

TOSSUPS

1. This parameter is restricted by benefactives but not other applicatives in Chichewa, which may reflect linearization along the Bantu animacy hierarchy. This parameter tracks weight and importance in Behaghel’s laws. The dominant form of this parameter is “scrambled” by cleft constructions. This parameter is often “disharmonic” in languages like Uyghur (“WEE-gur”), contra Joseph Greenberg. Three forms of this parameter are found in under five percent of natural languages, including Warao and the Cariban language Hixkaryana (“hish-car-YAH-nah”). Grammaticalization may make this parameter more “fixed,” as in the Germanic V2 principle. Analytic languages typically use this parameter and not inflection to convey syntactic roles. English alters this parameter via wh-movement (“W-H-movement”) and inversion in questions. For 10 points, what parameter most commonly takes the form “SOV,” or “subject–object–verb”?

ANSWER: word **order** [or word forms of **ordering** or word **position**; or Wort**stellung**; accept clausal **order** or NP **order**; prompt on **symmetry**, **asymmetry**, **antisymmetry**, language **structure**, or sentence **structure**; prompt on **syntax** or **syntactical** until “syntactical” is read; prompt on **topicality**, **focus**, **prominence**, or topic-**prominent** by asking “encoded by what parameter?”]

<Social Science>

2. In a story set in this city, a judge sexually exploits a maid, then finds her squalid home and browbeats her for stealing his watch. A leftist doctor wrote about this city’s poor in stories like “The Dregs of the City”; that author of *The Cheapest Nights* argued that his rival’s novels about this city were dubbed “narrative art that applies to all mankind” for copying European realism. A novel set in this city ends with the arrest of a Communist and his anticolonial brother in 1944, 17 years after a teen girl’s new baby is overshadowed by her law student brother’s shooting at a protest against Britain. Yūsuf Idrīs opposed the traditionalism of the blind education minister Ṭāhā Ḥusayn in this city, whose Gamaliya quarter is the home of the Jawad family. For 10 points, the novel *Sugar Street* ends a trilogy about what city by Naguib Mahfouz?

ANSWER: **Cairo** [or al-**Oāhirah**; accept **Cairo** Trilogy or al-Thulāthiyyah al-**Oāhirah**; accept **Cairene** literature (The trilogy’s first two parts are *Palace Walk* and *Palace of Desire*.)

<World Literature>

3. In a cube diagram introduced by Henk Barendregt, this theoretical system is the front bottom-left vertex. Mattias Felleisen’s (“fell-EYE-sen’s”) two control operators A and C are used to extend this system to be able to manipulate continuations. This system’s rewriting rules are confluent due to a theorem partially attributed to J. Barkley Rosser. A notion of universal quantification is incorporated in the polymorphic extension of this system called System F. Russell’s paradox likely inspired the first definition of a fixed point combinator in this system. This system is connected to intuitionistic logic by the Curry–Howard correspondence. This system uses beta reduction to evaluate functions. This system is the theoretical foundation of functional programming languages. For 10 points, name this model of computation developed by Alonzo Church.

ANSWER: **lambda calculus** [accept untyped **lambda calculus**, typed **lambda calculus**, simply-typed **lambda calculus**, polymorphic **lambda calculus**, or other forms or extensions of the **lambda calculus**; reject “calculus”] (The theorem about confluence is the Church–Rosser theorem. The combinator is the Y combinator.)

<Other Science>

4. A poster created as part of a commission for the design of one of these buildings inspired the cover of Clive James's *Cultural Amnesia*. One of the first prefabricated curtain walls was used in one of these buildings in Rotterdam named for Van Nelle. Metal bands break up the rounded corners of the facade of one of these buildings, which features a faceted, gabled concrete roof with a hexagonal logo. A "model" one of these buildings was the pavilion for the 1914 Werkbund ("VAIRK-boont") Exhibition. Large glass and steel panels enclose a staircase in the corner of one of these buildings partly designed by Adolf Meyer. One of these buildings designed by Peter Behrens for AEG influenced another of them in Alfeld that was partly designed by the founder of the Bauhaus. For 10 points, Walter Gropius designed what kind of building for the Fagus company?

ANSWER: **factories** [or **factory** buildings; or manufacturing **plants**; accept Fagus **Factory** or Fagus Shoe **Factory** Fagus **Fabrik** accept AEG Turbine **Factory** or AEG-Turbinen**fabrik**; accept Van Nelle **Factory** or Van Nelle**fabriek**; accept Fagus **Werk** until "Werkbund" is read]

<Other Fine Arts>

5. *Note to moderator: Read the answerline carefully.* This non-American leader's mausoleum based on Napoleon's tomb was bulldozed 39 years after his exile to Mauritius ("maw-RISH-us"). This leader, who signed an unratified water-sharing treaty with a Musahiban ("moo-SAH-hib-an") king, funded French-style schools that replaced *maktabs* with funds taken from *waqfs*. This leader's sugar monopoly financed a cross-country railway through Bakhtiari ("back-tee-YAH-ree") lands that became a wartime supply corridor. This leader's army besieged the Goharshad ("go-har-SHAD") Mosque a year before his hero Atatürk inspired him to ban the *chador* ("CHUH-dor"). This leader, who subdued the Jangalis' socialist republic in Gilan ("ghee-LAHN"), was appointed by the Fifth Majlis ("MAHJ-liss") four years after his Cossack Brigade took the capital. This neutral germanophile abdicated during a 1941 Anglo-Soviet invasion that installed his partially namesake son. For 10 points, the Qājārs ("KAH-jars") were overthrown by what first Pahlavi shah?

ANSWER: **Reza** ("ray-ZAW") Shah [or **Reza** Khan, **Reza** Shah Pahlavi, **Reza** Shah the Great, or **Reza** Khan Sardar e Sepah; prompt on **Pahlavi** until read; reject "Mohammad Reza Pahlavi," "Mohammad Reza Shah," "the shah," or "Reza Pahlavi II"] (The water dispute with Mohammad Zahir Shah concerned Sistān's Helmand River. The Trans-Iranian Railway was part of the "Persian Corridor" during World War II.)

<World History>

6. In a novella set in this country, a girl falls into a well while trying to get water as a final gesture for her foster parents before returning to her family. The protagonist of another novella set in this country frees a woman locked in a coal shed despite accepting a bribe from nuns at a convent. An author from this country wrote an essay collection on the lives of Oscar Wilde, Pedro Almodóvar ("al-mo-DOH-var"), and other gay figures from history and art, titled *Love in a Dark Time*. Characters from this country include Bill Furlong from *Small Things Like These* and Ellis Lacey, who studies bookkeeping and marries Tony Fiorello after moving to New York. An author from this country wrote about the disastrous premiere of Henry James's play *Guy Domville* in his novel *The Master* and also wrote *Brooklyn*. For 10 points, name this home country of Claire Keegan and Colm Tóibín ("CULL-um toh-BEEN").

ANSWER: **Ireland** [or Republic of **Ireland**; or **Éire**; or Poblacht na h**Éireann**] (The novella is Claire Keegan's *Foster*.)

<British Literature>

7. In this composer's First Symphony, the first movement's exposition is followed by a grand pause, after which the development begins with a loud D minor chord played by trumpet, timpani, and strings. The slow movement of this composer's Fifth Symphony begins with the tuba and strings playing a plodding dual 9/8-and-3/4-time rhythm. In that symphony's scherzo, a solo clarinet enters over violins playing a repeated "F-D" ostinato. A toccata-like *Allegro marcato* is the second movement of this composer's Fifth Symphony in B-flat major, whose premiere was interrupted by cannon fire celebrating the Red Army's advance into Germany. This composer's First Symphony replaces its scherzo with a gavotte, as part of a 20th-century take on the style of Haydn. For 10 points, name this composer whose First Symphony is titled *Classical*.

ANSWER: Sergei **Prokofiev** [or Sergei Sergeevich **Prokofiev**]

<Classical Music>

8. A quadrant-based "law" of these events was formulated by the colonial governor William Reid and explained by Henry Piddington's *Horn Book*. Benito Viñes ("VEEN-yes") invented instruments named for these events at the Jesuit Colegio de Belén ("ko-LAY-hee-oh day bay-LEN"). Based on models in his 1841 book on the "philosophy" of these events, James P. Espy suggested burning Appalachia. An 1860s fad correlated these events with a glass's crystallized camphor ("CAM-fer"). Until 2023, the highest ACE ("ace") index for these events was reached during 1899's Feast of San Ciriaco ("seer-YAH-ko"). The 1-2-3 "danger rule" accounts for the past ten years' errors about these events, whose common name derives from similar Maya and Taíno ("TYE-noh") gods of chaos. Belmopan was built after one of these events in 1961, while one in 1900 ended the "Golden Era" of Galveston. For 10 points, what events are tracked by NWS centers in Hawai'i and Miami during their Atlantic "season"?

ANSWER: tropical **storms** [accept **hurricanes**, **cyclones**, **typhoons**, **thunderstorms**, **rainstorms**, **squalls**, **ciclón**, **ciclones**, National **Hurricane** Center, Central Pacific **Hurricane** Center, Galveston **Hurricane**, Joint **Typhoon** Warning Center, **storm** glasses, **ciclonoscopio**, or *The Philosophy of Storms*; prompt on **weather** or **rain** or natural **disasters**; prompt on **floods** or **inundations** or equivalents by asking "caused by what events?"] (Clues include accumulated cyclone energy and the National Weather Service.)

<Other Academic>

9. Margaret of Navarre supported a librarian based in an abbey of this name who went into self-imposed exile after he translated the New Testament into French, only for the courts to order all copies burned. Eugène Millet ("oo-ZHEN mih-LAY") modernized a building of this name to house a Museum of National Antiquities. A mysterious noble of this name, who was allegedly a son of Francis II Rákóczi ("RAH-koh-tsee"), practiced music and alchemy at the court of Charles of Hesse-Kassel ("HESS-uh KAH-sull"). In 1562, Catherine de' Medici pushed a toleration edict of this name that failed to prevent the French Wars of Religion. After being exiled from England, James II lived in a town of this name where Louis XIV primarily resided until the completion of the nearby Palace of Versailles. For 10 points, a canonized 6th-century bishop of Paris lends what name to a French city followed by "en-Laye" ("on leh")?

ANSWER: Saint **Germain** ("san jer-MAN") [accept Saint-**Germain**-en-Laye, Edict of Saint **Germain**, Comte de Saint **Germain**, Count of Saint **Germain**, Abbey of Saint-**Germain**-des-Prés, **Germain** of Paris, Saint **Germanus**, or **Germain** d'Autun] (The librarian was Jacques Lefèvre d'Étaples.)

<European History>

10. *Note to moderator: Read the answerline carefully.* Entrainers that produce azeotropes (“AY-zee-oh-tropes”) with this property can be easily removed because they uniquely cross residue curve separatrices (“SEP-uh-RAY-triss-iz”). The condensation of a product with this property is essential to the function of a Dean–Stark apparatus, which is why it cannot be used to distill ethanol. Binary azeotropes with this property are guaranteed to be minimum-boiling. Materials with low melting points and this property will form slag during smelting. Systems with this property will spontaneously decompose because they lie inside a namesake “gap” bounded by the spinodal (“spy-NODE-al”) curve. Systems with this property can be separated by decanting, which is used to isolate organics from the aqueous phase after extraction. For 10 points, name this property of mixtures that cannot form a single continuous phase. ANSWER: **immiscible** (“im-MISS-ible”) [or **immiscibility**; accept **biphasic**, **multiphasic**, **phase separable**, or descriptions of **two** or more **phases** until “aqueous” is read; accept **heterogeneous** azeotropes or **heteroazeotropes** until “gap” is read and prompt afterwards; prompt on mutually **insoluble** or **not** (mutually) **soluble**; prompt on **separable** or **disperse** or **colloidal**] (Heterogeneous azeotropes are immiscible; additionally, each phase boils to a different product.)

<Chemistry>

11. Two subgroups of this tribe bitterly dispute a sacred site called Hickory Ground. A landmark 1851 state supreme court case evaluated this tribe’s matrilineal *huti* clan system and norms of serial monogamy when a rebel leader’s son sued half-brothers born to Polly Moniac. This tribe’s McGhee Reserve became the center of its Poarch Band. William Augustus Bowles married into this tribe and declared a short-lived state named for it. A *micco* led each of the *talwa* loosely confederated into this tribe, whose centralization was promoted by the Indian agent Benjamin Hawkins and opposed by the “Law Menders” police force led by William McIntosh. William Weatherford helped lead a faction that drew mainly from this tribe’s “Lower Towns” in the “Old Southwest,” which lost the Battle of Burnt Corn. For 10 points, name this tribe whose “Red Sticks” lost a namesake 1814 war to Andrew Jackson.

ANSWER: **Muskogee** (“muh-SKOH-ghee”) Creek [or Muscogee **Creek**; or **Mvskoke**; accept State of **Muskogee**; accept **Poarch** Band of Creek Indians until “Poarch” is read] (The second sentence refers to the Alabama Supreme Court Case *Weatherford v. Weatherford*.)

<American History>

12. *Note to moderator: Read the answerline carefully.* These people are the focus of the initiative AHWIN (“AH-win”), which awarded a 2022 innovation prize to ORANGE LINKS for fingernail QR codes to aid them. In 2000, the ten-year “Gold Plan” for these people expanded with the LCTI program. Until 2015, some of these people received a costly drinking cup for a holiday that falls on September’s “Happy Monday” during Silver Week. Dan Buettner identified lessons from a “hotspot” of these people, like *moai* groups and *hara hachi bu*, in writings on Okinawa’s “Blue Zone.” Annoyance at these people inspired the terms *kaigo jigoku* (“KYE-go JEE-go-koo”) and *rougai* (“ROH-guy”). Kane (“KAH-nay”) Tanaka was a record holder among these people, whose growing economic cost reduces the potential support ratio and raises Japan’s dependency ratio. For 10 points, “silver democracy” refers to the disproportionate welfare given to what large segment of Japan’s population?

ANSWER: **old** people [or **elderly**, **seniors**, **geriatric**, **long-lived**, or super**centenarians**; accept **grandparents**, **dementia** patients, **Alzheimer**’s patients, **retirees**, **pensioners**, or equivalents of any; accept **toshiyori**, **oi**, **uba**, **obāsan**, or **ojisan**; accept **roujin** or **roujo** or **roufu** until “rougai” is read; accept Respect for the **Aged** Day or **Keirō** no Hi or **Toshiyori** no Hi; prompt on **patients**, **sick**, **ill**, or equivalents by asking “with what other trait?”; prompt on **parents**] (Clues include the Asia Health and Wellbeing Initiative and long-term care insurance.)

<Current Events>

13. A British admirer of this thinker used the example of someone being “unselfed” by the sight of a kestrel outside their window to illustrate this thinker’s concept of “decreation” (“de-creation”). A book by this thinker compares social institutions that deceive the conscience to Plato’s “Great Beast,” but allows that “earthly blessings” like home and country can be *metaxu* (“meh-tax-YEW”) connecting humans to the divine. Iris Murdoch drew on this thinker’s prioritization of moral “attention” over will. This thinker argued that rights should be grounded in “obligations” to address modern *déracinement* (“day-rah-seen-MON”), or uprootedness. This author of “The Iliad, or The Poem of Force” and *The Need for Roots* attempted to fight for the Spanish Republic and Free France before her death from tuberculosis and self-starvation at age 34. For 10 points, *Gravity and Grace* is by what French mystic philosopher? ANSWER: Simone **Weil** (“vay”)

<Philosophy>

14. *Description acceptable.* This process ends the development of most daughters of V1 through V6 seam cells in *C. elegans*, which are destined for the cylindrical hyp7 (“hip-7”). This process is studied in goldfish cells expressing RIBEYE, where binding to munc-18 (“munk-18”) helps form mature structures. This process is immediately preceded by GAK and auxilin recruiting Hsc70 (“H-S-C-70”) to remove a structure supported by AP-1 and AP-2. After binding sialic acid, hemagglutinin facilitates this process by changing conformation. The formation of the zero-ionic layer generates mechanical stress that drives this physical process in the “zippering” mechanism. In eukaryotes, this process begins with docking and is mediated by endogenous viral F proteins or SNAREs. For 10 points, name this final step in exocytosis, which forms syncytia (“sin-SISH-ee-uh”) when it occurs between cells. ANSWER: cell **fusion** [or vesicle **fusion**; or (exoplasmic) membrane **fusion**; or descriptions of cells or membranes **merging** or **joining**; accept **fusing** of the viral envelope; accept formation of **syncytia** or **syncytium** until “syncytia” is read; prompt on **exocytosis** or **secretion** or neurotransmitter **release** until “exocytosis” is read by asking “what process must occur during exocytosis?”; reject “budding” or “endocytosis”] (hyp7 is a 133-nucleated syncytium that forms most of the hypodermis.)

<Biology>

15. This man places a laurel plant on the table after declaring, “the classical I call healthy, and the romantic sickly.” This man praises Rubens’s use of “double light” in the painting *Return from the Fields* in a book in which he quips that “architecture is frozen music” and advances a notion of the “Daemonic” that inspired Harold Bloom. In another entry of that book, this author compares a Chinese novel to one of his own works and remarks that, since national literature no longer means much, “the epoch of world literature is at hand.” Nine years of this author’s table talk is recorded in a book by his secretary Eckermann. As an old man, this author proposed to the 17-year-old Ulrike von Levetzow (“LEV-uh-tsoff”) and called out for “more light! more light!” on his deathbed. For 10 points, what author’s late works include “Marienbad (“Marien-baht”) Elegy” and *Faust Part II*?

ANSWER: Johann Wolfgang von **Goethe**

<European Literature>

16. An artist born in this country illustrated Charles Baudelaire’s *Le Spleen de Paris* and painted *Chlorosis (Love Sick)*, one of her characteristic grids of impressionist, muted portraits based on polaroids. An artist from this country depicted Anita and Marcello from *La Dolce Vita* kissing in a bathtub and a dead Aldo Moro in two of the 80 figures in a 550-meter-long Tiber river mural of *Triumphs and Laments*. Marlene Dumas was born in this country, whose history has often been depicted with the character of *Ubu Roi* by an artist who has staged productions of *Lulu* and *Wozzeck*. Soho Eckstein and Felix Teitelbaum appear in the *Drawings for Projection* of an artist from this country who makes animations by repeatedly erasing and recreating charcoal drawings. For 10 points, the injustice of what country’s history has been critiqued by William Kentridge?

ANSWER: **South Africa** [or Republic of **South Africa** or **RSA**; or **Ningizimu Afrika**, **Mzantsi Afrika**, **Suid-Afrika**, **Afrika Borwa**, **Afrika Dzonga**, **Afurika Tshipembe**, or **Sewula Afrika**]

<Painting & Sculpture>

17. Alex Woolf located this culture's heartland in the coastal realm where it carved bulls near a vitrified promontory fort at Burghead. Martin Carver excavated this culture's monastery at Portmahomack, which was possibly raided under the king recorded on its Dupplin cross, Constantine. Ammianus Marcellinus blames this culture's Verturiones tribe for raids with the Attacotti during a "barbarian conspiracy" defeated by Theodosius the Elder under Valentinian I. Fortriu ruled much of this culture from the 7th to 9th centuries, when it created symbol stones that display a mysterious sea beast and inscriptions in the [emphasize] *imported* Ogham ("AW-gum") alphabet. Dál Riata ("dal REE-uh-duh") may have merged with this culture under Kenneth MacAlpin to form the Kingdom of Alba. For 10 points, what supposedly "painted" Caledonians lived north of Hadrian's Wall in Scotland?

ANSWER: **Picts** [or **Pictish** people or **Prydyn**; accept **Albidosi** or **Cruithni**; accept **Fortriu** or **Verturiones** until each is read; accept **Pictland**, **Pictavia**, **Pictish** beast, **Pictish** dragon, or **Pictish** stones; prompt on **Caledonia**, **Caledonians**, **Caledones**, **Caledonii**, or **Dicalydones** until "Caledonians" is read; prompt on **Scots** or **Scotti** until "Scotland" is read; prompt on **Celts**, **Celtic**, **Gaels**, **Gaelic** people, Na **Gàidheil**, **Britons**, **Britanni**, or **Albannaich**] (Woolf identified Fortriu's base as the Firth of Moray rather than further south.)

<Other History>

18. The first paper by Iris Runge ("RUN-guh") was a collaboration with this physicist that included a predecessor of the WKB method. This physicist was succeeded by the pro-Nazi professor Wilhelm Müller shortly before he published his classic six-volume *Lectures on Theoretical Physics*. A so-called "Bible" for 1920s quantum physicists was this scientist's textbook *Atomic Structure and Spectral Lines*. This physicist received a record 84 nominations for the Nobel Prize in Physics without winning. At Munich, this physicist's PhD students included Peter Debye ("deh-BYE"), Wolfgang Pauli, and Werner Heisenberg. This physicist, who introduced the fine-structure constant in an update of a model that also added elliptical quantized electron orbits, co-names the free-electron gas model with Paul Drude ("DROO-duh"). For 10 points, what German physicist extended the Bohr model of the atom?

ANSWER: Arnold **Sommerfeld** [or Arnold Johannes Wilhelm **Sommerfeld**; accept Bohr-**Sommerfeld** model; accept Drude-**Sommerfeld** model]

<Physics>

19. A long poem by this poet promises that if you walk up the Palmolive Building or the Empire State, "below you will spread a strange earth, / beside you will stand a strange man." That poem by this author calls the Mississippi "sister of the Ganges" after proclaiming that "it is a new America, / to be spiritualized by each new American." This poet imagined being a drone "getting drunk with silver honey" in the poem "Beehive." This author of the prophetic poem "The Blue Meridian" wrote, "I am a reaper whose muscles set at sundown" in the poem "Harvest Song." A vignette about a girl whose "skin is like dusk, / when the sun goes down" begins a collection by this grandson of Louisiana governor P. B. S. Pinchback that includes the story "Blood-Burning Moon" and the poem "Georgia Dusk." For 10 points, name this Harlem Renaissance author of the collection *Cane*.

ANSWER: Jean **Toomer** [or Nathan Pinchback **Toomer**]

<American Literature>

20. J. T. F. Jordens's book on this man's religion emphasizes his letters to a jeweler who wrote "six steps" to liberation. This man's disciple Lanza del Vasto founded the Community of the Ark to implement his [emphasize] 20th-century version of "bread labor." This man condemned "seven deadly sins of intolerance" in *Ethical Religion* and claimed that the atheist Charles Bradlaugh ("BRAD-law") feared God to explain inverting the maxim "God is truth" to "truth is God." This man's followers took 11 vows, like fearlessness. This self-proclaimed *sanātani* ("suh-NAH-tuh-NEE") encapsulated his faith in the first verse of the *Īshopanishad* ("EE-sho-PUN-ih-shud") and led prayer meetings with the egalitarian mantra "*sarva dharma sambhava*" ("SUM-buh-vuh"). The Christian anarchism of *The Kingdom of God Is Within You* inspired this man's ashram Tolstoy Farm. For 10 points, what activist extended *ahimsā* in his concept of *satyāgraha* ("sut-YAH-gruh-huh")? ANSWER: Mahātmā **Gandhi** [or Mohandas **Gandhi**; or Mohandas Karamchand **Gandhi**; accept **Gandhism**; accept **Gandhi's Religion: A Homespun Shawl**] (The jeweler was the Jain monk Raychand, who wrote *Atma Siddhi*. "*Sarva dharma sambhava*" affirms equal respect for all religions.) <Religion>

BONUSES

1. The Shaivite (“SHY-vyte”) phase at one of these places likely drew on iconography attributed to the Early Kalachuris at another of them on Elephanta Island. For 10 points each:

[10m] Name these places where early medieval monks engraved copper-plate grants. These places included Udayagiri, Ellora, and a site where Xuánzàng (“shwen-zahng”) viewed Vākāṭaka (“vah-KAH-tuh-kuh”) *viharas* and *chaityas* (“CHATE-yuh’s”).

ANSWER: **caves** [or **caverns**; accept **cave** temples; accept Ajanta **Caves**, Ellora **Caves**, Elephanta **Caves**, or Udayagiri **Caves**; prompt on Hindu **temples**, **mandir**, Buddhist **monasteries**, **monastery**, **stūpas**, or **hermitages** by asking “built in what sort of location?”]

[10h] The Kailāsha (“kay-LAH-shuh”) temple carved by this Deccan dynasty in the Ellora Caves may be the world’s largest monolith. This dynasty from Manyakheta (“mun-yuh-KAY-tuh”) contested Kannauj (“KUN-nawj”) with the Pālas and Gurjara-Pratihāras after the death of Harsha.

ANSWER: **Rashtrakuta** (“RASH-truh-KOO-tuh”) dynasty [or **Rāshtrakūtas** or **Rāstrakūtas**]

[10e] Several Rāshtrakūṭa carvings in the Ellora Caves reflect King Krishna I’s patronage of this tradition, whose “sky-clad” school thrived in Mālwa under the Rāshtrakūṭas’ Paramāra vassals.

ANSWER: **Jainism** [or **Jains** or **Jaina** or **Jain** Dharma; accept **Digambara**]

<World History>

2. The *Notebook for Anna Magdalena Bach* includes two pieces in this genre, one in G major and the other in G minor, which are now known to have been written by Christian Petzold. For 10 points each:

[10e] Identify this genre named for a French dance in triple time. Early symphonies pair it with a contrasting trio section, a format that was superseded by the scherzo and trio.

ANSWER: **minuet** [accept **minuet** and trio]

[10h] This composer wrote over 50 symphonies that standardized the four-movement structure and the minuet and trio. This composer and his sons developed the use of dramatic gradual crescendos for full orchestra.

ANSWER: **Johann Stamitz** [or **Johann Wenzel Anton Stamitz**; or **Jan Václav Antonín Stamic**; prompt on **Stamitz**]

[10m] A Romanze is the slow movement of Stamitz’s B-flat-major third piece in this genre. Mozart’s last completed instrumental work was an A-major piece in this genre.

ANSWER: **clarinet concerto** [prompt on **concerto**]

<Classical Music>

3. New Keynesian models predict that stabilizing inflation would also stabilize this measure, a result that Jordi Galí and Olivier Blanchard called the “divine coincidence.” For 10 points each:

[10h] Name this difference between actual and potential GDP. It is related to a central bank’s target and actual interest and inflation rates by the Taylor Rule.

ANSWER: **output gap**

[10e] The output gap attempts to measure a country’s economic position relative to one of these intervals of expansion and recession. They are the subject of macroeconomic models named for “real” ones.

ANSWER: **business cycles** [accept real **business cycle** or real **business cycle** theory or **RBCs**]

[10m] To modulate output gaps or inflation rates via monetary policy, central banks can conduct one of these “operations” of giving or taking liquidity directly from commercial banks, often via bonds or repo agreements.

ANSWER: **open market** operations [or **OMOs**; accept **refinancing** or **fine-tuning** or **structural** operations; accept **LTROs** or **MROs**]

<Social Science>

4. Agathias collected a cycle of urbane Justinianic poems in this genre, whose Nonnian style influenced Macedonian Renaissance poets like John Geometres. For 10 points each:

[10e] Renaissance authors like Clément Marot imitated Martial's corpus of over 1,500 poems in what genre of succinct, witty verse?

ANSWER: **epigrams** [or **epigrammata**; or word forms, such as **epigrammatists**; accept **epitaphs**; accept inscriptional **epigram**s; prompt on **inscriptions** or **funerary poems**]

[10h] Andrea Alciato's *Emblemata* illustrated some of this book's many epigrams compiled by the Byzantine grammarians Cephalas and Planudes. Epigrams by Moero and Erinna survive in this book based on Meleager of Gadara's *Garland*.

ANSWER: **Greek Anthology** [or **Anthologia Graeca** or **Elliniki Anthologia**; accept **Palatine Anthology** or **Anthologia Palatina** or **Palatini Anthologia**; prompt on *Anthology of Planudes*, *Appendix Planudea*, *Planudean Anthology*, *Anthologia Planudea*, or *Anthologia diafóron epigrammáton*]

[10m] The *Greek Anthology* preserved an epigrammatist of this name from Messene. A member of the Nine Lyric Poets with this name hailed from Mytilene ("mit-uh-LEE-nee") on Lesbos and, like his contemporary Sappho, names a four-line stanza form.

ANSWER: **Alcaeus** [or **Alceus**; accept **Alcaeus** of Mytilene or **Alkaios** ho Mutilēnaios; accept **Alcaeus** of Messene or **Alkaíos** o Messínios]

<European Literature>

5. Lactate accumulates under this condition due to pyruvate fermentation. For 10 points each:

[10e] Name this condition that results in the low pH of the tumor microenvironment. Regions with this condition are typically more than 70 microns from the nearest blood vessel, preventing gas exchange.

ANSWER: **hypoxia** [or **anoxia**; or descriptions of **low oxygen** or **no oxygen**; accept **anaerobic** conditions]

[10m] Hypoxic cells retain nitroimidazoles like FMISO, allowing them to be detected by this technique. Fludeoxyglucose is another tracer for this technique.

ANSWER: **positron emission tomography** scan [or **PET** scan; prompt on **radiography**, **tomography**, **scintigraphy**, or **scintillography**]

[10h] Hydrogen peroxide is a byproduct of this protein's autocatalytic activation, which needs oxygen but still occurs in hypoxia. An "enhanced" variant of this protein was found through optimization with FACS after oligo-directed mutagenesis and contains the S65T mutation.

ANSWER: **GFP** [or **green fluorescent** protein; accept **EGFP** or enhanced **green fluorescent** protein]

<Biology>

6. The Associated Press sued this magazine for libel after the printing of a cartoon depicting the news giant "Poisoned at the Source." For 10 points each:

[10m] Name this socialist magazine that was shut down in 1917 over its editors' anti-war stances. Jack Reed covered the trial of "Big Bill" Haywood and other Wobblies for this graphic magazine.

ANSWER: *The Masses*

[10e] While reporting for *The Masses*, Reed penned a firsthand account of the October Revolution titled for this many days. Nellie Bly went undercover for this many days to write a piece on the asylum at Blackwell's Island.

ANSWER: **10** days [or **ten** days; accept **Ten Days in a Mad-House**; accept **Ten Days That Shook the World**]

[10h] This editor of *The Masses* later married the sister of Nikolai Krylenko, a legal czar responsible for many Soviet show trials. After *The Masses* was shut down, this editor founded *The Liberator* with his sister, who co-founded the ACLU.

ANSWER: Max **Eastman** [or Max Forrester **Eastman**]

<American History>

7. Though he was based in Mississippi, it was in this state that Delta blues musician Robert Johnson recorded the entirety of his discography. For 10 points each:

[10m] Name this state whose style of jazz-infused, plucking-based blues was developed by Blind Lemon Jefferson and his disciple T-Bone Walker.

ANSWER: **Texas** [or **TX**]

[10e] T-Bone Walker's use of this innovation in Texas blues allowed for the solo guitar to stand out even more. Bob Dylan controversially performed with this feature at the 1965 Newport Folk Festival.

ANSWER: **electricity** [accept **electric** guitar or **electric** blues; accept Bob Dylan going **electric** or equivalents; prompt on **amplification**]

[10h] By the 1940s, T-Bone Walker had moved to this state and developed its style of warmer, piano- and horn-focused blues. Big Mama Thornton spent the latter half of her career in this state.

ANSWER: **California** [or **CA**]

<Other Fine Arts>

8. Hermann Diels ("deelss") popularized the narrative that these philosophers were chiefly occupied with identifying a material first principle, or *arche* ("AR-kay"). For 10 points each:

[10e] Give this term for philosophers of the Milesian and Eleatic schools. It implies a contrast between their interests and those of an Athenian thinker.

ANSWER: **Presocratic** philosophers [or **Presocratics**]

[10h] In the "autobiography" speech of this dialogue, Socrates claims he grew dissatisfied with his predecessors' reductionist explanations based on "bones and sinews," leading him to embark on a *deúteros ploûs* ("plooss"), or "second voyage."

ANSWER: **Phaedo** ("FEE-doh")

[10m] This thinker referenced the contrast by calling Socrates the "first who called philosophy down from heaven, and placed it in" the lives of humans in his *Tusculan Disputations*.

ANSWER: **Cicero** [or **Tully**; or Marcus **Tullius** Cicero]

<Philosophy>

9. This novel ends with a letter from Sybil Ross affixed with a secret note that encourages John Carrington to court her sister when she returns from exploring the Mediterranean. For 10 points each:

[10h] Name this novel in which the rich, young widow Madeleine Lee becomes immersed in Washington politics. In this novel, the Secretary of the Treasury fights the Bulgarian minister.

ANSWER: **Democracy: An American Novel**

[10e] Published anonymously in 1880, *Democracy* was later revealed to have been written by this descendant of two American presidents. His autobiography is titled for his "Education."

ANSWER: **Henry Adams** [or **Henry Brooks Adams**; accept *The Education of Henry Adams*; prompt on **Adams**]

[10m] In the *Education*, going to one of these events leads Adams to compare the Virgin Mary to a dynamo. Thomas Pynchon's *Against the Day* opens with the Chums of Chance heading to one of these events in their skyship.

ANSWER: **world's fairs** [or universal **expositions**; or world **expositions**; accept **Exposition** Universelle of 1900, 1900 Paris **Exposition**, Chicago **World's Fair**, or World's Columbian **Exposition**; prompt on **fairs**]

<American Literature>

10. Pasting oils used with carbon can also be added to these substances, yielding an extrudable electrode that is dipped to form a meniscus before use. For 10 points each:

[10m] Name these alloys that serve as alternatives to aqueous solvent for dispersed delivery of metals. Historically, these alloys were used as reducing agents, but today, they are better known for their use in dentistry.

ANSWER: **amalgams** (“uh-MAL-gam’s”) [accept dental **amalgam**; accept paste **amalgam** electrodes]

[10e] Zinc amalgam is used in the Clemmensen reduction, which requires this strong acid. This acid reacts with sodium hydroxide to form salt water.

ANSWER: **hydrochloric** acid [or **HCl**]

[10h] This compound is the skeleton of several neutral organic reducing agents like the tetraaza- (“tetra-AY-zuh”) “Super-Electron Donors” of the Murphy lab. Derivatives of this compound with four chalcogens (“KAL-kuh-jens”) are paired with BEDT (“B-E-D-T”) or TCNQ in Fabre and Bechgaard (“BECK-gard”) salts.

ANSWER: **fulvalene** (“FULL-vuh-leen”) [accept tetrathia**fulvalene** or TTF or (tetramethyl)tetrathia**fulvalene**; accept (tetramethyl)tetraselen**fulvalene**; accept tetraaza**fulvalene**]

<Chemistry>

11. Name these locations of African space initiatives, for 10 points each.

[10e] Edward Nkoloso’s possibly satirical one-man space program in this country inspired Frances Bodomo’s film *Afronauts*. A rocket was named for Kenneth Kaunda, who changed this country’s name from Northern Rhodesia.

ANSWER: **Zambia** [or Republic of **Zambia**] (Namwali Serpell argued that the program was satirical.)

[10m] Jean-Patrice Keka launched Troposphère rockets from Menkao near this megacity of circa 15 million people. N’djili (“un-jee-lee”) airport serves this francophone province-city, whose Boulevard du 30-Juin (“tront-zhwann”) spans the upscale Gombe district.

ANSWER: **Kinshasa** [or **Kinsásá**; accept **Kinois**; accept “**Kin** la belle”; prompt on **Léopoldville**]

[10h] A coastal city named for its location at this river’s mouth hosts a Chinese telemetry station opened by Sam Nujoma (“noo-YOH-muh”). This river is ephemeral, like Namibia’s more southerly Kuiseb (“KY-seb”) and Fish rivers.

ANSWER: **Swakop** River [or **Tsoakhaub**; accept **Swakopmund** or **Otjozondjii**; accept **Khan** River]

<Geography>

12. Transition curves that connect two of these structures traditionally have an Euler (“OY-ler”) spiral geometry. For 10 points each:

[10m] Name these structures that are most often built with a flat-footed, or Vignoles (“vin-yoles”), profile whose cross section is akin to an I-beam (“eye-beam”).

ANSWER: railroad **tracks** [or railway **tracks** or train **tracks**; or **rails**; accept **permanent ways** or **perways**]

[10h] The U.S. standard formula for minimum transition curve length sets spiral length equal to 1.63, times this quantity’s “deficiency,” times speed. Superelevation and this quantity both refer to the difference in height between the inner and outer rail along a curve.

ANSWER: **cant** [accept **cant** deficiency]

[10e] The lateral change in this quantity is a proposed criterion for evaluating track transition curves. For objects going around a curve, this quantity equals velocity squared over the radius of curvature.

ANSWER: **acceleration** [accept centripetal **acceleration**; accept lateral change of **acceleration**; prompt on **a**]

<Other Science>

13. Bruce Trigger's study *Understanding Early Civilizations* compares this Egyptian force and others like Yorùbá *ogungbe* ("oh-goong-bay") bodyguards. For 10 points each:

[10h] Name these Nubian mercenaries of the Eastern Desert whom Ahmose I hired as professional police. Once equated with the Pan-Grave culture, they employed handcuffs and basenji-like dogs.

ANSWER: **Medjay** [or variants of **mdj**, **mdaj**, **madj**, **madi**, **Madjai**, **Mazoi**, or **Mejay**]

[10e] A baboon helps a policeman catch a thief in a tomb relief from this period's 5th Dynasty, when Egypt hired a Nubian treasurer and sent early expeditions to Punt. It preceded the First Intermediate Period.

ANSWER: **Old Kingdom**

[10m] Old Kingdom elites with this trait included the weaver Seneb and many animal tenders and jewelers. Harkhuf returned from the Nubian land of Yam with one of these people, who informed depictions of the Nubian god Bes.

ANSWER: **dwarfism** [or **nanism**; accept **dwarfs**, **dwarves**, **pygmies**, **pygmy** peoples, **pygmyism**, **Little People**; **nem**, **deneg**, **dng**, or **dag**; accept **achondroplasia**; prompt on **shortness** or **short** stature or equivalents] (While most scholars consider Bes an import from more southerly parts of Africa, some favor an indigenous Egyptian origin.)

<Other History>

14. Answer the following about the overlapping identities of the Norse goddesses Frigg and Freyja, for 10 points each.

[10h] *Two answers required.* These similarly-named gods are the husbands of Frigg and Freyja. One of their names is an innovative suffixed form of the other, and both of their names ultimately mean "skilled at poetry" or "insane."

ANSWER: **Odin** AND **Oder** [accept answers in either order; accept **Óðinn** or **Wōdanaz** in place of "Odin"; accept **Óðr** or **Wōduz** in place of "Oder"; reject "Óttar" or "Ótr" or "Hödr"]

[10m] This character's sister Oddrún names the only text, other than the *Lokasenna*, in which Frigg and Freyja are seen together. This cruel king based on a real person marries Gudrún and throws her brother Gunnar into a snakepit.

ANSWER: **Atli** [accept **Attila** the Hun]

[10e] The *Prose Edda* states that Odin and Frigg belong to this race of gods, which may indicate they are parallels to the Vanir gods Od and Freyja.

ANSWER: **Aesir** [or **áss**; accept **ásynja** or **ásynjur**]

<Mythology>

15. The author of *The Book of Lamentations* directed puppet plays for this ethnic group, who lead the Monkey Business Theater. For 10 points each:

[10m] What ethnic group created a dance-drama about Charlemagne's 12 knights? Their annually-staged play about the "Man of Rabinal" ("rah-bee-NAHL") inspired *Sunmoon* by a Nobel laureate who created a rebel of this ethnicity named Gaspar.

ANSWER: **Maya** peoples [or **Mayans**; accept **K'iche'**, **Yucatec** Maya, **Tzotzil**, **Tzeltal**, **Chontal**, **Yokot'anob**, or **Yokot'an**] (Rosario Castellanos worked for the National Institute of Indigenous Peoples. The Monkey Business Theater is the Lo'il Maxi. The *Rabinal Achi* inspired *Soluna* by Miguel Ángel Asturias.)

[10e] *Specific term required.* Both Guatemalan Maya dance-dramas and Panamanian *congadas* adapted Valencian "conquest dances" about the defeat of these people. Othello is called one of them "of Venice."

ANSWER: **Moor**s [accept *The Tragedy of Othello*, the **Moor** of Venice; accept **Moor**s and Christians or **Moros** y Cristianos or Danza de los **Moros**]

[10h] An old version of Moros y Cristianos was conserved near Nicaragua's "folklore capital" of Masaya, whose San Jeronimo festival stages this satirical Nahuatl-Spanish drama likely derived from Mangue ("MANG-gay") performances.

ANSWER: *El Güegüense* ("gway-GWEN-say") [or *El Cuecuence*; or **Macho Ratón** or **Macho Mouse**] (The village of Niquinohomo preserved a version of Moros y Cristianos that may be close to the original text.)

<World Literature>

16. *Two answers required.* Along with a wood support, these two materials were used for Phidias's monumental depictions of *Athena Parthenos* and his statue of Zeus at Olympia. For 10 points each:

[10e] Chryselephantine (“criss-ell-uh-FAN-teen”) sculptures are named for using what two highly valuable materials?

ANSWER: **gold** AND **ivory** [accept answers in either order; accept **Au** in place of “gold”; prompt on precious **metal** in place of “gold”]

[10h] A chryselephantine figurine of this subject at the Boston Museum of Fine Arts is likely a forgery. In 1902, one of the two surviving faience (“fye-ONSS”) depictions of this figure was controversially restored so that a small cat is perched on its head.

ANSWER: **Snake Goddess** [or Minoan **Snake Goddess**; prompt on Minoan **Goddess**; prompt on **Knossos** figurines]

[10m] Hippo ivory was used for a chryselephantine statue of one of these figures found at Palaikastro. A section of Kenneth Clark's *The Nude* depicts the transition from these stiff, male Archaic figures to the naturalistic *Kritios Boy*.

ANSWER: **koûros** (“KOO-rohss”) [or **koûroi**; reject “kórē”]

<Painting & Sculpture>

17. This stroke of an Otto cycle is enabled by a manifold that generates a partial vacuum. For 10 points each:

[10m] What stroke of a four-stroke Otto cycle directly follows the exhaust stroke and precedes the compression stroke?

ANSWER: **intake** stroke [accept **intake** manifold; prompt on, but DO NOT REVEAL, isobaric **expansion** or **expanding** isobarically or **isobaric** stroke]

[10e] In the Otto cycle, the intake stroke approximately has this property of occurring at constant pressure.

ANSWER: **isobaric** [accept **isobaric** process]

[10h] The intake valve remains open until partway into the compression stroke in this non-supercharged cycle, which has higher efficiency than the Otto cycle but creates less power. A century after its invention, this cycle rose to prominence due to its use in hybrids like the Toyota Prius.

ANSWER: **Atkinson** cycle

<Physics>

18. LGBT people known as *masisi* have historically found refuge in this tradition to the point of stereotype. For 10 points each:

[10e] Name this tradition in which the vengeful Erzulie Dantor protects lesbians. One of this tradition's psychopomps, Gede Nibo (“GEH-deh NEE-boh”), is often depicted in drag and is the child of its loa Maman Brigitte (“MAH-mohn bree-ZHEET”).

ANSWER: Haitian **Vodou** [or **Voodoo**, **Vodun**, **Vodoun**, or **Vodoun**] (“Masisi” typically refers to gay men but is also used as an umbrella term like “LGBT,” as in materials from Haiti's LGBT advocacy group Kouraj.)

[10m] Many LGBT Brazilians invoke the protection of this tradition's Pomba Gira (“POHM-bah ZHEE-rah”) spirits, like Mary of the Trash. It bears more relative influence from European Spiritism than both Candomblé (“kahn-DOHM-blay”) and a tradition with a similar name to this tradition.

ANSWER: **Umbanda** [reject “Quimbanda”]

[10h] LGBT followers of Santería often revere the *orishas* Inle and Yemaha due to homoerotic themes in one of these fables about them. Interpreting these intricate oral parables serves as a form of divination in Ifá and Santería.

ANSWER: **patakís**

<Religion>

19. In a novella titled for one of these animals, Harald Alabaster pens an essay that uses Tennyson's *In Memoriam A.H.H.* to argue that Man turns to God for refuge from Nature. For 10 points each:

[10h] Name this kind of animal that titles an A. S. Byatt novella about the naturalist William Adamson, who returns to England from the Amazon. The novella is usually published alongside Byatt's *The Conjugal Angel*.

ANSWER: **butterfly** [or **butterflies**; accept ***Morpho Eugenia***; prompt on **insects** or **lepidopterans**; prompt on *Angels & Insects*]

[10e] In this author's novel *The Collector*, lepidopterist Frederick Clegg kidnaps the art student Miranda Grey. This author included multiple endings in his novel *The French Lieutenant's Woman*.

ANSWER: John **Fowles** [or John Robert **Fowles**]

[10m] Peregrine Hazard is believed to have been lost in the jungle looking for butterflies in this author's novel *Wise Children*. She also wrote *The Magic Toyshop* and *Fireworks: Nine Profane Pieces*.

ANSWER: Angela **Carter** [or Angela Olive **Pearce**; or Angela Olive **Stalker**]

<British Literature>

20. Sheila Ogilvie's *State Corporatism and Proto-Industry* argues that this German state's legacy of rent-seeking by worsted-weaving guilds delayed mechanization until after 1870. For 10 points each:

[10m] Name this Swabian state where Wilhelm Maybach designed engines at Daimler Motors after the Peace of Pressburg made it and Bavaria into kingdoms. In 1952, it united with the home state of Carl Benz.

ANSWER: **Württemberg** ("WUR-tem-bairk") [accept Baden-**Württemberg** or **BW** or **BaWü**; accept Kingdom of **Württemberg** or Königreich **Württemberg**; accept Duchy of **Württemberg** or Herzogtum **Württemberg**; accept Free People's State of **Württemberg** or Freier Volksstaat **Württemberg**; reject "Baden"]

[10e] In the early 1900s, King William II of Württemberg ("WUR-tem-bairk") funded this count's experiments with namesake airships on Lake Constance.

ANSWER: Ferdinand von **Zeppelin** [or Count von **Zeppelin** or Graf von **Zeppelin**; or Ferdinand Adolf Heinrich August Graf von **Zeppelin**]

[10h] Bosch's spark plug factories in Württemberg were supplied by Krupp, which used this regenerative process to mass-produce steel from quality Swedish ore. Ukraine and Romania relied on this process's slow furnaces until the late 1900s.

ANSWER: **Siemens–Martin** process [or **Martin–Siemens** process; or **Siemens–Martin** furnaces; accept **open hearth** furnaces; prompt on **Siemens** process or **Martin** process or **Martin** steel]

<European History>