening scene uses natural light to depict a man wearing a suit and red baseball cap wandering in a desert. A Blind Willie Johnson song inspired Ry Cooder's slide guitar-heavy score for this film.

ANSWER: **Paris, Texas** (by Wim Wenders)

[e] Müller invented the Kino Flo system for this aspect of cinematography supervised on set by gaffers. Müller eschewed this filmmaking aspect's terminology, like "key," "fill," and "back."

ANSWER: **lighting**

[h] Müller's first color film for this director features standout splashes of red seen in the suitcase of two Japanese blues fans. A monochrome film by this director begins with the arrest of an Italian tourist, a pimp, and a disc jockey.

ANSWER: Jim **Jarmusch** [or James Robert **Jarmusch**] (The films mentioned are *Mystery Train* and *Down by Law*.)
<Ani Perumalla, Other Fine Arts>

5. In a novel set in one of these places, Gloriosa breaks a statue of the Virgin Mary while trying to remove her "Tutsi nose." For 10 points each:

[m] Name this type of place, the setting of a Scholastique Mukasonga novel titled for the Nile River. In another novel, Tambu watches Nyasha develop an eating disorder while staying in one of these places.

ANSWER: boarding **schools** [accept Catholic **schools**, missionary **schools**, secondary **schools**, high **schools**, charity **schools**, or blue coat **schools**] (The first novel is *Our Lady of the Nile*; the second novel is *Nervous Conditions* by Tsitsi Dangarembga.)

[h] Mukasonga's novels are available in English from this not-for-profit, founded in 2003 to publish literature in translation. This company includes the children's imprint Elsewhere Editions and publishes paperbacks with uniquely square-shaped covers.

ANSWER: **Archipelago** Books

[e] Archipelago Books published the first American editions of this six-volume series of autofiction by Karl Ove Knausgård, which provocatively shares its title with a racist tract.

ANSWER: **My Struggle** [or **Min Kamp**; accept **Mein Kampf**]

<Henry Atkins, World Literature>

6. Congratulations! You've been asked to join your orchestra's *continuo* section. But you only know enough about this system to interpret numbers below the staff. For 10 points each:

[e] Those numbers denote intervals above this notation's namesake line, creating different chordal inversions. Modern-day music theory students still learn how to "realize" chords from this notation at a keyboard.

ANSWER: **figured bass** [or **thoroughbass**; prompt on **figured harmony**]

[h] If you see the directive "[this word] solo," you should play only the bass line, with no realizations. In a different context, this is the second word in a directive that tells musicians to bow a string instrument over the fingerboard.

ANSWER: **tasto** [accept **tasto** solo; accept sul **tasto**]

[m] When you see a dotted line next to a figure, you should sustain that note and create one of these effects. Fourth species counterpoint uses ligature to create these dissonances via syncopation.

ANSWER: **suspensions**

<Jacob Egol, Classical Music and Opera>

7. August Strindberg's many artistic interests include his experimental depictions of the night sky in this medium. For 10 points each:

[e] Name this artform that titles a 1977 collection by Susan Sontag, which connects it to the sensibility of the *flâneur* and includes the essay "On Plato's Cave."

ANSWER: **photography** [accept **photographs**; accept *On Photography*; accept word forms]

[h] This author included essays on Henri Cartier-Bresson and Seydou Keita in the book *Known and Strange Things*. This creator of the photobook *Blind Spot* inserted photographs of Lagos into one novel.

ANSWER: Teju **Cole** (The novel is *Every Day is for the Thief*.)

[m] The creator of the photobook *A Book of Days* also wrote this memoir, which pays tribute to the author's relationship with Robert Mapplethorpe in 1970s New York.

ANSWER: **Just Kids** (by Patti Smith)

<Henry Atkins, American Literature>

8. This symbol's popularity in Israel is exemplified by its usage in jewelry, wall-hangings, postcards, and even lottery cards. For 10 points each:

[m] Name this symbol that may represent the protective "hand of God" that aided the Israelites. This apotropaic amulet is sometimes named for Miriam and typically features a large eye in the center of the palm.

ANSWER: **hamsa** [prompt on **Hand of Miriam**, **Hand of Fatima**, or **Hand of Mary**]

[e] *Hamsas* are worn primarily to ward off this malicious force, which can be confronted through the use of red thread or by saying "Kinehora!" or "poo-poo-poo" to it.

ANSWER: **evil eye** [or **ayin ha'ra**] ("Kinehora" is a contraction of the mixed Yiddish/Hebrew phrase "kein ayin ha'ra," or "No evil eye!")

[h] This action may be done to taunt the evil eye or the Angel of Death as someone's clothing is being repaired. A form of this action necessary for *kashrut* acts as an allegory for constant self-evaluation.

ANSWER: **chewing** [or **mastication**; accept **chewing** thread, **chewing** one's cud, or **munching**; prompt on **eating** or equivalent answers]

<Jacob Egol, Beliefs>

9. SPARQL ("sparkle") is a language to query vocabularies of statements built in this data model, which can be serialized to formats like a hated XML syntax or the friendlier Turtle format. For 10 points each:

[h] Name this standard that represents linkages between data in an ontology's knowledge graph using subject-predicate-object triples. Resources in this data model are represented by IRIs, which are usually URLs.

ANSWER: **RDF** [or **Resource Description Framework**]

[m] Ontologies built in the OWL ("owl") language can interpret RDF metadata in this barely-implemented extension of the Internet in which web pages contain machine-interpretable meaning. It's not crypto-related, but this vision is also known as Web 3.0.

ANSWER: the **Semantic Web**

[e] While the Semantic Web remains niche, it extends this concept of interconnection between documents on the web. Internet links actualize this concept, which HTTP is named for transporting.

ANSWER: **hypertext** [accept **HyperText** Transport Protocol; accept **hypermedia**]

<Alistair Gray, Other Science - Computer Science>

10. This politician made a breakthrough in British race relations by winning a tort law case against Imperial Hotels, London, for refusing to lodge him for more than a night on discriminatory racial grounds. For 10 points each:
[h] Name this Trinidadian lawyer and politician who became the UK's first Black peer after the conclusion of his career as a cricketer for the West Indies, for whom he took their first ever Test wicket.

ANSWER: Learie **Constantine** [or Learie Nicholas **Constantine** or Baron **Constantine**; prompt on **Connie**]

[e] As the first Trinidadian High Commissioner in London, Constantine raised awareness about a 1963 nonviolent protest of this sort in Bristol that was inspired by one undertaken in Montgomery, Alabama.

ANSWER: **bus boycott** [accept Bristol **bus boycott** or Montgomery **bus boycott**; prompt on **boycott**]

[m] Constantine led a group of Black Britons that lobbied the Attlee government for the end of this world leader's forced exile in London, which was imposed due to his interracial marriage to Englishwoman Ruth Williams.

ANSWER: Seretse **Khama** [or Sir Seretse Goitsebeng Maphiri **Khama**]

<Ani Perumalla, Other History>

11. In depicting a historical figure's "Journey to Rome," the author of this sequence provides him with a "maroon GT" whose "car radio, glimmering, received broken utterance from the horizon of storms." For 10 points each:

[h] Name this sequence, another poem in which places "steel against yew and privet." In a poem in this sequence, one character flays a friend in "the old quarries," then journeys "in his private derelict sandlorry named *Albion*."

ANSWER: **Mercian Hymns** (By Geoffrey Hill; the three referenced poems are Mercian Hymns VII, XVII, and XX.)

[e] Another purposefully anachronistic Geoffrey Hill poem examines Nazi atrocities by juxtaposition with the immorality that this poet advocated in *Amores*. This Roman poet wrote the similarly licentious *Ars Amatoria*.

ANSWER: **Ovid** [or Publius **Ovidius Naso**] (The poem is "Ovid in the Third Reich.")

[m] Hill again interweaves history and personal experience in a cycle that dwells on this poet's notion of a "spiritual, Platonic old England." This poet posited an influential distinction between "primary" and "secondary" imagination.

ANSWER: Samuel Taylor **Coleridge** (The cycle is *An Apology for the Revival of Christian Architecture in England*; Coleridge differentiated the primary and secondary imagination in his *Biographia Literaria*.)

<Arya Karthik, British Literature>

12. This mixture of gasses is converted into liquid hydrocarbons via the Fischer–Tropsch process. For 10 points each:

[m] Name this mixture of gasses. Most hydrogen production begins by creating this mixture of gases via steam methane reforming.

ANSWER: **syngas** [or **synthesis** gas; prompt on **fuel** gas]

[e] Since the steam methane reforming reaction has this property, it must take place in a furnace. In a reaction with this property, the chemical system has a positive change in enthalpy.

ANSWER: **endothermic**

[h] This word describes a variant of steam methane reforming that generates the required heat using combustion of the feedstock. In general, this word describes reactors that couple endothermic and exothermic reactions.

ANSWER: **autothermal** [accept **autothermal** reformers, **autothermal** reforming, or **autothermal** reactors; prompt on **ATR**]

<Jonathen Settle, Chemistry>

13. This sociologist traced the roots of American capitalism to the plantation in his essay for *The 1619 Project*. For 10 points each:

[m] Name this author of the 2023 book *Poverty, by America*. Another book by this author traces the lives of eight low-income families in Milwaukee.

ANSWER: Matthew **Desmond**

[e] In a book that won the 2017 Nonfiction Pulitzer, Desmond argued that the collapse of the housing market during the Great Recession triggered these events, which sent Americans into poverty, rather than poverty causing these events.

ANSWER: **evictions** [accept **Evicted**: *Poverty and Profit in the American City*]

[h] *Evicted* draws on this theory, promulgated by William Julius Wilson in *When Work Disappears*, which notes that the lack of jobs located in low-income areas causes poverty and joblessness by forcing people to travel long distances for work.

ANSWER: **spatial mismatch** theory

<Ryan Rosenberg, Social Science>

14. Frederick the Great's tax on Jews forced Moses Mendelssohn to purchase twenty porcelain monkeys, at least one of which was manufactured by this company. For 10 points each:

[m] Name this company with a crossed-swords emblem. This company based in a namesake town became the premier German porcelain vendor after Johann Friedrich Böttger perfected its manufacturing process.

ANSWER: **Meissen** [or **Meissen** porcelain or **Meissen** china]

[h] Meissen's blue underglazes partly imitated the style of Imari ware and Kakiemon, two sub-classes of this general Japanese export porcelain style named for the Kyūshū town in which they were manufactured.

ANSWER: **Arita** ware [or **Arita**-yaki; accept **Hizen** ware or **Hizen**-yaki]

[e] Meissen's Blue Onion pattern, itself copied from pomegranates on Chinese porcelain, was mimicked by this English manufacturer of jasperware founded by a Staffordshire potter named Josiah.

ANSWER: **Wedgwood**

<Ani Perumalla, Visual Fine Arts>

15. Abel Olímpio drove a "ghost-van" to assassinate a "Hero of the Rotunda" with this first name and four others in the Bloody Night of 1921. For 10 points each:

[h] Give this first name, also held by a prime minister assassinated during the Bloody Night. A third politician with this first name founded the Evolutionist Party and was the sixth president of his country in the 11 years up to 1921.

ANSWER: **António** [accept **António** Maria de Azevedo Machado Santos, **António** Joaquim Granjo, or **António** José de Almeida]

[e] Portuguese politics were incredibly unstable between 1910 and the 1933 establishment of the Estado Novo under this leader.

ANSWER: António de Oliveira **Salazar**

[m] The First Portuguese Republic was toppled in a coup in this month of 1926, with António Óscar de Fragoso Carmona establishing the National Dictatorship soon after. In another colony, an 1810 Revolution named for this month drove Baltasar Hidalgo de Cisneros out of power and installed the Primera Junta.

ANSWER: **May** [accept 28 **May** 1926 coup d'état, 28 **May** Revolution, Golpe de Estado de 28 de **maio** de 1926, Revolução de 28 de **maio** de 1926, or Movimento de 28 de **maio** de 1926; accept **May** Revolution or Revolución de **Mayo**; prompt on **National Revolution** or Revolução **Nacional**] (The second colony is the Viceroyalty of the Río de la Plata)

<Alex Fregeau, European History>

16. In 1976, Cherie Darvell and her fellow filmmakers allegedly succeeded in inducing one of these occurrences using marshmallows tainted with urine and menstrual blood. For 10 points each:

[h] Russell Welch claimed that what unusual occurrence happened to the missing Theresa Bier as she hiked through the Sierra Nevada? The unwise consumption of Albert Ostman's snuff distracted a family of four during one of these alleged occurrences.

ANSWER: being **kidnapped** by **Bigfoot** [accept similar answers like **Bigfoot kidnapping** a person; accept **Sasquatch** in place of "Bigfoot"; prompt on **kidnapping** or **abduction** by asking "by whom?"] (The family of four were a Daddy Bigfoot, a Mommy Bigfoot, and two Bigfoot kids.)

[e] Ostman held this profession, also shared by five men assaulted by rock-throwing Sasquatches at Ape Canyon. The Cornish *knockers* and German *kobolds* warned these people of impending collapses by knocking on the walls.

ANSWER: gold **prospectors** [or **miners**; accept specific subtypes like coal, copper, tin, or silver **miners**]

[m] In 1929, this Bigfoot relative terrified the chiropteran occupants of the Perky Bat Tower by violently shaking it. This Floridian cryptid, identified with the Bardin-Booger, is seen crouched amongst some grass in a famous photo.

ANSWER: **Skunk Ape** [accept **Esti Capcaki**]

<Young Fenimore Lee, Beliefs>

17. This trial witness testified that the accused was a birdwatcher who bragged about sighting a prothonotary warbler, a breakthrough since the accused mentioned that specific bird when asked about his hobbies. For 10 points each:

[m] Name this person whose aptly-titled 1952 memoir *Witness* recounts his testimony in that trial, which included five hidden rolls of 35mm film.

ANSWER: Whittaker **Chambers** [or Jay Vivian **Chambers**] (The accused was Alger Hiss.)

[e] Warblers were among the hundreds of birds bred by murderer Robert Stroud during his imprisonment in this California federal prison, which earned him the nickname of its "Birdman."

ANSWER: **Alcatraz** Federal Penitentiary [accept **Alcatraz** Island; accept "Birdman of **Alcatraz**"]

[h] This criminal was an expert on Kirtland's warbler, having published on the bird alongside James Watson's father. This criminal wrote a book about the birds of Puerto Rico while working as an X-ray technician on parole.

ANSWER: Nathan **Leopold** [or Nathan Freudenthal **Leopold**, Jr.]

<Ani Perumalla, US History>

18. An Aki Kaurismäki film produced in this city features an extended performance by local rock star Little Bob. For 10 points each:

[m] Name this major port city in Normandy located across the Seine ("sen") estuary from Honfleur.

Auguste Perret ("oh-GOOST pair-AY") headed a modernist redesign of this city's ruined downtown after WWII.

ANSWER: **Le Havre** ("luh AHV-ruh") (The Kaurismäki film is also called *Le Havre*.)

[e] As part of the reconstruction of Le Havre, Minister of Culture André Malraux ("mal-ROH") opened an art museum mostly dedicated to this movement. A painting of a sunrise over Le Havre inspired the name of this movement.

ANSWER: **Impressionism** [or L'**impressionnisme**; accept word forms like **impressionist**] (The painting is *Impression, Sunrise*.)

[h] Another modernist project built under Malraux is this unpopular skyscraper in downtown Paris, which inspired a law banning buildings over seven stories high. An upcoming redesign will add garden space to this building's exterior.

ANSWER: Tour **Montparnasse** [or **Montparnasse** Tower or Tour Maine-**Montparnasse**]

<Henry Atkins, Geography>

19. Solutions to this set of ODEs hold for all affine transformations of the parameter with respect to which total derivatives are taken. For 10 points each:

[h] Name these equations that are satisfied when a total covariant derivative of the tangent vector equals a total derivative of the tangent vector plus Christoffel symbols times the tangent vector times a total derivative of position.

ANSWER: **geodesic** equations

[e] A common choice of parameter of differentiation in the geodesic equations is this quantity, the time measured by a clock as it follows a timelike geodesic.

ANSWER: **proper** time

[m] *Two answers required.* For negligible velocity, the geodesic equations with respect to proper time reduce such that the covariant indices of the Christoffel symbols are these two values. The component of the stress-energy tensor with these indices is the energy density.

ANSWER: **zero** AND **zero**

<Geoffrey Wu, Physics>

20. In diatribes to Gambetti, one of this author's narrators criticizes his family for, among other things, paying full price for theater tickets, comparing them unfavorably to his cultured Uncle Georg. For 10 points each:

[m] Name this author of *Extinction*. In another novel by this author, the narrator viciously criticizes the "artistic [bankruptcy]" of the Burgtheater and its actors while incessantly repeating the phrase "sitting in the wing chair."

ANSWER: Thomas **Bernhard** [or Nicolaas Thomas **Bernhard**]

[e] Near the end of *Woodcutters*, the narrator assumes a grudging respect for an actor in this play, whom he'd spent much of the novel criticizing. That Burgtheater actor plays Ekdal in this Ibsen play, which ends with Hedvig's suicide.

ANSWER: *The Wild Duck* [or *Vildanden*]

[h] Bernhard blames the failure of his play *The Hunting Party* on the Burgtheater and its "matinee idols" in a novel whose narrator, a patient at the Herrmann Pavilion, strikes up a friendship with this person, a mental patient. A description is acceptable.

ANSWER: **Paul Wittgenstein** [accept *Wittgenstein's Nephew*; accept any answer that indicates the **nephew** of Ludwig **Wittgenstein**; prompt on Wittgenstein; reject "Ludwig Wittgenstein"]

<Tim Morrison, European Literature>