

TOSSUPS

1. In a speech on this crime, a man who calls psychology a “knife that cuts both ways” compares prejudice against this crime to merchants’ wives’ fear of the word “brimstone.” Joseph Frank refuted a 1928 essay partly titled for this crime, which speculates that an author first experienced an “affective” disorder as a child. The Adam’s apple and hooked nose of his “tormentor” prompt a man to consider this crime as he stares through a garden window clutching a brass pestle. Evidence for this crime, including a letter scrawled on a tavern bill and the theft of 3,000 rubles from an envelope addressed to the “infernal woman” Grushenka, are used to convict the innocent half-brother of its actual perpetrator, Smerdyakov. Freud blamed a desire to commit this crime for Dostoevsky’s epilepsy. For 10 points, what crime is Dimitri tried for in *The Brothers Karamazov*?

ANSWER: **patricide** [or **parricide**; or **kill**ing a **father** or **kill**ing a **parent** or equivalents; accept **kill**ing **Fyodor** Pavlovich Karamazov or **kill**ing Mikhail **Dostoevsky** or equivalents of each; accept “Dostoevsky and **Parricide**”; prompt on **murder**, **homicide**, **kill**ing, or equivalents; prompt on **kill**ing a Karamazov; reject “matricide” or “killing a mother”]

<European Literature>

2. Camerarius questioned the freehand creation of a part of this painting that was mistakenly described by Karel van Mander as gilded. Joseph Koerner connects this painting to Cusanus’s thought and *acheiropoieta* (“ah-KYE-roh-poy-ee-tuh”) like the *sudarium* of St. Veronica, and mentions a lost gouache (“gwash”)-on-cambric piece that the artist sent to Raphael. This painting in the Alte Pinakothek (“AHL-tuh pee-nah-koh-TAKE”) was created in the year of a cultural revival planned by Conrad Celtis, whose assistant composed its Latin inscription mentioning “*coloribus aetatis*.” This portrait’s artist eschewed the three-quarters view he used for earlier works in silverpoint that feature a thistle, instead using a frontal view. This portrait’s subject grasps his fur robe, with his Christlike hair shown next to the date 1500 and the artist’s monogram. For 10 points, name this portrait at age 28 of, and by, a German engraver.

ANSWER: Albrecht **Dürer**’s **Self-Portrait** at *Twenty-Eight* [accept Albrecht **Dürer**’s 1500 **Self-Portrait**; accept **Selbstbildniss** in place of “*Self-Portrait*”; prompt on **Self-Portrait** or **Selbstbildniss**] (Joachim Camerarius and Karel van Mander both referred to Dürer’s hair in the portrait.)

<Painting & Sculpture>

3. Devices that image this radiation suffer from distortions due to reflections off of their own housing in the narcissus effect. MRTD and NETD are two performance metrics of devices that image this radiation, which commonly use amorphous silicon or vanadium oxide as a detector. Mercury cadmium telluride arrays were used to detect this radiation by the 2MASS collaboration. This is the most common radiation detected by bolometers. The transparency of cosmic dust to this radiation allowed stellar nurseries to be imaged by the Spitzer Space Telescope. This radiation is sensed by vampire bats and a pair of pit organs in rattlesnakes. For 10 points, name this radiation with wavelengths between those of microwaves and visible light.

ANSWER: **infrared** radiation [or **IR** or **thermal** radiation; accept heat **radiation**; accept near-**infrared** or mid-**infrared** or far-**infrared**; prompt on **terahertz** radiation or **submillimeter** radiation; prompt on **electromagnetic** radiation or **light** or **EM** radiation] (MRTD and NETD respectively stand for the minimum resolvable temperature difference and noise-equivalent temperature difference.)

<Other Science>

4. *Original-language term required.* Texts described by this term often describe their corpus “falling upon the roof of King Ja.” Miranda Shaw countered scholarly opinion that practices described by this term were misogynistic by highlighting female teachers in the Sahajiya (“suh-HAH-jee-yuh”) movement and a text in which a goddess states, “women are the perfection of wisdom.” “Loka” and this term title the magnum opus of Abhinavagupta (“ub-hee-nuh-vuh-GOOP-tuh”), whose Kashmir Shaivist (“SHY-vist”) movement brought traditions with this name into mainstream Hinduism. The Nyingma (“neeng-MAH”) School counts Action, Conduct, and Union as this term’s three “outer” practices. “Deity Yoga” is the highest form of practices known by this term, which involve cultivating *kuṇḍalinī* energy and are transmitted by “secret oral traditions.” For 10 points, give this term for antinomian (“anti-NOHM-ian”) “left-hand” practices in Indian religions, including namesake sex rituals.

ANSWER: **tantra** [or word forms of **tantric**; or **tantrika**s; accept **Tantrayāna** or **tantric** Buddhism; accept **Tantrāloka**; prompt on **Vajrayāna**, **Mantranāya**, **Mantrayāna**, or **Guhyamantrayāna**] (The second line refers to the Caṇḍamahāroṣaṇa Tantra.)

<Religion>

5. A ruler of this kingdom, who promoted Muslim technocrats but refused circumcision, escorted the *Lady Alice* with war canoes that inspired a mythical “lost white tribe.” This kingdom’s Protestant dynastic historian, the *katikiro* premier Apollo Kagwa, preserved its “subimperial” rule over the north in a 1900 agreement after suppressing a mutiny of foreign Nubians from the Khedivate (“KED-ih-vate”). Suna II’s roads linked this kingdom’s vast banana groves. This kingdom’s Kasubi Tombs inter the bisexual king Mwangi II, who executed Christian martyrs and allied with Lord Lugard’s protectorate against its former hegemon (“HEDGE-uh-mon”) Bunyoro. In 1966, a leader of the People’s Congress repudiated this kingdom’s KY party and attacked Mutesa II’s palace in the Mengo (“MENG-go”) crisis. For 10 points, Milton Obote deposed the *kabaka* of what largest Great Lakes kingdom in its namesake country?

ANSWER: **Buganda** [accept **Uganda**, **Ganda**, **Baganda**, **Muganda**, **Waganda**, **Luganda**, **Oluganda**, or **Kiganda**; accept **Uganda** Protectorate, **Uganda** Martyrs, **Uganda** People’s Congress, **Buganda** Agreement, *Kings of Buganda*, or *Basekabaka be Buganda*] (The first line refers to Mutesa I and an expedition by Henry Morton Stanley. KY stands for Kabaka Yekka, or “the king alone.”)

<World History>

6. *Note to moderator: Read the answerline carefully.* This interaction is suppressed by repeating the WALTZ-4 sequence four times, which produces a supercycle that minimizes sidebands. To exclusively observe pairs participating in this interaction, the INADEQUATE experiment uses a double quantum filter. Delays of half the reciprocal of this interaction’s intensity are found in INEPT, which uses cross-polarization to transfer magnetization independently of relaxation. The suppression of this interaction by RF pulses aimed at particular nuclei is mathematically equivalent to the refocusing of spin echoes. This interaction is strongest between nuclei in the geminal positions with large gyromagnetic ratios. Pascal’s triangle describes the intensity ratio of this interaction’s multiplets. For 10 points, name this interaction between nuclei with non-zero magnetic moments, which splits peaks in NMR.

ANSWER: **J-coupling** [or **coupled** nuclei or word forms; accept **decoupling**, spin–spin **coupling**, scalar **coupling**, dipolar **coupling**, or hyperfine **coupling**; prompt on **hyperfine** interactions; prompt on cross-polarization or **magnetization transfer** until “cross-polarization” is read; prompt on NMR peak **splitting** or formation of **multiplets**, **doublets**, **triplets**, **quartets**, or other specific sets until “multiplets” is read by asking “what causes the splitting?”; reject “spin–orbit coupling”]

<Chemistry>

7. In this city, a woman who had an abortion lies that she is going to New York and imagines “fetuses in the East River, translucent as jellyfish.” While investigating the death of the “Virgin Tramp” in this city, Tom Spellacy (“SPELL-uh-see”) arrests Jack Amsterdam, an ally of the archdiocese, ruining the career of his brother, a priest. This city is the main setting of *True Confessions* and a novel that opens with the question “What makes Iago evil?” That novel’s italicized chapters are narrated from a psychiatric ward in this city by Maria (“muh-RYE-uh”) Wyeth after BZ overdoses on barbiturates. In this main setting of *Play It As It Lays*, an essay’s speaker buys a dress for Linda Kasabian (“kuh-SAY-bee-in”) to wear in court and meets The Doors. That essay mainly set in this city begins, “We tell ourselves stories in order to live.” For 10 points, most of Joan Didion’s “The White Album” is about what city in California?

ANSWER: **Los Angeles** [or **LA**; prompt on **Hollywood**] (*True Confessions* was written by Didion’s husband, John Gregory Dunne.)

<American Literature>

8. *Yasna* 9 describes one of these animals that wakes up when Keresāspa cooks a hot meal on his back. It also describes how one of these animals is killed by the son born to the second man to press *haoma*, Athwya (“ATH-wee-yuh”). Sheep brains are secretly used to replace sacrifices to these animals in an episode from the *Shahnameh* that ends with the uprising of the blacksmith Kaveh. In *Yasht* 14, the phrase “*janat aẓīm*” (“JAH-nut uh-ZHEEM”) describes the death of one of these animals from the mace of Thraētaona (“THRY-tao-nuh”). In the *Shahnameh*, a pair of kisses from Ahriman causes these animals to grow from the shoulders of Zahhāk. In a related myth from the *Rigveda*, one of these animals blocks all the waters of the world until he is killed with the newly-crafted *vajra*. For 10 points, name this animal exemplified by an enemy of Indra named Vritra.

ANSWER: **snakes** [or **serpents**; accept **dragons** or **drakes**; accept **cobras**; prompt on **reptiles**; reject “worm” or “nāga”]

<Mythology>

9. *Note to moderator: Read the answerline carefully.* This phenomenon provides the species name of the olinguito, which inhabits an ecotone named for this phenomenon in the Chocó’s Mashpi reserve that may become the first acoustic World Heritage Site. Polyolefin “fences” in Huehuetenango (“way-way-teh-NAHN-go”) collect this phenomenon during an “occult” process that supports Madeira’s laurisilva. Tropical ecologists catch birds with this phenomenon’s namesake “nets.” A type of this phenomenon called *camanchaca* or *garúa* led Hermann Melville to dub Lima “the strangest saddest city thou can’t see.” Ecosystems fed by this phenomenon include acidic, montane elfin forests, the tule (“TOO-lee”) wetlands, and Monteverde in Costa Rica. This phenomenon’s Pacific belt creates oases called *lomas* in the Atacama, its namesake type of desert. For 10 points, coastal redwoods rely on drip from what phenomenon that often envelops San Francisco?

ANSWER: **fog** [or **niebla** or word forms of **foggy**; accept **mist** nets; accept **cloud** cover, **cloudy**, **cloud** forests, **stratus**, stratocumulus, **nubes**, or **nublado**; accept **fog** deserts, **fog** fences, **fog** nets, atrapanieblas, or *Bassaricyon neblina*; prompt on **humidity**, **condensation**, **condense**, **moisture**, **dew**, **water** vapor, water vapor, **H₂O**, water droplets, **precipitation**, or **aerosols**; reject “rain”] (Rain gauges fail to record “occult precipitation” from fog. Melville evoked the “higher horror” of Lima’s whiteness in “The Whiteness of the Whale.”)

<Geography>

10. This present-day state is the setting of Mary Ehrlander's histories of the missionary couple Grafton and Clara Burke and the adventurer Walter Harper, who died in the wreck of the *Princess Sophia*. The 1905 Nelson Act reorganized taxes to fund education in this state and formed a "road commission" headed by Wilds P. Richardson. The Roaring Twenties fueled this state's fox farming boom on federally-leased islands. This state was the primary destination of Warren G. Harding's "Voyage of Understanding," after which he died of a heart attack. The Kennecott Mines were the center of this state's Morgan–Guggenheim "syndicate," which opposed its statehood movement. The sale of coal mining land in this state sparked the Ballinger–Pinchot Controversy. For 10 points, name this American state whose purchase was originally derided as "Seward's ("SOO-werd's") Folly."

ANSWER: **Alaska** [or **AK**; accept Territory of **Alaska** or **Alaska** Territory; accept **Alaska** Syndicate]
<American History>

11. Parts of this structure allegedly unique to mammals govern a "social mediation system" that misfires in PTSD, according to a controversial theory in which RSA measures its function. Stephen Porges ("POR-jiss") divided this structure into "dorsal" and "ventral" complexes in that theory, which prefixes its name with "poly." Electrical devices surgically implanted on this structure to treat epilepsy also mitigate treatment-resistant depression. Otto Loewi ("LUH-vee") discovered this structure's namesake "-stoff," which was the first isolated neurotransmitter and was later found to be acetylcholine ("uh-see-til-KO-leen"). This structure is the main connection between the two halves of the gut–brain axis, and may thus mediate the enteric ("en-TAIR-ick") nervous system and gut microbiome's effects on mental health. For 10 points, name this "wandering" tenth cranial nerve.

ANSWER: **vagus** ("VAY-guss") nerve [accept **tenth cranial nerve** or **CN X** or equivalents until "tenth" is read; accept **Vagusstoff**; accept poly**vagal** theory; prompt on **autonomic** nervous system or **parasympathetic** nervous system; prompt on **nerves**, **nervous system**, **cranial nerves**, **enteric** nervous system, or **gut–brain axis** until each is read] (RSA stands for respiratory sinus arrhythmia.)
<Social Science>

12. This operator names a technique that was used to give a 13-significant-figure estimate of the ground state of an antiferromagnetic ("anti-ferro-magnetic") Heisenberg chain in a paper co-authored by Steven White. A projection operator is used to split off a slowly-varying part of this operator in the Nakajima–Zwanzig ("nah-kuh-JEE-muh ZWAN-zig") equation. The time evolution of this operator is expressed using jump operators in the Lindblad master equation. In the canonical ensemble, this operator is " e to the power of minus beta times the Hamiltonian, all over the partition function." The negative trace of this operator times its logarithm gives a type of entropy named for its creator John von Neumann ("NOY-man"). Off-diagonal elements of this operator may be non-zero for superposition states. For 10 points, what matrix operator that describes quantum states is usually denoted by the letter rho?

ANSWER: **density** operator [or **density** matrix; accept reduced **density** operator or reduced **density** matrix; accept **density** matrix renormalization group; prompt on **rho** or **rho-hat**]
<Physics>

13. A piano accompanies this instrument in Beethoven's Opus 42 Notturmo, which is of dubious authorship. Two of these instruments feature in Mozart's horn quintet. This is the higher-pitched instrument in Beethoven's fragmentary duo "with *obbligato* eyeglasses." As a youth in the Bonn court orchestra, Beethoven played one of these instruments that Tabea Zimmermann later used for a 2003 recording. This instrument and the cellos open the second movement of Beethoven's Fifth Symphony. This instrument plays a *divisi* minor-chord accompaniment to begin Mozart's 40th Symphony. This instrument and a violin are the soloists in Mozart's E-flat-major Sinfonia Concertante. Two violins and two of these instruments feature in Mozart's string quintets. For 10 points, name this string instrument whose sheet music uses the alto clef.

ANSWER: **viola** [or **Bratsche**; reject "violin" or "viol"]
<Classical Music>

14. A 1989 essay “in praise of” this word celebrates the “diffracted but recomposed” mosaic seen in Frankétienne’s (“frank-ayt-YEN’s”) Spiralist novel *Dézafi* (“day-zah-FEE”). This word names the costumbrist genre of *gauchesco* (“gao-CHESS-koh”) circus dramas put on in 1880s Uruguay, which was opposed by Chilean *imaginistas* and typified by Manuel Alonso’s “El Jíbaro” (“HEE-bah-roh”). The novel *Texaco* is from a movement named for this word led by Raphaël Confiant, Jean Bernabé, and Patrick Chamoiseau (“sham-wah-ZOH”), who adapted Édouard Glissant’s *antillanité* (“on-tee-yah-nee-TAY”) to oppose Négritude. A phrase from a diglossic “low” language of this name titles a book in which Guy (“ghee”) falls from a hot air balloon in the story “A Wall of Fire Rising.” In a language of this name, stories begin with the call-and-response formula “Krik? Krak!” For 10 points, what word names the social class of Antoinette Cosway in *Wide Sargasso Sea* and the majority language of Haiti?

ANSWER: **creole** [or **criollo** or **criolla**; accept Haitian **Creole**, **Kréyol**, **Creole** English, **Créolité**, **creoleness**, **creolists**, **criollismo**, **creole** circuses, “In Praise of **Creoleness**,” “Eloge de la **Créolité**,” or word forms of any; prompt on **regionalism**, **regionalistas**, **nativism**, **nativismo**, novela de la tierra, **Caribbeanness**, **New Worldism**, **mundonovismo**, or word forms of any by asking “what specific tendency within that style?”] (Edwige Dandicat included “A Wall of Fire Rising” in *Krik? Krak!*)
<World Literature>

15. Note to moderator: Please stress “county” and not “country.” Forces from this county were repulsed in the Battle of Warns by a neighboring people whose namesake “freedom” was recognized by the *Karelsprivilege*. This county was the primary title of an “anti-king” of the Holy Roman Empire whose son briefly claimed the Scottish throne in the Great Cause. This non-Scandinavian county allied with Eric of Pomerania to wage a trade war against Wendish cities in the Hanseatic League. The “cod” and “hook” factions ensnared this county in a 15th-century succession dispute ended by a Burgundian invasion. The IJ (“eye”) waterway gave a major city in this county sea access, which it used to charter herring busses. After this county became a province, it exercised control over the Grand Pensionary during the First Stadtholderless Period. For 10 points, the city of Amsterdam was located in what preeminent province of the Dutch Republic?

ANSWER: **Holland** [accept County of **Holland** or Graafschap **Holland**; accept North **Holland**, South **Holland**, Noord-**Holland**, or Zuid-**Holland**; accept Floris V of **Holland**; accept William II of **Holland**; reject “Netherlands” or “Dutch”]
<European History>

16. Males in this genus’s *willistoni* group are selectively killed by the endoparasite *Spiroplasma poulsonii* (“paul-soh-nee-eye”), encouraging polyandry. The ICZN refused to split this very polyphyletic (“poly-fye-LET-ick”) genus or change its type species from *funnebris*, meaning half its 1,500 species are still in five subgenera whose names are anagrams. Fisherian runaway has given members of this genus incredibly long sperm. This genus’s endangered members are in the “picture wing” group, which is largely endemic to Hawai‘i. The species *pseudoobscura* became the second in this genus to have its genome sequenced in 2005. Alfred Sturtevant studied members of this genus every summer as a researcher at Columbia. Christiane Nüsslein-Volhard used a model organism in this genus to discover *toll* and *hedgehog*. For 10 points, name this genus studied in the lab of Thomas Hunt Morgan.

ANSWER: **Drosophila** (“druh-SOFF-uh-luh”) [accept **Drosophila melanogaster**, **Drosophila simulans**, **Drosophila funnebris**, **Drosophila willistoni**, or **Drosophila virilis**] (Most of *Drosophila* is in subgenus *Drosophila*; it also contains *Dorsilopha*, *Siphodora*, *Phloridosa*, and *Psilodorha*.)
<Biology>

17. This poet's final collection ends with a six-line poem that asks, "Give me the bonus of laughter / as I lose hold" and opens, "I made hay while the sun shone." This poet noted how "red squirrels leap the hornbeams" on Highgate Hill to open a blank verse memoir. This poet's daughter publicly apologized for a poem he wrote that calls, "Swarm over, Death!" and decries the "tinned minds, tinned breath" of the title town. In "Harrow-on-the-Hill," this poet notes how "electric trains are lighted after tea," a subject he revisited in the BBC documentary *Metro-land*. This author of *Summoned by Bells* praised a tennis player who is "furnish'd and burnish'd by Aldershot sun" named Joan Hunter Dunn in "A Subaltern's Love Song." For 10 points, name this English poet who called for "friendly bombs" to fall on Slough ("slao") and preceded Ted Hughes as Poet Laureate.

ANSWER: John **Betjeman** (The first sentence refers to "The Last Laugh.")

<British Literature>

18. *Note to moderator: Read the answerline carefully.* These people name shouldered late antique oil lamps with a shrine motif. These people wrote the *Tolidah* chronicle, which reports Zeno building a church to the Theotokos ("theo-TOH-kohss") on their land in 484, using an asymmetrical alphabet that was [emphasize] *not* replaced by the "square script." After these people burned Scythopolis under Julian in 529, Justinian sent Monophysite ("muh-NOFF-uh-syte") Ghassanids to suppress their third revolt. Josephus conflated these people with "Cutheans" ("KOO-thee-ans") settled by Sargon II in the "Land of Omri" conquered by Shalmaneser V ("SHAL-muh-nesser the fifth"). These people's priests in Hellenistic Shechem ("SHECK-em") preserved a counterpart of the Masoretic ("mass-uh-RET-ick") text in the former Northern Kingdom. The Hasmonean ("haz-MOAN-ian") high priest John Hyrcanus ("her-CAY-nuss") razed this ethnoreligious group's temple near Nablus, where they continued Paschal ("PASS-kull") sacrifices on Mount Gerizim ("GAIR-uh-zim"). For 10 points, what Israelite minority split from the Jews?

ANSWER: **Samaritans** [or **Šōmrōnīm**, as-**Sāmīriyyūn**, **Samareitai**, **Samaritanism**, **Samaritans**, as-**Samira**, **Šōmrōn**, **Samerina**, or variants; accept **Cutheans**, **Kutīm**, **Cuthites**, or **Chouthai**oi until "Cutheans" is read; accept **Samaritan** Pentateuch or **Samaritan** script; prompt on **Israelites** or **Yisrā'ēl** until "Israelite" is read; prompt on **Yahwists**, **Yahwism**, **Semitic**, or **Semites**; reject "Jews," "Hebrews," "Īvrīm" or equivalents] (Scythopolis is Beit She'an.)

<Other History>

19. According to an essay, Man gains the "dignity" of preserving this concept's "truth" by serving as the "shepherd of" this concept. After reorienting to focus on the "history" of increasing "forgetfulness" of this concept, a thinker began crossing out the word for this concept or spelling it archaically with its third letter as a "y." Language is the "house" of this concept according to *On the Way to Language*. This is the first title concept of a book written before its author's "turn," in which "idle talk" with the faceless public "They" is said to ignore our "relationship" with this concept. Ontic and ontological "questions" of this concept are separated in that book, which refers to creatures for whom this concept is an issue as *Dasein* ("DAH-zyne"). For 10 points, name this concept that titles a Martin Heidegger ("HYE-degg-er") book with "time."

ANSWER: **being** [or **beyng**; or **sein**; reject "dasein"] (The first sentence is from "Letter on Humanism.")

<Philosophy>

20. In a sequence from this musical's Act II, a masked female character watches a male character on a puppet stage get lit on fire, whipped, and put on a bed of nails. This musical's 2006 revival featured an even smaller orchestra than the original, using solely a piano and harp. The transition between this musical's two acts is marked by flipping over a cardboard moon to show a sun. A wall in this musical is played by a silent character who later opens a trunk to reveal two actors. This musical begins with El Gallo ("GAL-loh") taking down a lettered drape and singing about "the kind of September when life was slow and oh so mellow." With a 42-year off-Broadway run, this is the longest-running musical ever, though modern productions use words like "abduction" to replace lyrics in the "Rape Ballet." For 10 points, name this musical that includes "Try to Remember."

ANSWER: *The **Fantasticks***

<Other Fine Arts>

BONUSES

1. Remains from Latvia's Zvejnieki ("ZVAY-nee-yeck-ee") cemetery show healing on these body parts, which were damaged at Sweden's Alvastra ("AL-vass-truh") pile-dwelling. For 10 points each:

[10e] Name these body parts that were mutilated at the Crow Creek massacre site on the Great Plains, where they were often taken as trophies during intergroup warfare.

ANSWER: **scalps** [accept **scalping**; prompt on **heads**, **skulls**, **hair**, **cranium**, **crania**, **epicranium**, or **epicrania**]

[10h] Scalp marks at Herxheim ("HAIRKS-hyme") may reflect cannibalism among this Neolithic culture, which left mass graves at Schletz and the Talheim Death Pit. Before the Cucuteni ("koo-koo-TAYN"), this culture of "Old Europe" built huge Danubian longhouses.

ANSWER: **Linear Pottery** culture [or **LBK**, **LPC**, **Linearbandkeramik**, **Linear Ware** culture, **Linear** Band **Ware** culture, **Linear Ceramic** culture, or **Incised Ware** culture; accept Eastern **Linear Pottery** culture, **ALP**, **Alföldi** Linear Pottery culture, **Bükk** culture, **Tiszadob** culture, **Székelyhát** culture, or Western **Linear Pottery** culture]

[10m] Remains from another Linear Pottery mass grave bear trauma from this primary weapon of the culture. Ötzi the Iceman was killed while carrying a copper ax resembling these prehistoric woodcarving tools often used as hoes.

ANSWER: **adzes** ("ADS-iz") [or **adz**; accept hand **adzes** or foot **adzes**; accept ground stone **adzes**] (The mass grave is at Schöneck-Kilianstädten.)

<Other History>

2. A Max Beerbohm cartoon illustrates efforts by this man and Henry Austin Dobson to compose poetry in traditional French forms such as the ballade. For 10 points each:

[10h] Name this author of the *Cornhill Magazine* essay "A Plea for Certain Exotic Forms of Verse." He may be best known for a memoir about being raised in a religious household led by a zoologist father.

ANSWER: Edmund **Gosse** ("goss") [or Edmund William **Gosse**] (The memoir is *Father and Son*.)

[10e] Working with William Archer, Gosse helped popularize this playwright in Britain by translating plays like *The Master Builder*.

ANSWER: Henrik **Ibsen** [or Henrik Johan **Ibsen**]

[10m] In this novel, Ed Winterton, a scholar working on a biography of Gosse, reveals that he burned a set of letters the title author wrote to Juliet Herbert. This novel is narrated by Geoffrey Braithwaite.

ANSWER: **Flaubert's Parrot** (by Julian Barnes)

<British Literature>

3. This event caused an artist to turn away from grotesque etchings called *Inventions* to watercolor views of the gardens of St. Germain. For 10 points each:

[10h] Name this trip that included Louis Moilliet ("mwal-YAY") and August Macke ("MAH-kuh"). During this trip, an artist wrote that "Color and I are one" and created the abstract painting *In the Style of Kairouan* ("kair-WAHN").

ANSWER: Paul **Klee**'s trip to **Tunisia** [accept **Tunis**, **Tūnisīyah**, French **Tunisia**, Regency of **Tunis**, or French Protectorate of **Tunisia** in place of "Tunisia"; prompt on Klee's visit to North **Africa** or the **Maghreb**; prompt on trip to **Tunisia** or equivalents by asking "whose trip?"; prompt on descriptions of a trip or journey undertaken by Paul **Klee** by asking "to what country?"]

[10e] Klee's color theory is detailed in his two-volume set of these things, which are over 3,900 pages long and were fully digitized in 2016. Leonardo's Codex Atlanticus is one of these things that features his mirror writing.

ANSWER: **notebooks** [or **notes**; accept **journals**; accept **sketchbooks**; prompt on **manuscripts** or **documents** or **books**; reject "*Pedagogical Sketchbook*"]

[10m] Klee's time in Egypt and color theory informed this large, late-career pointillist masterpiece, which depicts a sun rising over the slope of a mountain or house made up of tiny squares of color.

ANSWER: **Ad Parnassum**

<Painting & Sculpture>

4. After acting, these proteases leave lysine and arginine residues that carboxypeptidase E can remove from the fragments. For 10 points each:

[10h] Name these enzymes found in neuroendocrine cells. These enzymes transform proproteins into peptide hormones by performing steps like removing the C-peptide and separating POMC (“P-O-M-C”) into ACTH and the melanotropins.

ANSWER: proprotein **convertases** [or proprotein **convertase** subtilisin/kexin; accept prohormone **convertases**, **PPCs**, **PCs**, or **PCSKs**]

[10e] PC1/3 (“P-C-one-three”) and PC2 transform proinsulin and proglucagon in the alpha and beta cells of this organ.

ANSWER: **pancreas**

[10m] Maturation of viruses in this genus relies on the convertase furin cleaving the pmR premembrane protein. This genus includes various arboviruses transmitted by *Aedes* (“EE-deez”) mosquitoes, like dengue (“DEN-gay”) and West Nile.

ANSWER: **Flavivirus** (“FLAY-vee-virus”) [or **flaviviruses**; or *Orthoflavivirus*]

<Biology>

5. The Somali firm Dahabshiil (“dah-hob-SHEEL”) and the British-Estonian startup Wise challenge Western Union’s dominance over these transactions. For 10 points each:

[10e] Name these transactions between migrants and their families, which provide critical capital inflows for labor exporters like the Philippines.

ANSWER: **remittances** [or word forms of **remitters**; or **remesas**; or money **transfers** or wire **transfers**]

[10m] Oded Stark and an economist with this surname called remittances “enlightened selfishness.” An economist of this surname names the “paradox” of low capital flow to developing countries despite low capital per worker.

ANSWER: **Lucas** [accept Robert **Lucas** or Robert Emerson **Lucas**; accept Robert E. B. **Lucas**; accept **Lucas** paradox]

[10h] Marxist studies of remittances analyze them using this theory created by Greek-French Marxist Arghiri (“ar-GHEE-ree”) Emmanuel, which holds that higher wages in the imperial core are used to prevent international worker solidarity.

ANSWER: **unequal exchange** [or l’**échange inégal**]

<Social Science>

6. A “minister” of this character titles Tegernsee (“TAY-germ-zay”) Abbey’s play about the Investiture Controversy, whose stage directions call for seven thrones. For 10 points each:

[10m] What character receives a ring from a Jewish sorcerer in *Le Miracle de Théophile* (“tay-oh-FEEL”)? In the York Cycle, tanners dramatized the “fall” of this character, whose home appeared as a mechanical mouth on medieval sets.

ANSWER: **Satan** [or the **Devil**, **Lucifer**, **Prince of Darkness**, or equivalents; accept **Belial** or **Beelzebub**] (Clues include the *Ludus de Antichristo* and the hellmouth.)

[10e] Set designers built Satan’s “hell-castle” for “Harrowing of Hell” sequences in this genre of liturgical drama, which was staged in cities like Oberammergau (“OH-ber-AH-mer-gao”) over Easter.

ANSWER: **Passion** plays [or **Passionsspiele**; prompt on **mystery** plays or **miracle** plays]

[10h] A comic seller of this item from Passion play “Mercator scenes” titles a scatological, anti-Semitic Bohemian parody of Passion plays. Early “prop men” sold this item to the three Marys in *Quem quaeritis?* (“kwem kwair-uh-tiss”) dramas.

ANSWER: **ointment** [or skin **cream**, **unguent**, **oil**, or **anointing** oil; accept *The Ointment Seller* or *Unguentarius* or *Mastičkář*]

<European Literature>

7. This style of music was independently developed in Communist Romania with pieces like Corneliu Cezar's ("cor-NAIL-yoo CHAY-zar's") *AUM* ("ohm"), which emphasizes the acoustics of fundamental frequencies. For 10 points each:

[10h] Name this style of composition based on physical properties of sound like timbre ("TAM-bur") and frequency. Gérard Grisey ("gree-ZAY") cared little for this term, instead preferring "liminal music."

ANSWER: **spectral** music [or **spectralism** or word forms]

[10m] Spectralism was facilitated by technological advances at this Paris institution founded in the 1970s. The softwares PatchWork and OpenMusic were developed at this center, which hosts the yearly ManiFeste.

ANSWER: **IRCAM** ("eer-KAM") [or **Institut de recherche et coordination acoustique/musique**; or **Institute for Research and Coordination in Acoustics/Music**]

[10e] The late IRCAM alumna Kaija Saariaho ("KYE-yuh SAR-yah-ho") hails from this country. A popular score writing software is named for a composer from this country who wrote seven symphonies and a D-minor violin concerto.

ANSWER: **Finland** [or **Suomi**; or Republic of **Finland** or **Suomen** tasavalta or Republiken **Finland**] (The software is Sibelius.)

<Classical Music>

8. This agency sought to derail the tycoon Edward Lamb by linking him to communists, leading to a three-year-long trial recounted in the memoir *No Lamb for Slaughter*. For 10 points each:

[10m] Name this agency to which Dwight Eisenhower nominated John C. Doerfer to appease Joseph McCarthy. This agency regulated the "equal time" provision.

ANSWER: **FCC** [or **Federal Communication Commission**]

[10e] Doerfer mismanaged the FCC through a number of scandals, including one in which 1950s television shows in this genre, such as *Twenty-One*, fixed their results to boost ratings.

ANSWER: **game** shows [or **quiz** shows]

[10h] Eisenhower's other FCC appointees included this McCarthy ally, who created a namesake "list" of communists at the State Department. A playwright with the same name was the alphabetically-latter cofounder of the Armed Forces Radio Service.

ANSWER: Robert E. **Lee** [or Robert Emmett **Lee**; accept **Lee** list; accept Robert Edwin **Lee**; reject "Robert Edward Lee"]

<American History>

9. Answer the following about "Noah's pudding," or "Ashure" ("ashura"), a sweet porridge consumed at many Middle Eastern festivals, for 10 points each.

[10e] As the name "Ashure" suggests, it is often eaten during the Mourning of Muḥarram to commemorate the death of this son of 'Alī and his brother Ḥasan at Karbalā'.

ANSWER: **Husayn** [or **Husayn** ibn 'Alī]

[10m] Sephardim eat Ashure under the name *trigo koço* ("koh-soh") at a seder during this "New Year of the Trees." The date of this Arbor Day-like festival determines when a tree's fruit ceases to be *orlah*.

ANSWER: **Tu BiShvat** ("too bish-VAHT") [or **15th of Shevat**; accept **Rosh Hashanah L'ilanot**; reject "Rosh Hashanah"] ("Orlah" refers to fruit that is ritually impure due to being unripe.)

[10h] In Turkic cultures, Ashure is often served at a spring festival that celebrates a yearly meeting in al-Quds between a prophet and a figure who baffles Moses in the Sūrat al-Kahf. Name either the festival or both eponymous figures.

ANSWER: **Hidrelez** ("HUH-duh-rel-LESS") [or al-**Khidr** AND **Elijah**; or **Xıdır Nəbi**, **Ruz-i Hızır**, **Ederlez**, **Tepres**, **Kakava**, **Haftamal**, **Dita Verēs**, or **Eğrice**; accept Saint **George**, Mar **Giyorgis**, **Jirjis**, **Gurgis**, **Djordje**, **Gjergj**, **Đurad**, **Hızır**, or **Hidir** in place of "al-**Khidr**"; accept **Ilyās** in place of "Elijah"; accept answers in either order if the two names are given]

<Religion>

10. Cache latency in these devices can be hidden by exploiting massive data parallelism. For 10 points each:

[10e] Name these computational devices that Nvidia currently designs around streaming multiprocessors, though they used to be designed according to the stages in a rendering pipeline.

ANSWER: **GPUs** [or **graphics processing units**; accept **graphics cards**]

[10h] Memory accesses by GPU threads within these units are coalesced into one access to reduce bandwidth. Give either the OpenCL or the CUDA (“coo-dah”) term for this smallest unit in the hierarchical organization of threads.

ANSWER: **wavefronts** OR **warps** [accept **waves** in place of “wavefronts”]

[10m] The execution of GPU threads within a wavefront belongs to this category of Flynn’s taxonomy. This type of parallel architecture, which is known by a four-letter initialism, includes vector processors that apply an instruction to several registers.

ANSWER: **SIMD** [or **single instruction, multiple data**; accept **SIMT** or **single instruction, multiple threads**]

<Other Science>

11. Victor Liebermann’s *Strange Parallels* argues that merchants elevated female rulers in Aceh (“AH-cheh”), Ternate (“TAIR-nah-tay”), and this sultanate after 1400. For 10 points each:

[10h] Name this sultanate ruled by Green, Blue, Purple, and Yellow queens. Thaification (“Thai-ification”) aimed to assimilate this sultanate’s Malays after it was ruled by Kelantan (“kuh-LAHN-tahn”).

ANSWER: **Patani** (“pah-TAH-nee”) [or Sultanate of **Patani** or **Patani** Kingdom or Kesultanan **Pattani**] (The queens were Raja Hijau, Raja Biru, Raja Ungu, and Raja Kuning.)

[10m] Siam reconquered Patani (“pah-TAH-nee”) after Ladies Chang and Muk fought this dynasty’s 1786 invasion. At times ruled by senior queens like Yun San, this Burmese dynasty succeeded the Toungoo (“TOWN-goo”), whose viceroy dueled Queen Suriyothai (“soo-ree-YO-tye”).

ANSWER: **Konbaung** (“kohn-baong”) dynasty [or **Konebhaung** dynasty] (Yun San served as regent for her husband Alaungpaya. Suriyothai was killed by the viceroy of Prome in 1548.)

[10e] Lady Mo delayed this ethnic group’s revolt against Thaification after the Konbaung (“kohn-baong”) lost suzerainty in Luang Prabang (“lwahng PAH-bahng”). Queen Maha Devi ruled this people’s Lan Xang (“lan sang”) kingdom before Vang Buri of Vientiane (“vee-yen-tee-AHN”).

ANSWER: **Lao** people [or **Laos** or **Laotians**; accept **Isan**, **Phuan**, **Loum**, **Soung**, **Theung**, **Wiang**, **Ga**, **Khrang**, **Ngaew**, **Nyaw**, **Yo**, **Ti**, **Di**, **Lom**, or **Loei**; prompt on **Tai** peoples] (Lady Mo helped suppress Anouvong’s rebellion.)

<World History>

12. Answer the following about slogans that ignited protests in the Balkans, for 10 points each.

[10m] A pun on the Partisan slogan “Death to fascism, freedom to the people” attacked this country’s illiberal leader Janez Janša. This country, whose civil registry “erased” Yugoslavs after its 10-day independence war, legalized gay marriage in 2022.

ANSWER: **Slovenia** [or Republic of **Slovenia**; or Republika **Slovenija**]

[10h] This coalition is named for a slogan of protests sparked by a 2023 school shooting. This opposition alliance rallied against state media like TV Pink and charged the Progressive Party with bussing in Bosnian voters.

ANSWER: **Serbia Against Violence** [or **Srbija protiv nasilja** or **SPN**]

[10e] The slogan “we won’t give up Montenegro” challenged state confiscation from Serbia’s autocephalous branch of this institution, which rivals a noncanonical Montenegrin branch opposed by the Ecumenical Patriarchate.

ANSWER: Eastern **Orthodox** Church [or **Orthodox** Catholic Church or Eastern **Orthodoxy**; accept Serbian **Orthodox** Church or Srpska **pravoslavna** crkva; accept Montenegrin **Orthodox** Church, Crnogorska **pravoslavna** crkva, **MOC**, or **CPC**; prompt on Christian **church**, Eastern **church**, **eparchy**, **metropolitanate**, or **archbishopric**; reject “Catholic Church”] (“Ne damo Crnu Goru” opposed a law transferring ownership of church property built prior to 1918 to the state.)

<Current Events>

13. *Two answers required.* A paper by this pair points out that any human who understands “John loves Mary” can understand “Mary loves John.” For 10 points each:

[10h] Name these colleagues, a philosopher and a cognitive scientist who argued that neural nets cannot attain “systematicity” in the 1988 paper “Connectionism and Cognitive Architecture.”

ANSWER: Jerry **Fodor** AND Zenon **Pylyshyn** (“puh-LISH-un”) [accept answers in either order; accept Jerry Alan **Fodor** in place of “Jerry Fodor”; accept Zenon Walter **Pylyshyn** in place of “Zenon Pylyshyn”]

[10e] Fodor and Pylyshyn’s (“puh-LISH-un’s”) systematicity challenge favors classical AIs that operate on systems of these things, as the person in Searle’s (“serl’s”) Chinese room does. Like signs, these things stand for or represent other things.

ANSWER: **symbols** [or word forms of **symbolize**]

[10m] The pair also defended the “Establishment view” that this process is inferential against J. J. Gibson’s “direct” theory. Disjunctivism denies that the argument from illusion is applicable to veridical instances of this process.

ANSWER: **perception** [or **perceptual** experience; accept **visual** perception or **vision** or word forms of **sight** or **seeing**; accept “How direct is visual **perception**?”; prompt on **experience**, **sense**-experience, **sensation**, or word forms]

<Philosophy>

14. For alphabetical reasons, Georges Aad was lead author on many of this experiment’s papers until Morad Aaboud (“ah-BOOD”) started work on it. For 10 points each:

[10m] Name this experiment that collaborated with CMS on a 2015 paper with 5,154 co-authors, which established a particle’s mass as 125 GeV (“G-E-V”).

ANSWER: **ATLAS** experiment [or **ATLAS** collaboration or A **Toroidal LHC Apparatus**; prompt on **LHC** or **Large Hadron Collider**]

[10e] Aad headed the 14-page list of co-authors of the paper announcing ATLAS and CMS’s 2012 discovery of this particle, which imparts mass.

ANSWER: **Higgs** boson [or **Higgs** particle]

[10h] Fabiola Gianotti, the current CERN (“sern”) director-general and former spokesperson of ATLAS, has supported building this proposed 100 TeV (“T-E-V”) successor to the LHC, which would be over three times as big.

ANSWER: **FCC** [or **Future Circular Collider**]

<Physics>

15. Southern Dynasties authors created a subgenre of “music bureau” poetry about these places, which are called a “place of death and blue void” in one of the *300 Tang Poems*. For 10 points each:

[10h] Identify these places that name a historicist style of poetry popularized by the Four Elites of Early Tang. “Cicadas complain of thin mulberry trees” in a typical poem about hardship in these places by Wáng Chānglíng.

ANSWER: **frontiers** [or **borders**, **margins**, **boundary**, **boundaries**, **edges**, or **sides** of the map; accept frontier **fortresses**, **forts**, **garrisons**, **guardhouses**, or strategic **passes**; accept **frontier** poems, **frontier**-fortress poetry, **biānsài shī** or **biānsài shī**; accept areas **beyond** the **Great Wall** or equivalents; prompt on **northwest**, **northeast**, **xīběi**, or **dōngběi**] (The poem is Gāo Shì’s “Song of the Yàn Country.”)

[10e] The poem “Beyond the Border” won Wáng Zhīhuàn (“wahng jurr-HWAN”) a contest held in a shop for this good. In a Lǐ Bái poem, the speaker consumes this good “alone under the moon.”

ANSWER: **wine** [or **jiǔ**; prompt on **alcohol**, **liquor**, **spirits**, **booze**, **beverages**, **drinks** or equivalents of any]

[10m] This character asks the khan for a camel to return home from Yàn’s frontier. This folk hero titles a ballad from the Northern Dynasties that ends with two indistinguishable rabbits running side by side.

ANSWER: **Mùlán** [or Huā **Mùlán**, Hwa **Mu-lan**, Faa **Muk-laan**, or Hwæ **Muk-lan**; accept “Ballad of **Mùlán**” or “**Mùlán** ci”; prompt on **Huā**, **Hwa**, **Faa**, or **Hwæ**]

<World Literature>

16. Answer the following about films that offer creative responses to Central African resource exploitation, for 10 points each.

[10e] This taste titles a documentary about divers who sell sand for Bangui's ("bahn-GHEE's") Chinese building boom. Xi Jinping told millennials to endure suffering by "eating" this basic taste of the quinine in tonic water.

ANSWER: **bitterness** [accept **bitterants**; accept "eat **bitterness**" or "chī **kǔ**"] (Pascale Appora-Gnekindy and Ningyi Sun directed *Eat Bitter*.)

[10m] The Congolese crime drama *Viva Riva!* centers on a heist of this resource. West African pirates perform "bunkering" to steal this resource, whose sabotage titles a manifesto by Swedish Marxist Andreas Malm.

ANSWER: **petroleum** [accept crude **oil** or **gasoline**; accept **petrochemicals** or **petchems**; accept **petro-piracy**; prompt on fossil **fuels** or **hydrocarbons**; reject "natural gas" or "methane"] (Djo Tunda Wa Munga directed *Viva Riva!* The pirates are based in the Gulf of Guinea. Malm wrote *How to Blow Up a Pipeline*.)

[10h] Matalusa escapes Burundi's coltan mines and joins a revolutionary collective with the intersex hacker Cheryl in this 2021 musical film. It was co-directed by Saul Williams and Rwandan playwright Anisia Uzeyman.

ANSWER: ***Neptune Frost***

<Other Academic>

17. *Specific term required.* 1662 raids by Koxinga ("kock-SING-uh") led officials to pull out from one of these places in Zamboanga ("SAM-bo-ANG-guh") to avoid further war with Maguindanao. For 10 points each:

[10h] Name these imperial outposts that included the Peñón, La Goletta, and Melilla ("may-LEE-yuh"). Philip II retained a state of five ports named for these buildings after the Medici conquered Siena.

ANSWER: **presidios** [or **presidium**; or royal **presidios**, reales **presidios**, reali **presidi**, or **présides** royaux; accept State of the **Presidi**, Stato dei **Presidi**, Estado de los Reales **Presidios**, or État des **Présides** royaux; accept **presidios** mayores or **presidios** menores; prompt on **garrisons**, **fortresses**, **guardhouses**, **fuerter**, or **fuerzas**; prompt on **plazas de soberanía** or "places of sovereignty"]

[10m] Sultans of Sulu dealt with both Zamboanga's presidio and agents of one of these trading posts on Balambangan. The Canton System managed 13 of these company entrepôts similar to Hanseatic *kontors*.

ANSWER: **factories** [or **factory**, **feitorias**, **factorias**, **factorijs**, or **factorium**; accept **factors**; accept Thirteen **Factories** or Shísān **Háng** or Sap-Saam **Hong**]

[10e] The Venice and Turkey companies merged into a joint-stock company named for this word that built factories in Aleppo and Smyrna. Like "orient," this word for Israel, Lebanon, and "greater Syria" refers to the sunrise.

ANSWER: **Levant** [accept **Levantine** Sea; accept **Levant** Company]

<European History>

18. *Specific term required.* One of these people is "braver at night; / dreaming evil" and fixes "suppers for the worms and the elves" according to a poem that states, "A woman like that is not ashamed to die." For 10 points each:

[10m] Name these subjects of Anne Sexton's poem "Her Kind," in which she imagines herself as a "possessed" one of these people. Several of them appear in Sexton's collection *Transformations*.

ANSWER: **witches** [accept "The **Witch**'s Life"; reject putative equivalents such as "magician"]

[10e] In Sexton's retelling of this story, a witch's blood boils up "like Coca-Cola" and two children recall "the smell of the cooking witch" as being "a little like mutton."

ANSWER: "**Hansel and Gretel**" [or **Hänsel und Gretel**"]

[10h] In this poem from *To Bedlam and Part Way Back*, witches in the speaker's head tell her, "too late." This poem in seven parts is addressed to Sexton's daughter Joyce and opens, "I am thirty this November."

ANSWER: "The **Double Image**"

<American Literature>

19. The reciprocal of this expression appears in the leading constant of the probability density for a statistical ensemble. For 10 point each:

[10h] Give this expression for the volume of a microstate. When particles are indistinguishable, this expression is multiplied by a factorial to avoid the Gibbs paradox. Express your answer in terms of n , the number of dimensions.

ANSWER: **Planck's constant to the n** [or **h to the n** ; accept one over **Planck's constant to the n** or one over **h to the n** ; accept **reduced Planck's constant** or **h -bar** in place of "Planck's constant"]

[10m] The remainder of the expression for probability density in the canonical ensemble is a Boltzmann factor between the system's energy and this quantity. This potential is the maximum work performable at constant temperature.

ANSWER: **Helmholtz** free energy [or **Helmholtz** energy; prompt on **F** or **Δ**]

[10e] In chemistry, a positive Helmholtz free energy indicates that the system does work [emphasize] *on* this broad entity; equivalently, this entity has work done on it [emphasize] *by* the system. An open system can exchange particles with this entity.

ANSWER: the **environment** [accept the **surroundings** or an external heat **reservoir**; prompt on the **universe**]
<Chemistry>

20. This artist created a 900-page, telephone-book style analysis of the political contributions of trustees at art museums in her book *2016 in Museums, Money, and Politics*. For 10 points each:

[10h] Name this artist who used the name Jane Castleton for her tour guide parody *Museum Highlights*. This artist filmed herself having sex with an art collector in a hotel in her 2003 piece *Untitled*.

ANSWER: Andrea **Fraser** [or Andrea Rose **Fraser**]

[10m] *Specific term required.* Fraser's work is this kind of conceptual art, which politically examines museums and other artistic spaces. This kind of art includes Hans Haacke's ("HAH-kuh's") *MoMA Poll*.

ANSWER: **institutional critique**

[10e] This country's artist Marcel Broodthaers ("bro-TARS") created a parody *Museum of Modern Art*. The museum's labels read "This is not a work of art" in reference to *The Treachery of Images* by an artist from this country.

ANSWER: **Belgium** [or Kingdom of **Belgium**, Koninkrijk **België**, Royaume de **Belgique**, or Königreich **Belgien**]
<Other Fine Arts>