



# ACADEMIC COMPETITION FEDERATION

## ACF NATIONALS 2022

### PACKET 17

Packet by

**The Editors (8)**

#### Editors

**Will Alston, Stephen Eltinge, John Lawrence, Stephen Liu, Eric Mukherjee,  
Adam Silverman**

#### Authors

**Austin Brownlow, Jaimie Carlson, Ganon Evans, Zach Foster, Taylor Harvey,  
Matt Jackson, Nick Jensen, Michael Kearney, Shan Kothari, James Lasker,  
Jonathan Magin, Olivia Murton, Will Nediger, Jonathen Settle, Jon Suh**

## TOSSUPS

1. This author's "complacent ambivalence" contrasts with his contemporaries' "primary colors" in an Isaiah Berlin essay, the last in a collection titled for a country's "Thinkers." In a novel, a heckler claims that a caricature of this man aimed for a crow and hit a cow, as that caricature of this man reads aloud a pretentious farewell poem titled "Merci" ("mer-SEE") at a gala. A contemporary of this man mocked him as needing a telescope to see Russia, because he lived in Paris with mezzo-soprano Pauline Viardot ("v'yar-DOH"). This man is caricatured as the out-of-touch liberal poet Semyon Karmazinov in *Demons* by Dostoevsky, with whom he had a longstanding feud. This author fictionalized Princess Catherine Shakhovskoy as Zinaida in his novella *First Love*. For 10 points, name this Russian author who depicted the conflict between the Kirsanovs and the nihilist Bazarov in *Fathers and Sons*.

ANSWER: Ivan **Turgenev** ("turr-GEN-yeff")

<European Literature>

2. This place was built in 1852 to supplant a ship called the *Waban* on the orders of governor John McDougal, who was concerned about the activities of local Vigilance Committees. Based on matching fingerprints from this place and from Detroit, the FBI claimed that Wallace Fard was a certain Wallie Dodd Ford who resided here in the late 1920s. While in this place, a man shouted "Gentlemen, the dragon has come!" after allegedly being given a wig with a handgun hidden inside by his lawyer, Stephen Bingham. Six residents of this non-New York facility were put on trial for starting a 1971 riot which killed Soledad Brother and activist George Jackson. People in this facility colloquially call it "The Arena." A moratorium on lethal injections at this facility in Marin County was put in place in 2019 by governor Gavin Newsom. For 10 points, name this oldest state prison in California.

ANSWER: **San Quentin** State Prison [accept **San Quentin** Six; prompt on The **Arena** before "Arena"]

<American History>

3. A music theorist with this surname introduced the concept of "Mehrdeutigkeit" ("mare-DOY-tish-kyte") or "multiple meaning" in an 1832 analysis of Mozart's "Dissonance" *String Quartet*. That student of Abbé ("ah-BAY") Vogler with this last name popularized Roman numeral analysis. A composer with this last name used a melody beginning "A-flat, E-natural, F," in a "quarter, dotted quarter, eighth" rhythm to begin the "Larghetto affettuoso" ("lahr-GEH-toh ah-fet-T'WOH-zoh") first movement of a piece for piano and orchestra. A composer with this last name used a Chinese melody found in Jean-Jacques Rousseau's ("roo-SOH's") *Dictionary of Music* in incidental music for a Carlo Gozzi play. That composer with this last name wrote two clarinet concertos for Heinrich Baermann as well as a *Konzertstück* ("CONCERT-sh'took") in *F minor*. For 10 points, give this last name of the composer who inspired Paul Hindemith's ("HIN-duh-mith's") *Symphonic Metamorphoses* and wrote *Invitation to the Dance*.

ANSWER: **Weber** ("VAY-ber") [accept (Jacob) Gottfried **Weber**; accept Carl Maria von **Weber**]

<Classical Music>

4. *Description acceptable.* Doris Tsao noted that a “space” for this task is sufficiently generated by two hundred cells in regions named ML/MF (“M-L-M-F”) and AM (“A-M”) in the IT (“I-T”) cortex. The latency of the N170 (“N-one-seventy”) component of an ERP (“E-R-P”) is a relatively specific marker for this task. Isabel Gauthier (“goh-t’YAY”) showed that an area of the brain used for this task also activates in response to greebles, supporting the “expertise” hypothesis of this faculty and opposing Nancy Kanwisher’s domain-specificity hypothesis. Patient PS lacks this ability due to a lesion in a namesake part of the occipital lobe which, along with the superior temporal sulcus and the lateral fusiform gyrus, comprise a network for this task. This task is easier to perform for one’s own ethnic group according to the cross-race effect. The loss of this ability is called prosopagnosia (“PRAH-suh-pag-NOH-sia”). For 10 points, name this ability to identify a person based on their visage.

ANSWER: **facial recognition** [accept any description of **recognizing faces**; prompt on **recognition**; prompt on any kind of **recognizing visual** phenomena, such as **visual recognition**, **object recognition**, or **recognizing people**; reject answers involving other senses such as “recognizing sounds,” “recognizing voices,” or “recognizing objects by touch”]

<Biology>

5. This work says that the “old spirit world” of traditional ideas is less alive in Europe than in the U.S., where they have not been “dissolved by the work of centuries.” To describe those that mistake parliamentary victories for real ones, this work coins the term “parliamentary cretinism.” This work divides a certain historical period into three phases, calling the first the “[u]niversal fraternity swindle” and the second the “downfall of the republican bourgeoisie.” This work argues that because “[t]he tradition of all the dead generations weighs [...] on the brain of the living,” “[m]en make their own history, but they do not make it just as they please.” The title man is called the “chief of the *lumpen-proletariat*” in this work, which opens by saying that historical facts appear twice, “first as tragedy, then as farce.” For 10 points, name this Karl Marx essay about the coup that established the French Second Empire.

ANSWER: *The Eighteenth Brumaire of Louis Napoleon* [or *The Eighteenth Brumaire of Louis Bonaparte*; or *Der 18te Brumaire des Louis Napoleon*]

<Philosophy>

6. One poem in this form contrasts the few faces that manifest as roses and tulips with the many faces that are hidden by the dust. Another poem in this form concludes by saying that when your mouth closes in this world, it opens in the world of the placeless sky; that poem was supposedly written on the day of the author’s death. This form is used in 27 of the 30 poems translated by Leonard Lewisohn and Robert Bly in *Angels Knocking on the Tavern Door*. A man playing chess is entreated to return to Konya in a poet’s 163<sup>rd</sup> work in this form. Jagjit Singh’s musical settings helped to repopularize poems in this form by Mirza Ghalib. Each of the minimum five couplets in this form must end with a refrain called a *radif*. Over 480 of these poems make up the majority of *The Divān* (“dih-VAN”) of Hafez. For 10 points, name this primary form of medieval Arabic and Persian love poetry.

ANSWER: **ghazal** [prompt on **couplets** before mentioned]

<World Literature>

7. To reduce the representations of molecules with this property, partial correlation tables are used to find a working point group. For molecules with this property, capital Greek letters are used in character tables in lieu of the Mulliken symbols A, B, and E. Only molecules with this property can simultaneously have maximum stability *and* degeneracy, by the Jahn (“YAHN”)–Teller theorem. Poly-atomic molecules with this property have evenly spaced microwave spectral lines, are classified in either the “C-infinity-*v*” or “D-infinity-*h*” point groups, and only have “three-*N*-minus-five” normal modes, since one rotation axis is degenerate. Tri-iodide and xenon di-fluoride form molecules with this VSEPR (“vesper”) shape, which also occurs if a central atom forms two pi bonds and is *sp* (“S-P”)–hybridized. For 10 points, name this shape of acetyl-ene and carbon dioxide, which have 180-degree bond angles.

ANSWER: **linear** [or **1D** or **one-dimensional**; or **collinear**; or **cylindrical**; prompt on straight; prompt on symmetry, symmetric, rotationally symmetric, planar symmetric, rotational symmetry, or planar symmetry by asking “What geometry do these molecules share?”; reject “centrosymmetry” or “inversion symmetry”]  
<Chemistry>

8. This archeological site’s House of the Oil Merchant is part of a group of four buildings where 22,000 ivory figurines were found, suggesting it was part of a furniture production center. Geophysicist Amos Nur cited evidence from those “ivory houses” at this site to argue that it and nearby sites largely collapsed due to an “earthquake storm.” This site’s so-called “secret cistern” is accessed by taking eighty-six steps down a tunnel that was made via corbelling, much like the false dome of this site’s largest shaft grave. This is the type site of a culture whose palace economy was centered around a great hall called a *megaron*, where a king called a *wanax* (“WAH-nacks”) sat with his council. Its citadel, an example of Cyclopean architecture, is entered via the Lion Gate. For 10 points, name this Greek city whose so-called “Treasury of Atreus (“AY-tree-uss”)” contained the “Mask of Agamemnon.”

ANSWER: **Mycenae** (“my-SEE-nee”) [or **Mykenai** or **Mykene**]  
<Ancient History>

9. A city in this region was the primary inspiration for the town in Miyazaki’s *Howl’s Moving Castle*, with Howl’s house based on Maison Pfister. A stew from this region, in which assorted meats are mixed with wine and juniper berries and sealed with bread dough in a casserole, is called *baeckeoffe* (“BECK-uh-OFF-uh”). A city in this region currently houses the *Isenheim* (“EYE-zen-HYME”) *Altarpiece* in its Unter-linden Museum. The largest automobile and railway museums in the world are in this region’s city of Mulhouse. It makes a flatbread with thinly sliced onions and bacon called *Flammekueche* (“FLAH-muh-k’YOO-shuh”) and its two most planted wine grapes are Riesling (“REEZ-ling”) and Gewürztraminer (“guh-VURTS-truh-MEE-ner”). A mix of sausage and sauerkraut called *choucroute* (“shoo-KROOT”) is from this region, whose capital houses the European Parliament. For 10 points, name this region of Northeastern France whose capital is Strasbourg.

ANSWER: **Alsace** (“AL-sass” or “al-SAYSS”) [or **Alsatia**, or **Elsatz**, or European Collectivity of **Alsace**; prompt on Alsace-Lorraine; prompt on Grand Est or Northeastern France or Northeast France]  
<Geography>

10. A 2004 paper by Jiwoong Shin and Dan Ariely used “games” named for these objects to assess the “effect of unavailability on incentives to keep options viable.” Two effects that name these objects were coined in a study that first asked one group to post a small slogan sign and the other group to sign a petition. Two types of these objects name “criteria” for assessing confounding bias in Judea Pearl’s causal diagrams. Due to a passage about a friend between two of these objects in a post office in *The Design of Everyday Things*, objects that incorrectly signal how to be used are named for Donald Norman. A method of making a large request so that a smaller one will seem reasonable is named for one of these objects “in the face,” as contrasted with a small-request-first technique named for a “foot in” one of them. For 10 points, three of what objects form the central focus of the Monty Hall problem? ANSWER: **door**ways [accept **door** games; accept front-**door** path criteria; accept back-**door** path criteria; accept Norman **doors**; accept **door**-in-the-face technique; accept foot-in-the-**door** technique; accept answers indicating a **door**knob or **door** handle; prompt on knob or handle by asking “What sort of object is that attached to?”; prompt on paths by asking “What object is in that path?”; prompt on entrances]

<Social Science>

11. This thinker contrasted mere tyrants with “werewolves,” rulers whom the population had the right to murder along with their subordinates. This thinker remarks that a prince is a “rare bird in heaven” in an address which describes the exclusive authority to call a church council as the third of “three walls” constructed to usurp political authority. This thinker’s book *On Temporal Authority* proposes a distinction between the coercive government of the sword and spiritual government of the divine, commonly called the “doctrine of two kingdoms.” This author of *To the Christian Nobility of Germany* sided with magistrates against Anabaptist clergy and their thousands of unruly followers in a tract against “thieving, murderous hordes of peasants.” For 10 points, what religious leader declared “Here I stand, I can do no other” at the 1521 Diet of Worms (“vurmz”)?

ANSWER: Martin **Luther**

<Religion>

12. A short story by this author ends with the protagonist seeing a train move “like a worm with a fiery head winding through the darkness,” as its engine seems to call out a dead woman’s name. In a different story by this author, a character who repeatedly uses variations on the phrase “that takes the biscuit” sits at a refreshment bar and dreams of settling down with a “good simple-minded girl with a little of the ready” as he dines on a plate of peas and a bottle of ginger beer. A story by this author is named for the subtitle of a newspaper article, describing Emily Sinico being run over by a train, which Mr. Duffy reads after breaking off their Platonic affair. In the closing line of a story by this author, the narrator sees himself as “a creature driven and derided by vanity,” after failing to buy a trinket for Mangan’s sister at a bazaar. For 10 points, name this author of “A Painful Case,” “Two Gallants,” and “Araby.”

ANSWER: James (Augustine Aloysius) **Joyce**

<British Literature>

13. This instrument plays the introduction and main melody on the original 1927 recording of “Wild Cat.” A player of this instrument wrote the 1930s’s best-selling song about smoking weed, “If You’re a Viper.” An album led by a player of this instrument ends with “The Struggle of the Turtle to the Sea.” This is the instrument of the only American-born founding member of the Mahavishnu Orchestra, Jerry Goodman. Stuff Smith played this instrument, which was also played by a man who formed a duo with Eddie Lang in the 1920s and 30s, Joe Venuti. An electric version of this instrument was played on *Enigmatic Ocean* by Jean-Luc Ponty. A player of this non-guitar instrument co-founded the “gypsy jazz” ensemble the *Quintette du Hot Club de France* with Django (“jango”) Reinhardt. For 10 points, name this string instrument played by Stéphane (“steh-FAHN”) Grappelli and his sometime duet partner, Yehudi Menuhin (“yeh-HOO-dee MEN-yoo-in”).

ANSWER: violin [or jazz violin]

<Other Fine Arts>

14. Carlos Duarte (“d’WAHR-tay”) et al.’s 2021 meta-analysis of this pollutant bemoaned its omission from the 2014 IPCC Assessment Report. Woods Hole researcher Tim Duda has questioned the theory that this pollutant will become more common as ocean acidification disrupts a boric acid buffer that absorbs it. WOTANs (“WOH-tans”) are devices that correlate levels of this pollutant to wind speed. The ASSR measures responses to this pollutant in dolphins by detecting a temporary threshold shift. Beaked whales have been seen to beach themselves after this pollutant causes them to panic and ascend rapidly. This pollutant can be especially disruptive if it impinges on the SOFAR (“so-far”) channel, an ocean layer that serves as a waveguide to propagate it. For 10 points, name this oceanic pollutant whose levels due to commercial shipping increased in the late twentieth century by roughly 3 decibels per decade.

ANSWER: underwater noise [or underwater sound; accept underwater noise pollution or underwater sound pollution; accept environmental noise; accept sonar]

<Misc. Science>

15. An Islamist who founded the Popular Arab and Islamic Conference in this city was later accused, probably wrongly, of distributing a critique of ethnic inequality called the *Black Book* to officials in this city. While undergoing liposuction and an operation on his testicles in this city in 1994, an arms dealer was abducted by his own bodyguards. Carlos the Jackal was kidnapped in this city four years before American cruise missiles blew up al-Shifa, a nearby factory thought to be making VX gas. That was done in revenge for embassy attacks by al-Qaeda, whose leader Osama bin Laden lived here for five years at the invitation of Hassan al-Turabi. This is the capital of an African country whose leader was indicted in 2008 for three counts of genocide by the ICC. For 10 points, name this city where, until a 2019 military coup, Omar al-Bashir was president of Sudan.

ANSWER: Khartoum (The first clue refers to al-Turabi.)

<World History>

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\* Editor’s note: Although this tournament uses the terms Roma or Romani in other cases, “gypsy jazz” is the term most commonly used by the genre’s scholars and practitioners, some of whom explicitly reject the labels Roma and Romani as inapplicable to their particular group. Other proposed genre names have been deemed equally problematic by at least some of the genre’s practitioners. Although there may be a better widely-accepted term for this genre by the time you read this packet, there wasn’t when the tournament was edited and played.

16. In a portrait by this painter, a German soprano wears a glittering cross on her black dress as part of the costume for Donna Anna in *Don Giovanni*. Mademoiselle Anaïs, with whom this artist was in love, played a young prince in a Casimir Delavigne (“duh-lah-VEEN”) play that was inspired by one of his works. This painter of a portrait of Henriette Sontag showed Ictinus, Apelles (“uh-PELL-eez”), and Phidias seated on a marble throne in a panoramic work meant to depict the 75 greatest artists in history; that painting at the École des Beaux-Arts (“eh-KOL day bo-ZAR”) is the *Hémicycle*. In another painting by this artist, a dog watches a menacing shadow beneath a door as two sons of an English king huddle in fear on a bed. A lady-in-waiting slumps against the wall in a work by this artist in which Sir John Brydges guides a blindfolded woman to a chopping block. For 10 points, name this French painter of *The Princes in the Tower* and *The Execution of Lady Jane Grey*.

ANSWER: Paul **Delaroche** (“duh-lah-ROASH”) [or Hippolyte-Paul **Delaroche**]

<Painting/Sculpture>

17. In a play partly titled for *this time period*, a boy wipes his face with a handkerchief by a fountain that has the word “Eternity” carved into its base, then dares a girl to kiss him. This time period appears in the title of a play in which a gilt-edged book of poems is shown to a Polish doctor, and a girl recalls that she had to wear a see-through bathing suit while vacationing at Cabeza de Lobo. In a play whose title mentions this period, the hedonist John Buchanan switches worldviews with the preacher’s daughter Alma Winemiller. This period partly titles a play in which Sebastian Venable was cannibalized, according to his cousin Catherine Holly, who will be lobotomized, like the playwright’s real-life sister Rose was. For 10 points, name this period that is paired with “Smoke” and follows “Suddenly Last” in the titles of two plays by Tennessee Williams.

ANSWER: **summer** [accept **Summer** and *Smoke*; accept *Suddenly* **Last Summer**]

<American Literature>

18. This property is said to exist locally in curved spacetime if the metric is in Minkowski form and its first derivatives vanish, as guaranteed by the Riemann normal condition. Ludwig Lange’s (“LAHNG-uh’s”) definition of this property requires the recti-linear and mutually-proportional motion of three non-coplanar particles. Gyroscopes and acceler-o-meters track orientation and velocity without external input in navigation systems named for this property. This property is caused by the presence of distant masses, namely the fixed stars, according to Mach’s (“MAHK’s”) principle. This property lends its name to the mass in Newton’s second law of motion, which equals gravitational mass according to the equivalence principle. Fictitious forces are absent in non-accelerating reference frames named for, for 10 points, what property that causes objects to resist a change in velocity?

ANSWER: **inertia** [accept **inertial**; accept (locally) **inertial** reference frames or **inertial** navigation systems or **inertial** mass; accept **non-accelerating** before “non-accelerating”; accept **normal** before “Riemann normal”]

<Physics>

19. A knight named Tomich helped popularize a legend that speakers of this language descended from “cowardly peasants” who refused to rebel. This language was used to write 48-panel proto-comics telling historical or satirical tales called *auca* (“OW-kah”) as well as *The Book of the Consulate of the Sea*, which governed maritime trade for centuries. Nicholas Eymerich (“AY-muh-rick”) obtained a papal bull banning a universalist logic called “The Art” created by a thinker who pioneered writing in this vernacular language. Abraham Cresques (“KRESS-kuss”) used this language to caption a document which contains the first depiction of a compass rose and shows piles of gold around Mansa Musa on its lower right. That “Atlas” named for this language was produced in Mallorca (“mah-YOR-kah”), where settlers who spoke this language were sent by the Crown of Aragon. For 10 points, name this vernacular of medieval Barcelona.

ANSWER: **Catalan** [or *català* or *llengua catalana*; accept **Valencian** or *valencià*; accept **Catalan** Atlas; prompt on **Majorcan** or **Mallorquin** before “Majorca”; reject “Spanish” or “Castilian”]

<European History>

20. This thinker used data from the Railway Express to derive an early “gravity model” in which movement between two communities is proportional to each community’s size and inversely proportional to their distance. This creator of the “ $P$ -one  $P$ -two, over  $D$ ” hypothesis is the alphabetically-latter namesake of a law which is used to fit data to RAD (“R-A-D”) graphs in ecology, and which was generalized by Benoit Mandelbrot (“ben-WAH MAN-del-brot”). This thinker proposed a “dynamic philology” linking speech and behavior in his book *The Psychobiology of Language*, which contains an early form of his “brevity law.” He proposed that humans tend to follow the “principle of least effort,” as shown by his observation of a zeta distribution among common words such as “the,” “and,” “of.” For 10 points, what linguist names a law stating that a word’s rank is inversely proportional to its frequency in a corpus?

ANSWER: George (Kingsley) **Zipf** (“ziff”) [accept **Zipf**-Mandelbrot law or **Zipf**’s law of brevity]  
<Other Academic>



## BONUSES

1. Since Catholics did not have caste distinctions, they were regarded as a threat to this leading ideology of Joseon (“JOH-sun”) Korea. For 10 points each:

[10e] Name this scholarly ideology propounded by Song dynasty scholars such as Zhu Xi (“joo shee”). This ideology updated the ideas of the author of the *Analects*.

ANSWER: **Neo-Confucianism** [or **Seongrihak**, or **Sòng-Míng lǐxué**, or **Song-Ming Rational Idealism**, or **School of Principle**; prompt on **Confucianism**]

[10m] During the reign of this emperor, mobs organized by Neo-Confucian scholars massacred Catholics in the Sinchuk (“SHIN-chook”) uprising. He was the last emperor to rule Korea before its annexation by Japan.

ANSWER: **Gojong** (“GOH-jong”) of Korea [or **Kojong** of Korea or Emperor **Gwangmu**]

[10h] Leaders of this reformist movement, such as Dasan (“DAH-san”), proposed fusing Catholicism and Neo-Confucianism to build a stronger Korea. It contrasts with the “Western” and “Eastern” learning movements, or Seohak (“suh-hak”) and Donghak (“dong-hak”).

ANSWER: **Silhak** (“shill-hak”) movement [or **Silhak** school or **Practical Learning** movement]

<World History>

2. Answer the following about 20<sup>th</sup>-century British theatre depictions of failed marriages, for 10 points each.

[10e] This author of *Blithe Spirit* wrote about divorcées Elyot and Amanda reuniting while on honeymoon with new spouses in *Private Lives*.

ANSWER: Noël (Peirce) **Coward**

[10h] In *Private Lives*, Amanda’s new husband Victor says he’s “glad to be” this adjective, then calls her “sweetly, divinely” this, to her chagrin. Amanda then says “few people are completely” this “deep down” in their private lives, hence the title.

ANSWER: “**normal**” [reject any synonyms or word forms]

[10m] Eva repeatedly attempts suicide due to her failing marriage to Geoffrey in *Absurd Person Singular* by this British playwright, who showed the same weekend from three different parts of the house in each play in his trilogy *The Norman Conquests*.

ANSWER: Alan **Ayckbourn**

<British Literature>

3. Nathan Coley used stained timber for a scale model of one of these buildings, behind which he placed a 2-D image of thick black smoke billowing above flames. For 10 points each:

[10e] Name these types of buildings, another of which was shown burning in a painting by Ed Ruscha (“roo-SHAY”), who stated in an interview that “it’s fun to paint fire.” They include LACMA and the Tate Modern.

ANSWER: art **museums** [accept Los Angeles County **Museum** of Art; accept equivalents, such as art **gallery**]

[10m] An artist’s book by Ed Ruscha consists of a long accordion-folded page that stitches together photos taken on this section of a Los Angeles road.

ANSWER: **Sunset Strip** [accept *Every Building on the Sunset Strip*; prompt on **Sunset Boulevard**]

[10h] This other LA artist was a nun who drew inspiration from the Second Vatican Council to mix popular culture with religion in her silkscreen prints. In one work, she used a Del Monte slogan to call “Mother Mary” the “juiciest tomato of all.”

ANSWER: Corita **Kent** [accept Sister Mary Corita **Kent** or Frances Elizabeth **Kent**]

<Painting/Sculpture>

4. William Leonard Hunt, also known as the “Great Farini,” published a map in 1886 that was marked with the location of one of these places in the Kalahari Desert. For 10 points each:

[10e] Name these often legendary places, which also include Iram of the Pillars. The British explorer Percy Fawcett searched for one of these places called “Z” in the Amazon.

ANSWER: **lost cities** [accept answers indicating a **settlement** whose location is **unknown**; prompt on **cities**]

[10h] A 1798 map made by James Rennell to accompany a book by explorer Mungo Park depicted this non-existent mountain range. Named for a West African empire, this range continued to appear on maps for another century.

ANSWER: Mountains of **Kong**

[10m] John Cary’s 1805 map of Africa showed the Mountains of Kong linking to the Mountains of the Moon, which this 2nd-century text claimed was the source of the Nile. This Greek text built on the work of Marinus of Tyre.

ANSWER: **Ptolemy’s Geography** [accept **Geographia**, **Geographica**, **Geographike Hyphegesis**, or **Cosmographia** in place of “**Geography**”; if the author is not given, prompt by asking, “Who was the author?”]

<Mythology/Legends>

5. This experiment detects only forward-moving collision products, unlike nearby general-purpose experiments that completely surround the beamline. For 10 points each:

[10h] Name this physics experiment. In 2019, it reported the first five-sigma measurement of a penta-quark, a discovery incidental to its primary goal of studying primordial matter–antimatter asymmetries.

ANSWER: **LHCb** experiment [or **Large Hadron Collider beauty**; prompt on **Large Hadron Collider** or **LHC**; prompt on **CERN** or **European Organization for Nuclear Research** or **Conseil européen pour la recherche nucléaire**]

[10m] In 2020, the LHCb announced the discovery of an all-heavy tetra-quark in the pair spectrum of this other particle. The OZI rule explains this particle’s long lifetime, which facilitated its 1974 discovery.

ANSWER: **J/psi** (“J-psi”) meson [or **J/psi** particle; or **psion**; prompt on, but do NOT otherwise reveal, **charmonium**]

[10e] The tetraquark reported by LHCb contains this third-heaviest quark, the positively-charged member of the second generation. The J/psi meson also contains this quark.

ANSWER: **charm** quark [prompt on **c**]

<Physics>

6. For 10 points each, answer the following about Swedish newspaper editor, political titan, and Nobel Peace Prize winner Hjalmar Branting (“YAL-mar BRON-ting”):

[10e] Branting was Sweden’s first prime minister from this party, and its first member in the Riksdag. Like a similar German party once led by Willy (“villy”) Brandt, it fought for a strong welfare state.

ANSWER: Swedish **Social Democratic** Party [or **SDP**, or **Social Democrats**, or Sveriges **Socialdemokratiska** Arbetareparti; reject “Sweden Democrats”]

[10m] Earlier, Branting helped organize large strikes to bring about this event through non-military means. This event occurred in 1905, undoing the earlier Treaty of Kiel (“keel”).

ANSWER: **independence** of **Norway** [or **secession** of **Norway** from Sweden; accept any answer indicating that Sweden and **Norway** are **no longer united** or the part of the same country; accept “**Hands Off Norway**, King!” or “**Norge ur Dina händer**, konung!”; prompt on **independence**, **secession**, etc. by asking “Of which country?”]

[10h] After studying astronomy, Branting went abroad to Paris, where lectures by this Cuban-born French socialist inspired him. This man described the love of work as a “disastrous dogma” in his essay “The Right to be Lazy.”

ANSWER: Paul **Lafargue** (“lah-FARG”)

<European History>

7. Scoring functions for this technique prioritize poses where hydrogen bond donors and acceptors are aligned. For 10 points each:

[10m] Name this computational technique which seeks the conformation and orientation in which a small molecule binds to a target protein. As a verb, this term also refers to the general process of a drug binding its target.

ANSWER: **docking** [or word forms; or molecular **docking** calculation]

[10e] Though hydrogen bonds get flashier docking scores, drug-protein interactions more often rely on this weaker entropic interaction. Per its name, this effect occurs between nonpolar groups that avoid water.

ANSWER: **hydrophobic** effect [or **lipophilic** effect; or **hydrophobicity**; or **lipophilicity**]

[10h] High-throughput virtual screens rely on databases of commercial drugs, often rendered in this format from chem-informatics that converts molecules into ASCII (“ASS-kee”) strings. It’s known by a six-letter acronym.

ANSWER: **SMILES** (“smiles”) [or **simplified molecular-input line-entry system**]

<Chemistry>

8. This resource was started by its principal editor, Edward Zalta, in 1995. For 10 points each:

[10m] Name this reference site with a reddish color scheme. Its 1800-or-so professor-contributed entries include one on “sense data” by Gary Hatfield and another on “Nothingness” by Roy Sorenson.

ANSWER: **Stanford Encyclopedia of Philosophy** [or **SEP**; accept <http://plato.stanford.edu>]

[10e] Zalta wrote the oldest article in the SEP about this turn-of-the-20th-century German logician, the author of *Foundations of Arithmetic* and “On Sense and Reference.”

ANSWER: Gottlob **Frege** (“FRAY-guh”) [or Friedrich Ludwig Gottlob **Frege**]

[10h] This philosopher, who wrote of a self-aware shopper making a mess in “The Problem of the Essential Indexical,” secures grants for the SEP. He and Mark Crimmins wrote about attitude ascriptions in “The Prince and the Phone Booth.”

ANSWER: John (Richard) **Perry**

<Philosophy>

9. This architect designed a set of three towers whose curved forms enclose a circular piazza whose boundary is shaded by a ring-like glass and steel canopy. For 10 points each:

[10m] Name this architect of the UniCredit Tower, which is the tallest building in Italy. He also designed the Pacific Design Center’s blue, green, and red-colored buildings as well as the Wells Fargo Center in Minneapolis.

ANSWER: César **Pelli** (“SEH-sar PEH-yee”)

[10e] The UniCredit Tower is located in the Porta Nuova district of this Italian city. This city also contains a massive white Gothic cathedral and a neoclassical Giuseppe Piermarini-designed opera house, La Scala.

ANSWER: **Milan** [or **Milano**]

[10h] Rem Koolhaas’s firm OMA converted a gin distillery into Milan’s Fondazione Prada art center, which includes a so-called “haunted house” that is unusually covered in this material.

ANSWER: **gold** [or **gold** leaf]

<Other Fine Arts>

10. *Note to players: Two answers required.* A sentence describing this nation performing this action directly follows a description of a man looking at a street “without love” seeing “uneven and faded buildings, the gaudy skeletons of posters floating in the mist, the gray midday.” For 10 points each:

[10h] Name this nation and the specific verb for the action it performs. They appear in the second sentence of a novel whose protagonist discovers that his father, Fermín, was known as “Gold Ball” in his secret gay affairs.

ANSWER: **Peru** AND **fucked** (itself) up [or **Perú** AND **se jodido**; or **Perú** AND **se joder**; accept “At what precise moment had **Peru** **fucked** itself up?”; accept *En qué momento se había **jodido** el **Perú**?*; accept **f**’ed up instead of “fucked up” from those who do not wish to swear]

[10e] The line “At what precise moment had Peru fucked itself up?” appears in *Conversation in the Cathedral*, a novel by this Peruvian author.

ANSWER: Mario **Vargas Llosa** [or Jorge Mario Pedro **Vargas Llosa**, 1st Marquis of Vargas Llosa; prompt on **Llosa**]

[10m] *Conversation in the Cathedral* was preceded by this Vargas Llosa novel, titled for the brothel that Don Anselmo builds in the desert near the town of Piura.

ANSWER: *The **Green House*** [or *La **Casa Verde***]

<World Literature>

11. If a continuous function has the mean value property over a particular set, then it is one of these functions on that set. For 10 points each:

[10m] Name these functions that satisfy Laplace’s equation, “grad-squared-of- $f$  equals zero.” They describe the shape of a taut drumhead.

ANSWER: **harmonic** functions [reject “spherical harmonics”]

[10e] This French mathematician and Bernhard Riemann (“REE-mahn”) name the differential equations for checking that a complex function is holomorphic, from which it follows that the function’s real and imaginary parts are harmonic.

ANSWER: Augustin-Louis **Cauchy** [accept **Cauchy**–Riemann equations]

[10h] A function’s harmonicity is preserved under the Kelvin transform, a modified version of this conformal

operation. This involutory (“in-VOL-yoo-tory”) operation carries lines to circles that touch the origin, and vice versa.

ANSWER: **inversion** in a circle [or circle **inversion**; accept **inversion** in a sphere or sphere **inversion**; reject “sphere eversion”]

<Misc. Science>

12. Bebchuk and Fried’s paper on this variable “as an agency problem” begins by joking that this variable’s growth in the 1990s was somehow outpaced by the number of papers on it. For 10 points each:

[10h] Give this variable. A paper by Marianne Bertrand and Sendhil Mullainathan (“mull-uh-NAY-then”) suggests that this variable functions as a “reward for luck” when a “principal” is absent.

ANSWER: **executive compensation** [or **CEO compensation**; accept **pay** or **salary** for “compensation”; accept “**Executive Compensation** as an Agency Problem”; prompt on **pay** or **salary** or **compensation**; reject answers that refer to “managers”]

[10e] In many studies of CEO pay and the principal-agent problem, the principals are these groups which represent shareholder interests. These committees are often elected in joint-stock corporations.

ANSWER: **boards** of directors [prompt on **BoDs** or **directors**]

[10m] CEO pay increases are often studied using this economic theory founded by Diamond, Mortensen, and Pissarides. This framework seeks to understand how market actors find each other and form relationships.

ANSWER: (search and) **matching** theory [or **match** theory; prompt on **search** theory]

<Social Science>

13. While hiding the fact that one of these events has occurred, a man is wrapped in a Spanish flag and shaved by a servant who deliberately nicks him with the razor. For 10 points each:

[10m] Name this kind of event that is revealed when a canvas falls away to expose the skeleton of Alexandro Aranda, with the words "Follow your leader" chalked under it.

ANSWER: slave revolt [or slave rebellion; or slave mutiny; or slave uprising; prompt on revolt, rebellion, mutiny, or uprising by asking "Of what people?"] (That occurs in Melville's *Benito Cereno*.)

[10e] In this author's novel *Dred*, a prophetic slave plans a revolt while hiding in the Great Dismal Swamp. This author's best-known character is murdered on the orders of Simon Legree.

ANSWER: Harriet Beecher Stowe

[10h] This "father of black nationalism" wrote about an escaped slave who travels throughout the South and Cuba to plan a revolt in his novel *Blake*. Though he co-edited *The North Star* until 1849, he broke with Frederick Douglass and called for emigration to Central America.

ANSWER: Martin Robison Delany

<American Literature>

14. This law was drafted under the supervision of Senator John McClellan, who had earlier investigated suspicious labor activities while leading a namesake committee in the 1950s. For 10 points each:

[10m] Name this 1970 law drafted by G. Robert Blakey. Since its passage, it has been used to indict Michael Milken, FIFA, and the Hell's Angels, among other groups.

ANSWER: RICO ("REE-ko") Act [or Racketeer Influenced and Corrupt Organizations Act]

[10e] The RICO Act was used by this U.S. Attorney to prosecute the Five Families in a lengthy trial. This lawyer was later elected mayor of New York.

ANSWER: Rudy Giuliani [or Rudolph Giuliani]

[10h] Carmine Persico, the boss of this Mafia family, admitted to criminal activities while serving as his own counsel and got 137 years in jail. This youngest of the Five Families then broke out into a civil war a few years later.

ANSWER: Colombo family [or Profaci family]

<American History>

15. The constitutionality of [emphasize] *not* having this policy in the U.S. rests on the case *Rostker v. Goldberg*, which was challenged by a suit brought by NCFM in Texas in 1991. For 10 points each:

[10h] Describe this policy, which Norway became the first NATO nation to adopt in 2013. Princess Amalia received a letter after the Netherlands adopted this policy in 2018.

ANSWER: conscripting women [or drafting women into the army; accept any answer which indicates compulsory military service for women, or registering women for the Selective Service/draft/etc; accept synonyms for women such as females; prompt on draft or conscription; reject "women in the military"]

[10e] This country conscripts both men and women into its armed forces, though women are only required to serve two years, as opposed to three for men. Its Shas party fights for religious exemptions from conscription.

ANSWER: Israel [or State of Israel or Eretz Yisra'el]

[10m] Since 2003, the government of this long-time leader of Eritrea has conscripted both men and women to undergo intensive military training for a hypothetical war with Ethiopia.

ANSWER: Isaias Afwerki [accept either underlined portion]

<Current Events>

16. During this holiday, some churches on the British Isles bake bread into a fun shape like an animal or a human, and then bless it. For 10 points each:

[10h] Give any of the English names of this holiday which coincides with, and likely derives from, a Celtic festival held in early August. In England, it once celebrated St. Peter's liberation from his chains.

ANSWER: **Lammas** Day [or **Lammastide**, or **Loaf Mass** Day, or **Gule** of August]

[10m] On Lammas Day, this set of choice offerings from the harvest is given to God. The Hebrew *bikkurim* is usually rendered in English with this two-word term, which also denotes food arranged around the *kinara* during Kwanzaa.

ANSWER: the **first fruits** [prompt on *bikkurim* or *fruits* or *best crops*]

[10e] An analogous holiday in Ireland, Lughnasa ("LOO-nuh-suh"), celebrates this man's victory over the evil god Crom Cruach ("KROY'sh"). This man is said to have banished all snakes from Ireland.

ANSWER: Saint **Patrick** [or **Patricius** or **Pádraig**]

<Religion>

17. Tocilizumab ("TOH-sih-LIZ-yoo-mab") is used to treat this condition, in which a positive feedback loop leads to increased immune infiltration, high levels of inflammatory mediators, and end-organ damage. For 10 points each:

[10m] Name this reaction that is thought to be the reason the 1918 flu was particularly deadly. It also occurs during CAR ("carr") T-cell therapy and COVID infections.

ANSWER: **cytokine storm** [or **hypercytokinemia**; accept **cytokine release syndrome** or **CRS**]

[10h] This cytokine is targeted by tocilizumab in order to abort cytokine storms. The herpes-virus that causes Kaposi's sarcoma unusually carries the gene for this cytokine.

ANSWER: **IL-6** ("I-L-six") [or **interleukin-6**]

[10e] IL-6 is released by these white blood cells, which, like conventional dendritic cells, differentiate from monocytes ("MAH-noh-sytes"). They are antigen-presenting cells named for the fact that they "eat" foreign antigens.

ANSWER: **macrophages** ("macro-FAY-jiz") (-*phágos* is Greek for "-eater.")

<Biology>

18. This piece requires the vocalists to play such percussion instruments as glockenspiel ("GLOCK-en-sh'peel"), sleigh bells, and crotales ("kroh-TAH-laze"). For 10 points each:

[10h] Name this choral piece by David Lang, which won the 2008 Pulitzer Prize in Music. Its text includes excerpts from the Gospel of St. Matthew and from the title Hans Christian Andersen tale.

ANSWER: *The **Little Match Girl Passion***

[10m] In 1987, David Lang co-founded this contemporary music ensemble with Julia Wolfe and Michael Gordon, known for their "Marathon Concerts." The nickname of their Summer Music Institute changes the first letter in the Boston Symphony Orchestra's summer home.

ANSWER: **Bang on a Can**

[10e] Bang on a Can's 2020 Marathon Concert concluded with Vicky Chow playing *China Gates* by this American composer of *Shaker Loops* and *Short Ride in a Fast Machine*.

ANSWER: John (Coolidge) **Adams** [reject "John Luther Adams"]

<Classical Music>

19. This city has a remarkably high number of Croatian place-names, since it was settled largely by Dalmatian immigrants during a late 19th-century gold rush. For 10 points each:

[10h] Name this city in the Americas. Many businesses here were founded by the Latvian born-businesswoman Sara Braun, who was later implicated in the genocide of the Selk'nam people inhabiting the surrounding territory.

ANSWER: **Punta Arenas** [or **Magallanes**]

[10e] Punta Arenas also grew from the boom in the Patagonian industry of herding these animals, which Braun helped finance. Exports of products from these animals slumped amid competition from New Zealand in the 1920s.

ANSWER: **sheep** [accept **shepherding** industry]

[10m] Punta Arenas contains a replica of the *James Caird*, a ship used by the crew of this man, which arrived in the city after a voyage on the *Yelcho*. This man also led the Nimrod Expedition.

ANSWER: Ernest **Shackleton**

<Other History>

20. Petrarch's *Canzoniere* ("kan-tson-YAY-ray") contains many thematic elements that Dante had used decades earlier in his *Divine Comedy*. Identify some, for 10 points each:

[10e] In the *Inferno*, Dante descends into hell on this holiday. In poem 3 of the *Canzoniere*, Petrarch first meets Laura on this day, on which the sun darkened at noon "with pity for its Maker."

ANSWER: **Good Friday** [or **Holy Friday**; or **Great Friday**; or **Black Friday**]

[10m] It's not Laura, but the 366th and last poem in the *Canzoniere* addresses this person, whom St. Bernard calls out to amidst the Celestial Rose in Canto 33 of *Paradiso*.

ANSWER: the Virgin **Mary** [or the Blessed **Virgin**; or **Madonna**; or **Vergine Madre**]

[10h] Oddly, *Canzoniere* 197 calls Laura one of these Greco-Roman mythical creatures sent from Christian heaven. In Canto 19 of *Purgatorio*, Dante dreams of one whose clothing is torn apart by Virgil to reveal a stinking belly.

ANSWER: a **Siren** [or **sirena**]

<European Literature>