



**ACADEMIC  
COMPETITION  
FEDERATION**

**2023 ACF NATIONALS**

**Prelims 4**

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## TOSSUPS

1. An activist for this cause went on a four-hour hunger strike that ended with him ordering Indian food in prison. That activist, Jamie Bryson, was one of the leaders of this cause's 2013 protests over an 18-day minimum for flying a flag. Jim Allister founded a hardline political party dedicated to this cause after splitting from a church leader who used the slogan "Never, never, never!" Modern supporters of this cause sing songs like "The Sash My Father Wore" and burn massive bonfires made of wooden pallets on "Eleventh Night." This cause's phrase "No surrender" emerged during the Siege of Derry ("dairy"). The Orange Order organizes supporters of this cause, which names the DUP ("D-U-P") founded by "anti-Agreement" Ian Paisley. For 10 points, name this political cause that strongly supports Northern Ireland remaining within the United Kingdom.

ANSWER: Ulster **loyalism** [or Ulster **loyalists**; or Ulster **unionism** or Ulster **unionists**; accept Irish **unionism** or Northern Irish **unionism**; accept descriptions such as wanting Northern **Ireland** to **remain** part of the **United Kingdom** until "United Kingdom" is read; accept Democratic **Unionist** Party; reject "Scottish unionism"] (Jamie Bryson was humorously nicknamed "Jamie Biryani.")

<Current Events>

2. The relationship of the atomic migration induced by this quantity to device failure is given by an Arrhenius ("ah-REE-nee-us")-like equation derived by James R. Black; that migration due to this quantity is partially driven by a "wind force." After passing through regions where this quantity is high, carriers can inject into the gate and sidewall oxides. This quantity is obtained from the volume integral of the following, evaluated at the retarded time [read slowly to end of sentence]:  $\rho$  over  $r$ -squared, all times  $r$ -hat, plus  $\rho$ -dot over " $c$  times  $r$ ," all times  $r$ -hat, minus  $j$ -dot over " $c$ -squared times  $r$ ." In relativistic electrodynamics, this quantity is divided by  $c$  in the first row and column of a tensor denoted capital F. Mobility times this quantity equals drift velocity. The divergence of this quantity equals charge density over epsilon-naught by Gauss's ("GOUSE-iz") law. For 10 points, name this quantity whose strength has units of volts per meter.

ANSWER: **electric field** [or **E-field**] (The first sentence refers to electromigration. The second sentence refers to hot carriers. The third sentence is Jefimenko's equation for the electric field. The fourth sentence refers to the electromagnetic field tensor.)

<Physics>

3. Charles Beem "revisited" this event in the chapter "What Power Have I Left?" in *The Lioness Roared*. A satirical cartoon about this event by John Doyle shows men rowing up to a sign saying "spare us for the sake of our women." A politician who resigned due to this event later formed a second government, which reintroduced an income tax and banned women from working underground in the Mines and Collieries Act. During this event, a youthful ruler wrote "keep yourself in readiness for you may soon be wanted" in a letter to William Lamb. This event, which was magnified by a scandal about Flora Hastings's rumored pregnancy, was initially precipitated by Lord Melbourne's resignation as prime minister. In this event, Robert Peel resigned when the reigning queen denied his request to replace six of her Whig ladies-in-waiting. For 10 points, name this 1839 political "crisis" early in Queen Victoria's reign.

ANSWER: **Bedchamber** crisis [or **Bedchamber** plot; prompt on the **resignation** of Lord **Melbourne** as prime minister or equivalents until "Lord Melbourne's resignation" is read; prompt on the **resignation** of William **Lamb** or equivalents until "Lamb" is read]

<European History>

2023 ACF Nationals | Prelims 4. Claremont A, McGill A, Stanford A

Editors: Harvey, Apte, Evans, Golden, Karim, Kearney, Mao, Nediger, Peet, Settle, Silverman

4. A poet writing in this city described how a man's sorrows press upon him "more lightly" when "to a friend or fellow traveler he tells his grief." A group of seven poets from this city inspired the name of the French Pléiade ("pleh-yahd"). A poet from this city was described as standing "at a slight angle to the universe" by an author working with the Red Cross. E.M. Forster corresponded with that poet from this city and helped popularize his largely homoerotic poetry. A poet who worked in this city authored the *Aetia* ("EYE-tee-yuh") and a now-lost bibliographic work called the *Pinakes* ("pih-nah-kees"); "shades" of that poet are mentioned in the opening of an Ezra Pound poem. Callimachus ("cal-ih-mah-kus") was employed in this city, where Constantine Cavafy wrote "say goodbye to her, the [this city] you are losing" in "The God Abandons Antony." For 10 points, thousands of scrolls were lost in the 48 BCE burning of what Egyptian city's library?

ANSWER: **Alexandria** [accept Library of **Alexandria**; accept **Alexandrian** Pleiad]

<European Literature>

5. A painting by this artist shows an isolated six-story building framed by a bridge and a group of men warming themselves by a fire in the left foreground. The foreground of another painting by this artist depicts a worker sitting on a fence, whose blue coat echoes the hazy color of a façade above a pit in the background. A lithograph by this artist shows Billy Sunday lunging forward and pointing into a crowd. An illustration by this artist was ironically retitled "Why Don't They Go to the Country for Vacation" when published in the socialist magazine *The Masses*. This artist painted *The Last Tenement* and a series showing the construction of Pennsylvania Station. This student of Robert Henri ("hen-rye") painted a crowded street scene in which a streetcar passes under clotheslines. For 10 points, name this Ashcan School painter of *The Cliff Dwellers* and boxing scenes like *Stag at Sharkey's*.

ANSWER: George **Bellows** [or George Wesley **Bellows**]

<Painting & Sculpture>

6. A mid-1950s conference held in this country that produced a series of textual redactions was partially hosted in the Mahapasana Guha, or Great Cave, constructed to resemble the venue used for a similar purpose 2,500 years earlier. During this country's New Year festival, *ponnas* make prophecies based on the choice of the mount of a god who writes down the names of sinners in a dog-skin-bound book. The cosmogony ("koz-MOG-uh-nee") of this country's folk religion is collected in the *Book of Adikalpa*, while its national epic is a version of the *Rāmāyana* called the *Yama Zatdaw* ("yah-mah ZAH-DAH"). A set of 37 deities are considered to be the canonical set of this country's animistic *nat* spirits, whose worship is rejected by Baptists among the Karen ("kah-REN") people. For 10 points, name this country where members of the Theravāda Buddhist 969 Movement have persecuted Muslims like the Rohingya.

ANSWER: **Myanmar** [or **Burma**; or **Bama**; or **Mranma**; or Republic of the Union of **Myanmar** or Pyidaunzu Thanmāda **Myāma** Nainngandaw] (The conference in the first sentence is the Sixth Buddhist council. Thingyan is the New Year festival.)

<Religion>

7. *MyHC* ("my-H-C") genes are downregulated in this organism's Short toes mutants. Myofibrils ("MY-oh-FYE-brils") fail to organize in this organism's *cardiac* mutants, which are used to study heart defects because they survive almost to hatching. Injecting iodine can stimulate this organism to undergo a process it normally cannot because it does not endogenously produce thyroid-stimulating hormone. The ALM assay performed in this organism established that nerve signaling, wound epithelium ("woond ep-ih-THEE-lee-um"), and the presence of cells from different axes ("AX-eez") were sufficient for the regeneration of limbs. While wild-types of these neotenic ("nee-oh-TEN-ick") amphibians are olive-brown, captive ones are commonly leucistic and pale pink. For 10 points, name this model organism native to Mexico's Lake Xochimilco ("shoh-chee-MEEL-ko"), a salamander with distinctive gill stalks.

ANSWER: **axolotl** [or *Ambystoma mexicanum*; prompt on salamanders until read; prompt on amphibians until read; prompt on *Ambystoma*]

<Biology>

8. This person used the pen name Edward Copleston to write “The World and John Hart” while privately despising teaching women at Bryn Mawr. This person critiqued the “sparing use of history” present in James Bryce’s *The American Commonwealth* in one of many reviews contributed to *Political Science Quarterly*. This person wrote a popular textbook on the “elements of historical and practical politics” titled *The State*. Shortly after replacing Francis Landey Patton, this person implemented a “preceptorial” class format. This person created an organization headed by a Colorado senator that employed “Four Minute Men” to influence public opinion. A group of academics called “The Inquiry” crafted an “idealism” named for this person, the onetime head of Princeton, to include the tenet of self-determination. For 10 points, name this president who issued the “Fourteen Points” during World War I.

ANSWER: Woodrow **Wilson** [or Thomas Woodrow **Wilson**]

<American History>

9. A poem titled for one of these creatures describes “her perishable souvenir of hope” and compares “close-laid Ionic chiton (“KYE-ton”)-folds” to “lines in the mane of a Parthenon horse.” One of these creatures titles a poem that begins with the questions “For authorities whose hopes are shaped by mercenaries? Writers entrapped by teatime fame and by commuters’ comforts?” and was written by Marianne Moore. A poem originally published in *The Atlantic Monthly* describes one of these creatures as a “frail tenant” who “stretched in his last-found home, and knew the old no more.” In that poem, this creature resides “where the Siren sings” and “Where the cold sea-maids rise to sun their streaming hair.” That poem titled for one of these creatures describes its “webs of living gauze” as a “ship of pearl” and states, “Build thee more stately mansions.” For 10 points, name this sea creature that titles an Oliver Wendell Holmes Sr. poem in which it is “chambered.”

ANSWER: **nautilus** [or **nautili**; accept “The Chambered **Nautilus**”; accept “The Paper **Nautilus**”; accept chambered **nautilus**, chambered **nautili**, pearly **nautilus**, or pearly **nautili**; accept paper **nautilus** or paper **nautili** or **argonauts**; prompt on **cephalopods**, **molluscs**, **octopus**, **octopodes**, or **octopi**; reject “squid”]

<American Literature>

10. A Marxist philosopher who was trained at this university analyzed everydayness in terms of a dialectical logic of space in essays like “The Principle of Everydayness and Historical Time.” In *From the Acting to the Seeing*, a professor at this university wrote about a concrete situatedness that is prior to the subject-object distinction, a concept that he developed in essays like “The Logic of Place and the Religious Worldview.” A philosopher who graduated from this university before studying under Heidegger theorized a “field of nihility” based on the notion of *shūnyatā* (“shoon-YAH-tah”). The concept of *mu* (“moo”) influenced philosophers from this university to write about “absolute nothingness,” a term coined by the author of *An Inquiry into the Good*. For 10 points, what university lends its name to a philosophical school that combined Western existentialism with Buddhism and was led by Kitarō Nishida?

ANSWER: **Kyōto** University [or **Kyōto** daigaku or **Kyōdai**; accept **Kyōto** Imperial University; accept **Kyōto** School or **Kyōto**-gakuha]

<Philosophy>

2023 ACF Nationals | Prelims 4. Claremont A, McGill A, Stanford A

Editors: Harvey, Apte, Evans, Golden, Karim, Kearney, Mao, Nediger, Peet, Settle, Silverman

11. A set of “Annals” of a polity based in this city were transcribed by the first Russian to circumnavigate the globe, Adam Johann Krusenstern. A man named Jebat rebelled in this city after believing that his friend, the *laksamana*, was executed. A king legendarily founded this city after one of his hunting dogs was kicked into a river by a mouse-deer. This city is the setting of the *Hikayat Hang Tuah*. Control of this city hyperbolically afforded control over Venice according to the *Suma Oriental* of Tomé Pires (“TOH-may PEE-rish”), who spent two years in this city after arriving from Goa. This city was founded by Parameswara of Singapura, who later converted to Islam and took the name Iskandar Shah. This city was captured in 1511 by Afonso de Albuquerque. For 10 points, what city’s namesake sultanate controlled the spice trade through a namesake strait between Sumatra and the Malay Peninsula? ANSWER: **Malacca** [or **Melaka**; or **Malacca** City or Bandaraya **Melaka** or Kota **Melaka**; accept Straits of **Malacca**; accept **Malacca** Sultanate or Kesultanan **Melaka**; reject “Molucca” or “Maluku”] (The first sentence refers to the Malay Annals.)

<World History>

12. This composer introduced his piece “Chinoiserie” (“sheen-wahz-REE”) with a quote from Marshall McLuhan. For another piece, this composer emulated iambic pentameter in the structure of four “sonnets,” including “Sonnet for Hank Cinq” (“hank sank”). This composer collaborated with the singer Alice Babs in his second and third “Sacred Concerts.” Queen Elizabeth II received the only copy of a record credited to this composer that contains the piano ballad “The Single Petal of a Rose.” This composer and his orchestra adapted Shakespeare in the suite *Such Sweet Thunder* and depicted their travels of Asia in *Far East Suite*. Mahalia Jackson’s vocals and Johnny Hodges’s saxophone appear on this man’s popular version of “Come Sunday,” part of his composition about African-American history, *Black, Brown, and Beige*. For 10 points, name this bandleader who worked with Billy Strayhorn on a jazz standard about traveling to Harlem titled “Take the ‘A’ Train.”

ANSWER: Duke **Ellington** [or Edward Kennedy **Ellington**] (The first line refers to his *Afro-Eurasian Eclipse*.)

<Other Fine Arts>

13. In 1992, autobiographical writings by these people were collected in *Poisoned Bread* and an anthology co-edited by Eleanor Zelliot. A modernist novel is titled for one of these people who prizes a hockey stick and the “fashun” of Tommies from the British barracks. Latin American *testimonios* inspired the writings of women from this group like Bama and the author of *The Prisons We Broke*. An uncle and nephew from this group ride the morning express in the prologue of a novel in which they work as tailors for Dina and are later sterilized. One of these people named Bakha titles a 1935 novel by Mulk Raj Anand. A Communist member of this group who works at Paradise Pickles & Preserves is beaten to death after he is blamed for the murder of Sophie Mol by Baby Kochamma. For 10 points, Ammu transgresses the “Love Laws” with a member of what caste named Velutha in *The God of Small Things*? ANSWER: **Dalits** [or **Dalita**; accept **Untouchables**; accept **Scheduled Castes** or **SCs**; accept **Chamar** or **Jatav**; accept *An Anthology of Dalit Literature*; prompt on **outcastes**; prompt on **Malayali**, **Keralite**, **Marāthī**, **Indian** people, **sweepers**, or latrine **cleaners** by asking “of what class?”] (Baby Kamble wrote *The Prisons We Broke*. The fourth sentence is from *A Fine Balance* by Rohinton Mistry. Anand’s novel is *Untouchable*. Arundhati Roy wrote *The God of Small Things*.)

<World Literature>

14. An orchestral work by this composer begins with a quick exchange between the bass section and a solo oboe and viola. A cantata by this composer ends with a thrice-repeated four-part canon on text that translates as “Loosened from the womb.” This composer omitted double basses from his only symphony, whose second and final part is a set of variations. Early works by this composer include a *Passacaglia* for orchestra and the tone poem *Im Sommerwind* (“im ZOM-er-vint”). This composer’s innovative and sparse orchestration of Bach’s *Ricercar a 6* (“ree-cher-KAR ah six”) from *The Musical Offering* extended his mentor’s technique of *Klangfarbenmelodie*. This composer collaborated with Hildegard Jone (“YO-nuh”) to write two cantatas, the second of which, at 15 minutes, is his longest composition. For 10 points, name this student of Schoenberg, the most radical composer of the Second Viennese School.

ANSWER: Anton **Webern** (“VAY-bun”) [or Anton Friedrich Wilhelm von **Webern**; reject “von Weber”]

<Classical Music>

15. The creation of properly scaled examples of these concepts is equated with the problem of defining ownership in a paper by George Demsetz that contrasts the definitions of these concepts given by Joe Bain, James Ferguson, and George Stigler. A force that is [emphasize] *mitigated* by these concepts is analyzed alongside competitive rivalry, the threat of substitutes, and two forms of bargaining power in Michael E. Porter’s five forces framework. Exclusive dealing is an example of the “strategic” type of these concepts, which is created deliberately, in contrast to the “structural” type, which arises from inherent industry conditions. These concepts, which include capital requirements and economies of scale, are low in monopolistic competition and absent in perfect competition. For 10 points, name these obstacles that prevent new businesses from coming into a market.

ANSWER: **barriers** to **entry** [or **entry barriers**; or economic **barriers** to **entry**; accept structural **barriers** to **entry**; accept strategic **barriers** to **entry**; prompt on **barriers**]

<Social Science>

16. Derivatives of this compound that unexpectedly form in solid crystals of cinnamic (“sin-NAM-ick”) acid spurred the development of the topochemical postulate. A derivative of this compound is the intermediate destroyed by retro-aldol cleavage in the de Mayo reaction. A dimerization that forms this compound is the simplest reaction that requires a Möbius twist on *p* orbitals so that there is one suprafacial (“soo-pra-FAY-shull”) and one antarafacial component. 1,4-diradicals recombine to form a derivative of this compound in a type II (“two”) Norrish reaction. A metal replaces a carbon atom in this compound in the intermediate of olefin metathesis (“muh-TATH-uh-siss”). Under light, but not heat, alkenes like thymine dimerize to form derivatives of this compound in a [2 + 2] (“two plus two”) cycloaddition. This compound has bond angles of 88 degrees because it puckers into a butterfly configuration to reduce ring strain. For 10 points, name this cyclic alkane containing four carbons.

ANSWER: **cyclobutane** [prompt on **C4H8**; reject “butane”; reject “cyclobutadiene”]

<Chemistry>

17. In the late 15th century, a marble inscription mentioning this deity was transferred from Rome to the Salerno archiepiscopal (“ARK-ee-uh-PISS-kuh-pull”) complex in an antiquarian hoax involving a fake ancient temple. Ovid described this deity working with a curved tool, “not a javelin,” while listening to a story about a man who falls in love with a descendant of Teucer (“TOO-ser”) but hangs himself on her doorstep. This goddess and her partner were venerated on an August 13th festival that marked the beginning of Autumn. After rejecting Silvanus and Picus, this goddess was finally seduced by a god whom Propertius claimed was from the Etruscan city of Volsinii. That god disguises himself as an old woman to tell this goddess about Anaxarete (“uh-NACKS-uh-REE-tee”), who was turned to stone after rejecting Iphis. This goddess’s symbols include the cornucopia and the pruning knife. For 10 points, name this Roman goddess of fruit and orchards, the consort of Vertumnus.

ANSWER: **Pomona**

<Mythology>

2023 ACF Nationals | Prelims 4. Claremont A, McGill A, Stanford A

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18. A letter by this writer warned of demagogues “who will descend upon Europe” and act as “terrible simplifiers.” This writer produced a comprehensive study of a country’s art that was arranged geographically to act as a travel guide in *The Cicerone* (“CHEECH-eh-roh-neh”). This writer described a time when “a common veil woven of faith, illusion, and childish prepossession” covered “both sides of human consciousness, [which] lay dreaming or half awake.” A book by this writer that includes the sections “The Discovery of the World and of Man” and “The Development of the Individual” inspired the research of Johan Huizinga (“YO-han HOY-zing-uh”). This writer described a period of “the State as the outcome of reflection and calculation – the State as a work of art” in a pioneering book on cultural history. For 10 points, name this 19th-century Swiss historian who wrote *The Civilization of the Renaissance in Italy*.

ANSWER: Jacob **Burckhardt** [or Carl Jacob Christoph **Burckhardt**]

<Other History>

19. Matter caught in the forward and reverse shock at the heads of these features forms cocoons that surround and shape them. In models based on a paper by Donald Lynden-Bell, these features remain Poynting-flux-dominated over large distances due to “magnetic towers” that are laterally stabilized by ambient gas. SS 433 was the first known binary system to display these features, making that system the first microquasar. The opening angle of these features determines the shape of a namesake break in “gamma ray burst afterglow light curves” after which the curves dramatically steepen. The formation of these features by young stars was discovered by George Herbig and Guillermo Haro. Around black holes, these features are sustained by magnetic fields generated in accretion disks. For 10 points, name these highly collimated ejections of plasma pointing along the axis of rotation of galactic nuclei.

ANSWER: astrophysical **jets** [accept relativistic **jets**; accept **jet** breaks]

<Other Science>

20. An author with this surname wrote about a countess who learns of Alfred Vargrave’s engagement to Miss Darcy in a verse novel that was accused of being a plagiarized version of George Sand’s *Lavinia*. Oscar Wilde’s *Lady Windermere’s Fan* was dedicated to “the dear memory” of that author with this surname, who wrote *Lucile* under the pen name Owen Meredith. A Karl Bryullov painting inspired another author with this surname to write a novel about the love between Ione (“eye-OH-nee”) and Glaucus in the title city. In another novel by that author with this surname, the title gentleman is arrested for highway robbery, but finds out at the trial that Judge Brandon is his father. That author with this surname inspired the Wagner opera *Rienzi* and wrote *The Last Days of Pompeii*. For 10 points, give this surname of the author who began his novel *Paul Clifford* with the phrase “It was a dark and stormy night.”

ANSWER: Bulwer-**Lytton** [or **Bulwer**-Lytton; accept Robert Bulwer-**Lytton**; accept Lord **Lytton**; accept Edward **Bulwer** or Edward George Earle Lytton **Bulwer**; prompt on Owen **Meredith** until read]

<British Literature>

## BONUSES

1. In a story from Sergio Pitol's ("SAIR-hee-oh pee-TOLL's") collection *Mephisto's Waltz*, this animal gives the narrator a message of "twelve enlightening words." For 10 points each:

[10h] A novel by a different author opens with a man's description of a young woman from the Carpathians painting what type of animal at a zoo?

ANSWER: **panthers** [accept black **panthers**; prompt on big **cats** or **felines** or *Cat People*; prompt on black **leopards**] (The novel is Manuel Puig's *Kiss of the Spider Woman*.)

[10e] Pitol's story "The Panther" is included in *Sun, Stone, and Shadows*, an anthology of stories from this country. This country is home to the author of the poem "Sunstone."

ANSWER: **Mexico** [or United **Mexican** States; or Estados Unidos **Mexicanos**; reject "Estados Unidos"] (Octavio Paz wrote "Sunstone.")

[10m] *Sun, Stone, and Shadows* also includes this author's story "Tell Them Not to Kill Me!", which is part of his collection *The Burning Plain*. In a novel by this author, the title tyrant lets the town die of hunger out of spite while he is mourning Susana's death.

ANSWER: Juan **Rulfo** [or Juan Nepomuceno Carlos Pérez **Rulfo** Vizcaíno; prompt on **Vizcaíno**] (The novel is *Pedro Páramo*.)

<World Literature>

2. The top of this diagram's final version included the names of six artists and the headings "Japanese Prints," "Synthetism," and "Neo-Impressionism." For 10 points each:

[10h] Identify this 1936 diagram that traces the history of modern art from 1890 to 1925. It was created by, and is typically named for, the first director of the MoMA ("MO-muh").

ANSWER: Alfred **Barr**'s diagram [or Alfred Hamilton **Barr** Jr.'s diagram; accept the cover of the catalog for **Cubism and Abstract Art**]

[10m] Barr's diagram does not include submovements of Cubism, but does mention this related movement that began in Paris in 1912. This movement included František Kupka ("FRON-tsih-sheck KOOP-kah") and an artist who painted several red versions of the Eiffel Tower.

ANSWER: **Orphism** [or **Orphic** Cubism] (The second artist is Robert Delaunay.)

[10e] Arrows coming from Cubism in Barr's diagram point to both Suprematism and Constructivism, two abstract art movements that originated around 1912 in this country and continued in its successor state.

ANSWER: **Russia** [or **Rossiya**; or **Russian** Empire or **Rossiyskaya** Imperiya]

<Painting & Sculpture>

3. Chemists everywhere were horrified by a 2019 report that palladium absorbs into stir bars and catalyzes "metal-free" cross-couplings. For 10 points each:

[10e] The best way to avoid such "phantom reactivity" is to soak the stir bar in this mixture of nitric and hydrochloric acids, under the assumption that if this mixture can dissolve gold, it ought to be good enough to clean a stir bar.

ANSWER: **aqua regia**

[10h] The paper also raised fears of metals contaminating these hard-to-clean discs of porous sintered glass, which are used in spargers ("SPAR-jurs") and vacuum filters to separate solids.

ANSWER: **frits** [or **fritted** glass; accept **fritted** funnels]

[10m] Contamination is gratifyingly obvious in this reaction, since its radical electride intermediate degrades Teflon and turns stir bars black. This reaction is run at negative 78 degrees Celsius and forms cyclohexadienes.

ANSWER: **Birch** reduction [or Birch-**Benkeser** reaction]

<Chemistry>



4. ‘Umar threatened to exile this man for transmitting hadith that contradicted more reliable Companions. For 10 points each:

[10h] Name this prolific transmitter of hadith. ‘Ali called this man “the *ummah*’s liar,” and as such most contemporary jurists and modern Shi’i jurists reject the veracity of this man’s transmissions.

ANSWER: **Abū Hurayra** [or Abd ar-Rahmān **ibn Sakhr**] (His reputation among the Sunni has been largely rehabilitated due to sectarian reasons, despite early Sunni criticism as well.)

[10e] This spiritual leader known as al-Siddiqah, or the truthful, condemned Hurayra’s transmissions that demeaned women. Hurayra questioned the credibility of this last wife of Muhammad, accusing her of womanly vanity.

ANSWER: **Ā’isha** [or **Ā’isha** bint Abī Bakr]

[10m] A hadith sourced to Hurayra underpinning much misogynistic jurisprudence relates Muhammad saying that this action is not permissible before other humans, but he would order wives to do it before their husbands if it were.

ANSWER: **prostration** to their husbands [or descriptions of wives **bowing** to husbands; accept **sujud**] (The transmissions from Ā’isha – Muhammad’s wife – and most of the other Companions directly contradict this sentiment.)

<Religion>

5. In 1970, members of the Young Lords “liberated” a mobile chest X-ray unit, moving it to another location in East Harlem to test immigrants of this ethnicity for tuberculosis. For 10 points each:

[10m] Name this ethnicity of Teodoro Moscoso, who ran an economic modernization campaign known as Operation Bootstrap under the supervision of Luis Muñoz Marín (“moon-YOSE mah-REEN”).

ANSWER: **Puerto Rican** [or people from **Puerto Rico**; or **Puertorriqueños** or **Boricuas**; accept **Puerto Rican**-American; accept **Nuyorican**; prompt on **Latinos** or **Latinas** or **Hispanic**]

[10h] The New York chapter of the Young Lords also started this 1969 initiative during which they blocked traffic to protest environmental racism against groups like Puerto Ricans.

ANSWER: **Garbage Offensive**

[10e] As part of the Garbage Offensive, the Young Lords demanded environmental justice reforms in a “Ten-Point Health Program” that was inspired by this organization’s 1966 “Ten-Point Program,” written by Huey Newton and Bobby Seale.

ANSWER: **Black Panther** Party [or **Black Panthers**; or **BPP**]

<American History>

6. To obtain the equations of motion for this device, the  $z$  direction is ignored, and then a complex number is introduced to solve the coupled differential equations for  $x$  and  $y$ . For 10 points each:

[10m] Name this device whose plane of oscillation has an angular velocity equal to the Earth’s angular velocity times the cosine of colatitude.

ANSWER: **Foucault** (“foo-koh”) **pendulum** [or **Foucault’s pendulum**] (It is named after Léon Foucault.)

[10e] The forces on the Foucault pendulum include this fictitious force that deflects objects rightward in the Northern Hemisphere.

ANSWER: **Coriolis** force

[10h] This operation can be used to explain the rotation of the plane of oscillation. Given  $\text{del}$  as the covariant derivative induced by a connection between the tangent bundle of a manifold and the manifold, this operation moves a vector field  $X$  along a smooth curve while keeping “ $\text{del } X$ ” equal to zero.

ANSWER: **parallel transport**

<Physics>

7. This result, which originated in a 1908 study on Japanese dancing mice by its two eponymous psychologists, is often described as a “law” of human behavior, despite conflicting evidence. For 10 points each:

[10m] Name this result that states that performance increases as arousal increases, but only up to a point.

ANSWER: **Yerkes–Dodson** law

[10h] This psychologist’s cue utilization theory suggests that an increase in arousal narrows attention so the mind focuses only on relevant cues, but too much of an increase narrows the attention too much.

ANSWER: J. A. **Easterbrook** [or James A. **Easterbrook**]

[10e] Another theory of the relationship between performance and arousal is Mihaly Csikszentmihalyi’s (“MEE-hye CHICK-sent-mee-HA-yee’s”) theory of this highly focused mental state, which is colloquially known as being “in the zone.”

ANSWER: **flow** state

<Social Science>

8. In this play, Sophie is stopped before she can sing an aria from *La sonnambula*. For 10 points each:

[10h] Name this play about a lesson given by the opera singer Maria Callas (“CAL-uss”) near the end of her life. This play ends with Callas monologuing about the sacrifices made for art after Sharon runs away.

ANSWER: **Master Class**

[10m] This playwright of *Master Class* wrote about eight gay friends at a lakeside summer house in Dutchess County in his play *Love! Valour! Compassion!*

ANSWER: Terrence **McNally**

[10e] In *Love! Valour! Compassion!*, Buzz volunteers at a clinic for this disease suffered by his lover James. Roy Cohn tries to hide having this disease in *Angels in America*.

ANSWER: **AIDS** [or **acquired immunodeficiency syndrome**; accept **HIV** infection or being **HIV**-positive or **human immunodeficiency virus** infection]

<American Literature>

9. Two immigrants who couldn’t find a traditional version of this liquor in the United States started the first brewery for it in Kennedale, Texas, which produces varieties named “Old Man” and “Lion 45.” For 10 points each:

[10h] Name this rice-based, southwestern Vietnamese alcohol whose English name refers to the practice of hiding it in tall plants to conceal it from colonial authorities.

ANSWER: **ruou đế** (“roo DAY”) [accept **kans grass liquor**; accept **ruou lâu** or **ruou quốc lủi**]

[10e] *Rượu đế* distillation is concentrated in the delta of this major river of Southeast Asia, which forms the border between Laos and Thailand.

ANSWER: **Mekong** River [or Sông **Mê Kông**; or **Lancang** Jiāng; or **Megaung** Myit; or **Maenam Khong**; or Tônlé **Mékôngk**; or **Sông Cửu Long**; accept **Nine Dragon** River]

[10m] *Rượu rắn* (“roo RAN”) rice wine and other animal-infused drinks can be purchased in this city’s Snake Alley. Visitors to this city’s night markets, like Shilin (“shurr-leen”) and Ráohé (“rao-huh”) can purchase xiǎochī (“sh’yao-churr”).

ANSWER: **Taipei** [or **Taipei** City, **Táiběi** Shì, **Tai-pak**, **Taipeh**, or **Taihoku**]

<Geography>

10. *The Sun* ran the headline “Stick It Up Your Junta” (“HOON-tuh”) after an offer of peace talks during this war. For 10 points each:

[10e] Name this war during which *The Sun* ran the headline “GOTCHA” after a Royal Navy submarine sank the Argentine ship *General Belgrano*, earning widespread criticism.

ANSWER: **Falklands** War [or Guerra de las **Malvinas**]

[10h] On the recapture of South Georgia, Margaret Thatcher jingoistically told reporters to “congratulate our armed forces and the Marines” and to do this action. Ted Heath is said to have sardonically repeated this word after Thatcher resigned.

ANSWER: “**rejoice**” [or word forms such as **rejoicing**; accept “just **rejoice** at that news and congratulate our forces and the Marines”; accept “**rejoice**, rejoice”; accept “**rejoice**, rejoice, rejoice”]

[10m] During the Falklands War, a BBC newscast announced early that a British parachute regiment was planning to assault this settlement, possibly compromising the operation. The battle named for this settlement also attacked Darwin on the same isthmus.

ANSWER: **Goose Green** [accept Battle of **Goose Green**]

<Other History>

11. These models simulate fluid flow and heat transport between a series of vertical and horizontal grids on the Earth. For 10 points each:

[10m] Name these numerical models that are ubiquitous in climate research. Two-thirds of the 2021 Physics Nobel Prize was awarded for work done with these numerical models that are commonly referred to by a three-letter initialism.

ANSWER: **general circulation** models [or **GCMs**; accept **global climate** models or **global circulation** models; prompt on **stochastic climate** models by asking “what broader class of models?”] (The Nobel laureates referenced are Syukuro Manabe and Klaus Hasselmann.)

[10h] The IPCC’s Sixth Assessment Report notes that many GCMs produce unlikely values for this quantity. Transient climate response is similar to this quantity, which measures the long-term response of a model to a doubling of CO<sub>2</sub> concentration.

ANSWER: equilibrium climate **sensitivity** [prompt on **ECS**]

[10e] Nobel laureate Syukuro Manabe used an equilibrium between this process and convection to design GCMs. This heat transfer process is the biggest energy influx to Earth.

ANSWER: **radiation** [or thermal **radiation**; or **radiative** heat transfer; accept solar **radiation**; accept **radiative**–convective equilibrium models; prompt on **sunlight**]

<Other Science>

2023 ACF Nationals | Prelims 4. Claremont A, McGill A, Stanford A

Editors: Harvey, Apte, Evans, Golden, Karim, Kearney, Mao, Nediger, Peet, Settle, Silverman

12. Answer the following about Norway's civil war era, for 10 points each.

[10e] The era began with Sigurd the Crusader's death, which gave power to a ruler with this name after he said he was Sigurd's half-brother. A Norwegian king with this name fought an English king with this name at Stamford Bridge.

ANSWER: **Harald** [or **Harold**; accept **Harold** Godwinson or **Harold** II; accept **Harald** Hardrada or **Harald** Sigurdsson or **Harald** III of Norway; accept **Harald** Gille or **Harald** IV]

[10h] The civil war developed into a war between the aristocratic Bagler faction and a rebellious commoner faction named for this material. The faction got its name because its members were supposedly so poor that they made their shoes from this material.

ANSWER: **birch**bark [accept **Birke**beiner, **Birke**beinar, **Birke**bein Party, or **Birke**bein faction; prompt on **wood** or **bark**]

[10m] The Birkebeiner ("beer-kuh-BYE-nur") won after backing Haakon Haakonsson and Skule Bårdsson ("SKOO-luh BARDS-son"), who held this Old Norse title that roughly means "chieftain." A man with this title named Birger ("BEER-gur") helped lead a crusade to establish Swedish rule in Finland.

ANSWER: **jarls** ("yarls") [accept **earls**; accept Birger **Jarl**]

<European History>

13. The composer of this piece exclaimed "Asses, cattle!" when informed of the poor reception of its original finale. For 10 points each:

[10h] Name this B-flat major string quartet by Beethoven, which has six movements including a German dance and a cavatina.

ANSWER: String Quartet No. **13** in B-flat major [or Beethoven's **Thirteenth** String Quartet; or Op. **130**]

[10m] This movement, which was later published separately, was the original finale of Beethoven's thirteenth string quartet. Igor Stravinsky described it as "an absolutely contemporary piece that will be contemporary forever."

ANSWER: **Grosse Fuge** [or **Grand Fugue** or **Great Fugue**]

[10e] This later Russian composer of *In the Steppes of Central Asia* used the theme from the replacement finale of Op. 130 in his first string quartet. His more famous second string quartet uses a cello solo to open its third-movement nocturne.

ANSWER: Alexander **Borodin** [Alexander Porfir'yevich **Borodin**]

<Classical Music>

14. In a play, one of this company's founders collapses and dies after dancing the Twist to Sonny & Cher's "The Beat Goes On." For 10 points each:

[10h] Name this company that is tracked from its founding by immigrants to its fall in a Tony Award-winning play by Stefano Massini.

ANSWER: **Lehman** Brothers [or **Lehman** Bros.; or **Lehman** Brothers Inc.; accept *The Lehman Trilogy*]

[10e] Immigrants arrive in Ellis Island and work under harsh conditions in *Amerike the Golden Land*, a play in this language. The New York theater Folksbiene produced an appropriate adaptation of *Fiddler on the Roof* in this language.

ANSWER: **Yiddish**

[10m] This author's plays concerning immigration and politics include *On the Royal Road: The Burgher King*, a reflection on Donald Trump narrated by a blind and bleeding Miss Piggy. This author wrote a novel about Erika Kohut's sadomasochistic relationship with her student.

ANSWER: Elfriede **Jelinek** ("ell-FREE-duh YELL-in-ek") (The novel is *The Piano Teacher*.)

<European Literature>

15. Charles Sanders Peirce (“purse”) was extremely fond of classifying things into groups of three. For 10 points each:

[10e] Peirce defined semiosis as a triadic relation involving one of these things plus its object and its interpretant. Semiotics is the study of these things.

ANSWER: **signs**

[10m] *Two answers required.* Peirce recognized three types of inference: deduction, and these two other similarly named types of inference.

ANSWER: **induction** AND **abduction** [accept answers in either order; accept **inductive** reasoning in place of “induction”; accept **abductive** reasoning in place of “abduction”]

[10h] In his metaphysics, Peirce theorized three forms of evolution: the love-based agapasm (“AG-uh-pasm”), the necessity-based anancasm (“ANN-in-kasm”), and this form, which he equated with Darwinian evolution.

ANSWER: **tychasm** (“TY-kasm”) [or **tychastic** evolution; accept **tychism**; accept **tychasticism**]

<Philosophy>

16. A song from a Luis Valdez musical suggests that “it was a secret fantasy for *mi vato*” to don one of these articles of clothing in a “boogie” titled for them. For 10 points each:

[10e] Name these high-waisted outfits popularized by people of color like Cab Calloway. The Sleepy Lagoon murder case precipitated 1943 race riots between the U.S. Army and largely Chicano teens wearing these outfits.

ANSWER: **zoot suits** [or **zuit suit**; accept **Zoot Suit** Riots; accept “**Zoot Suit** Boogie”; prompt on **suits**]

[10h] Songs like “Los Chucos Suaves” were composed for *Zoot Suit* by this “father of Chicano music” who parodied “The Ballad of Davy Crockett” in a song about Pancho López.

ANSWER: Lalo **Guerrero** [or Eduardo **Guerrero** Jr.]

[10m] Zoot suits were popularized by this Chicano subculture that spoke the often rhyming caló dialect. Germán Valdés’s character of Tin-Tan was based on this subculture that originated on the Chihuahua-Texas border.

ANSWER: **pachucos** [accept **pachucas**]

<Other Academic>

17. A weed nicknamed the “English-Man’s Foot” is one of many New England flora that form a “portmanteau biota” key to the “ecological” form of this process according to Alfred Crosby. For 10 points each:

[10m] Name this process that is paired with “culture” in another book that illustrates it through a “dead silence” surrounding the Antigua slave trade in a passage from *Mansfield Park*.

ANSWER: **imperialism** [accept *Culture and Imperialism*; accept *Ecological Imperialism*] (Edward Said wrote *Culture and Imperialism*.)

[10e] In an earlier book, Crosby coined this two-word phrase to describe the trade of goods and ideas between Europe and the Americas after 1492.

ANSWER: **Columbian Exchange** [accept *The Columbian Exchange: Biological and Cultural Consequences of 1492*]

[10h] Crosby cites a “law” named after a historian with this surname that links immunological advantages with imperialism. A historian with this surname detailed the “differential resistance” of Caribbean natives and Europeans in the book *Mosquito Empires*.

ANSWER: **McNeill** [accept **McNeill**’s Law; accept William Hardy **McNeill**; accept John Robert **McNeill**]

<World History>

18. Robert J. Lang’s art has used types of this material like *kōzo* and the Nepalese *lokta*. For 10 points each:  
[10m] Name this material used to create designs in quilling. The Pureland style of an art form that uses this material only allows actions named for mountains and valleys.

ANSWER: **paper** [accept **tissue paper**] (Pureland is a style of origami.)

[10e] Paper is cut to look like these things in a Chinese folk art often displayed in windows. Ranunculus and amaryllis are types of these things arranged in the Japanese art of *ikebana*.

ANSWER: **flowers** [accept window **flowers** or chuāng **huā**; prompt on **plants**]

[10h] This Japanese origami master repopularized the form in the mid-20th century with his technique of wet-folding and his book *New Origami Art*. With Samuel Randlett, he co-names the standard diagram system for origami folds.

ANSWER: Akira **Yoshizawa** [or **Yoshizawa** Akira; accept **Yoshizawa**–Randlett system]

<Other Fine Arts>

19. In the *ABC of Reading*, Ezra Pound wrote that he gets more pleasure from this author’s translation of Virgil than he does from “the original highly cultured but non-seafaring author.” For 10 points each:

[10h] Name this Scottish poet whose Middle Scots version of the *Aeneid* is called *Eneados* (“en-ee-AD-ose”).

ANSWER: Gavin **Douglas** [or the Bishop of **Dunkeld**]

[10e] Pound favorably compares Douglas’s translation to the Virgilian fragments produced by this author, whose best-known work is about pilgrims like the Franklin and the Pardoner.

ANSWER: Geoffrey **Chaucer** (The pilgrims appear in *The Canterbury Tales*.)

[10m] In the prologue to his version, Douglas castigates this man’s 1490 version of the *Aeneid* for “shamefully” perverting the original. This printer also translated the *Recuyell* (“ruh-KOY”) of the *Historyes of Troye*.

ANSWER: William **Caxton**

<British Literature>

20. *Nature Methods* crowned this paradigm that combines imaging and genomics 2020’s Method of the Year. For 10 points each:

[10h] Name this family of methods that, unlike sc-RNA-seq (“S-C-RNA-seeq”), doesn’t require liberating cells from tissue and can thus analyze single cells in their native contexts. 10x’s *Visium* is a commercially available technique in this family.

ANSWER: **spatial transcriptomics** [or **spatially**-resolved **transcriptomics**; accept, but DO NOT REVEAL, **in situ transcriptomics**; prompt on **transcriptomics** or **transcriptome** profiling]

[10m] A spatial transcriptomics method uses a multiplexed, error-robust version of this technique with binary labels to measure RNA species in tissue. A quantitative version of this technique can measure telomere lengths.

ANSWER: fluorescent **in situ hybridization** [or **FISH**; accept **MERFISH**; accept **Q-FISH**]

[10e] A landmark spatial profiling paper by Zhuang et al. mapped the preoptic nucleus of this brain structure, which controls the pituitary gland, hunger, thirst, and other autonomic processes.

ANSWER: **hypothalamus** [accept **hypothalamic**–pituitary–adrenal axis; prompt on **HPA** axis]

<Biology>