

2022 ACF Regionals

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Packet O by Editors 1

TOSSUPS

1. A pope chose to keep this artist's final painting instead of sending it to hang alongside Sebastiano del Piombo's *The Raising of Lazarus* in the Narbonne Cathedral. In a scene depicting the sudden appearance of Moses and Elijah, this artist unusually included the apostles attempting to cure a possessed boy in the lower foreground. This artist depicted the lives of Peter and Paul in a set of tapestry designs that are known as his "cartoons." In a fresco by this student of Perugino, four *putti* hold open copies of the gospels below Christ's feet. That painting by this artist depicts Aquinas, Jerome, and many other theologians debating transubstantiation. For 10 points, what High Renaissance artist painted *The Transfiguration*, *La Disputa*, and *The School of Athens*?

ANSWER: **Raphael** Sanzio [or Raphael **Sanzio** da Urbino; accept **Raphael** Cartoons]
<Painting/Sculpture>

2. The rate of reactions involving these species is increased by synartetic acceleration when electrons bonding to the beta carbon form a three center "bridge" bond "fastening" the alpha and beta carbons. Vinylic ("VAI-nil-ic") examples of these species have sp ("s-p") hybridization. The Olah group studied a controversial example of these species by using a solvent with very low nucleophilicity, the antimony pentafluoride and fluorosulfuric acid based "Magic Acid." Hydride shifts or alkyl shifts produce a more stable example of these species from a less stable one. Markovnikov's rule is based on the stability of these species as intermediates. Tertiary examples of these species are more stable than secondary or primary ones due to hyperconjugation. For 10 points, name these species with a positively charged carbon atom.

ANSWER: **carbocations** ("car-bo-CAT-ions") [accept **carbenium** ions]
<Chemistry>

3. A narrator from this modern-day country inherits old furniture that disintegrates into "golden sawdust" after it is eaten by insects. A character from this country saves the Jewish baby Eva and becomes close to the male dog Viola; that character is the secretive housekeeper, Emerence. A novel from this country begins with a pointed "no" as the answer to whether the narrator wants a child. An author from this country wrote *The Door*. Another author born in this modern-day country wrote a novel in which a man is executed after confessing during Gletkin's interrogation. That author born in this country wrote a novel in which Number 402 uses tapping to talk to the imprisoned protagonist, Nikolai Rubashov. For 10 points, name this birth country of the author of *Darkness at Noon*, Arthur Koestler ("KESS-ler"), as well as Magda Szabó ("SAH-bo") and Imre Kertész ("EEM-ray KARE-tace").

ANSWER: **Hungary** [or **Magyarország**; prompt on **Austria-Hungary** with "which modern-day country?"]
<European Literature>

4. During a conflict over this resource, a mythical “Captain Moonlight” represented sporadic violence. A politician led a protest of voluntary constipation in prison over issues regarding this resource, urging followers to “Remember Mitchelstown” and the death of a 19th-century John Mandeville; that politician was arrested for devising a method in which rebels illegally pooled profits from this resource, a scheme known as the Plan of Campaign. The push to codify “Three Fs” concerning this resource included a labor strike against Charles Boycott and ended with an 1881 bill passed by William Gladstone. Michael Davitt helped elect Charles Parnell as president of this resource’s namesake “Irish National League.” For 10 points, what resource’s “war” in 1880s Ireland concerned the refusal of tenant farmers to pay rent?

ANSWER: **land** [accept **property**; accept **real estate**; accept **farms** before read; accept **Land** War or Cogadh na **Talún**; accept Irish National **Land** League] (The “Three Fs” were free sale, fixity of tenure, and fair rent.)
<Other History>

5. A single “contagious” value is used in a logic with this many total values developed by Dmitri Bochvar. There are this many premises in the propositional logic rule of inference known as the constructive dilemma. Though it was later generalized to have an infinite amount, there were this many truth values in the original formulation of Łukasiewicz (“woo-kah-SHEH-veech”) logic. A paraconsistent logic with this many truth values was introduced by Graham Priest to formally define paradoxes. Aristotle introduced this many laws of thought, the first of which is the principle of noncontradiction. Logics with this many truth values must have 27 unary operators. For 10 points, give the number that is one greater than the number of truth values in Boolean logic.

ANSWER: **three** [accept **three**-valued logic; accept **ternary** logic]
<Philosophy>

6. *Description acceptable.* When a character suggests leaving this location, another character replies by saying that it would be pointless because every house in the country is “packed to its rafters with grief.” Ninety people attend a feast at this location that features blackberry pies, but ultimately find it excessive. The opening of a novel calls this location “full of a baby’s venom” and “spiteful.” When a character notices a carriage approaching this location, she takes her children to a woodshed and slices her daughter’s throat with a saw. This Cincinnati location is haunted by the ghost of the novel’s title character. A character travels here from Sweet Home Plantation while pregnant with her daughter Denver. For 10 points, what location does Sethe live at in a Toni Morrison novel?

ANSWER: **124** Bluestone Road [or 124 **Bluestone** Road; accept descriptive answers that mention the **house** or **estate** from *Beloved*; prompt on answers about a **house** or **estate** by asking “what novel does that house appear in?”; reject answers that mention a “plantation”]
<American Literature>

7. According to the *Osashizu*, observers of Tenrikyo should perform a metaphorical version of this action daily to the heart and mind to achieve the Joyous Life. This action is performed with a communally owned object made in part from peacocks, called a *picchi*. It doesn’t involve food or fire, but extended families gather to perform this action during the Double Ninth Festival in Taiwan and Hong Kong. A white woolen object called a rajoharana is used to perform this action by Śvētāmbara (“shweh-TUM-buh-ruh”) mendicants. This physical action provides an alternate name for the Qīngmíng (“cheeng-meeng”) Festival, which involves offering food and doing this to the tombs of ancestors. For 10 points, particularly observant Jains perform what action to the ground in front of them to avoid stepping on insects?

ANSWER: **sweeping** [accept tomb **sweeping** or Tomb **Sweeping** Day or **Sǎo** fēn jié; accept **dusting**; accept **cleaning**; accept **soji**; accept **cleaning** or **washing** tombs or graves or cemeteries]
<Religion>

8. People of this ethnicity play handcrafted diatonic harps while receiving the Virgin in a fresco from Itatí. This people's western villages were raided by the nomadic Mbyá Guaycurú. A 1756 rebellion over seven of this people's settlements was led by Sepé Tiaraju. This people's language was recorded in the *Tesoro* of Antonio Ruiz de Montoya. The moon mythically gave this people a wild *Ilex* plant that they infused into tereré to drink with reed straws. The criollo governor Hernandarias nominally banned this people from drinking yerba mate ("ZHAIR-bah MAH-tay") around El Guairá and the Paraná ("pah-rah-NAH") River. By 1707, 100,000 of these relatives of the Tupí settled in 30 mission villages in the Triple Frontier's Jesuit reductions southeast of the Gran Chaco. For 10 points, what Indigenous people's language survives as a lingua franca of Paraguay?

ANSWER: **Guaraní** ("gwah-rah-NEE") [accept Guaraní-**Kaiowá** or **Ñandeva** or **Chawuncu** or **Chiriguano** or **Simba** Guaraní or **Ava** Guaraní; accept **Guaraní** War; prompt on Tupí-Guaraní before "Tupí"] (The rebellion is sometimes called the War of the Seven Reductions.)

<World History>

9. The BGS conjecture concerns the connection between the quantum form of this phenomenon and random matrix theory. Quantum systems whose classical counterparts display this phenomenon contain scars of enhanced probability density. A constant with a value of approximately 4.669 characterizes the onset of this phenomenon in one-dimensional maps with a single locally quadratic maximum. The Feigenbaum constant shows up in systems that approach this phenomenon through fixed points losing stability and becoming period-2 orbits, such as in the logistic map. Period doubling is a route to this phenomenon, which is displayed by physical systems like swinging Atwood's machines and double pendulums. For 10 points, name this phenomenon of extreme sensitivity to initial conditions.

ANSWER: **chaos** [or **chaotic** systems; accept quantum **chaology**]

<Physics>

10. In a piece by Perotin, three voices sing this word across rhythmic modes before ultimately singing "Nativitas gloriose virginis." This word and a shorter final word are the only words sung in a "fanfare for voices" composed by Randall Thompson. The *jubilus* is the melismatic passage placed on the final syllable of this word in the plainchant of the Roman Gradual. The lesson chants on this word are sung in the most musically ornate section in the medieval mass. The tradition of standing during a section titled for this word is traced to George II doing so during a premiere. Trumpets and timpanis accompany a dotted quarter, eighth-eighth-eighth rhythm on this word in a D major passage that closes Part Two of a 1741 oratorio. For 10 points, give this four-syllable word sung in a "chorus" from Handel's *Messiah*.

ANSWER: **Alleluia** [or **Hallelujah**; accept **Hallelujah** Chorus]

<Classical Music>

11. *Description acceptable.* During one of these events, a man "speak[s] a prophecy" that he says Merlin shall make. During another of these events, a man says that "there was never yet fair woman but she made mouths in a glass" and announces, "Here's grace and a cod-piece." During one of these events, a man says that another character was "born to be hanged" and a third man cries, "Hell is empty and all the devils are here." Gonzalo prays for "an acre of barren ground" during one of these events, after which a prince is told, "Full fathom five thy father lies." After being brought to a hovel during one of these events by Kent, King Lear yells, "Crack your cheeks! rage! blow!" while wandering on a heath. For 10 points, name this type of event that titles a Shakespeare play in which Prospero causes a shipwreck.

ANSWER: **storms** [or a **tempest**; accept *The Tempest*; prompt on rain or wind or similar]

<British Literature>

12. In a story, a man with this profession witnesses the resurrection of tiger cubs from an object that floats when his wife pees on it. In Korean myth, a man with this profession spills hot porridge on a winged horse's back and falls, separated from his celestial wife. This profession's central task is imposed by the Jade Emperor on a lazy man who fails to attain immortality, named Wú Gāng ("oo gahng"). In a story named for this profession, a woman demands objects like a cowry from a swallow's nest for her hand in marriage. Asian figures with this profession often attempt to curtail an osmanthus. A man with this profession discovers a thumb-sized infant while he works. In that Heian ("HAY-on")-era "Tale," the title character with this profession raises Princess Kaguya. For 10 points, name this profession of Paul Bunyan.

ANSWER: **woodcutting** [or word forms such as **woodcutter**; accept **bamboo cutting** or **bamboo cutter**; accept **lumberjacks**; accept *The Tale of the **Bamboo Cutter*** or ***Taketori Monogatari***] (The first line refers to the Vietnamese story of Chú Cuội.)

<Mythology>

13. In response to these events, young aristocrats allegedly organized bizarre balls at which partygoers wore short and spiky Titus haircuts and participated in dances featuring convulsive head movements. A politician organized examples of these events in Nantes ("nahnt") nicknamed "republican marriages" for their tendency to bind together naked men and women. Dominique Godineau ("go-dee-no") titled a history for women who knitted during these events, the *tricoteuses* ("tree-coh-TUUZ"). Other women mocked these events, which often occurred in the Place de Grève, with a fashion style defined by red chokers around the neck in homage to Charlotte Corday, the assassin of Jean-Paul Marat. For 10 points, Georges Danton ("dahn-TAWN") offered instructions to "show my head to the people" before what type of event that commonly employed guillotines?

ANSWER: public **executions** [accept **guillotining** or word forms before "guillotines"; accept **beheadings**; accept **drownings** or **noyades**; reject other execution methods, like "hangings"] (The first line refers to *bals des victimes*. Jean-Baptiste Carrier organized the "republican marriages." Dominique Godineau's history is *Citoyennes Tricoteuses*, translated as *The Women of Paris and Their French Revolution*.)

<European History>

14. This action is performed (emphasize) *first* in the only true data hazard experienced by out-of-order pipelines, as all others are alleviated with register renaming. Each instance of this action is eventually visible to all processors in coherent cache protocols. This action is taken if an evicted block is dirty in "[this action]-back" cache policies. In a typical five-stage pipeline, this action is performed last, after memory access. In C++, this action is performed on ofstream ("o-f-stream") objects using the left double angle bracket I/O ("I-O") operator. In Python, this action is only done at the end of a file when the file is opened with the mode character 'a.' In this action, a processor requests that new binary data be stored at a given location. For 10 points, name this action that modifies data in memory, in contrast to read ("read").

ANSWER: **write** [or word forms of **write**; or **writing** to (main) memory; or **writing** to cache; or **writing** to register; or **writing** to a file; accept **write-back**; accept **read after write**; accept **commit**; accept **store** before "stored"; reject "deletion" or "delete" or "deleting"]

<Other Science>

15. This artist appears showering with a crucifix and in front of a newspaper with the headline “Annie Christian Sentenced to Die!” in the *Controversy* photo series. This artist’s signature style of diagonal flies, pants with shearing, and tassels on leather coats was pioneered by his designers Louis Wells and Marie France. In 2017, this artist’s fabric dyer revealed that two oval shaped fabric cutouts gave the illusion that this artist was exposing his buttocks during the 1991 VMAs. This artist often performed with the word “Slave” written on his face and once played basketball in 3-inch heels. This artist combined the Mars and Venus gender signs to create a “love symbol” for his name. For 10 points, name this artist who appears in a white ruffle collar on a motorcycle on the cover of his album *Purple Rain*.

ANSWER: **Prince** [or Prince Rogers **Nelson**; or The Artist Formerly Known as **Prince** or **TAFKAP**; prompt on the **Purple One**; prompt on His **Royal Badness**]

<Other Fine Arts>

16. Shelled “testate” species of these organisms are indicators of low-load sludge. Mud often contains giant genera of these organisms like the phototactic *Chaos*. The “walk out method” can isolate “free-living” species of these organisms, which are the natural hosts of *Legionella pneumophila*, giant pandoraviruses and mimiviruses. These organisms include a genus that causes keratitis in contact lens wearers and a freshwater species that causes PAM (“pam”), a primary meningoencephalitis (“meninjo-en-cephal-itis”). Nasal irrigation with neti pots can cause infection with the deadly “brain-eating” species of these organisms, *Naegleria fowleri*. The bacterium *Shigella* and the monopodial *histolytica* species of these unicellular eukaryotes are the main causes of dysentery. For 10 points, what polyphyletic microbial protists share a motility based on pseudopods?

ANSWER: **amoebae** [accept **Amoebozoa** or **Conosa** or **Lobosa** or **Heterolobosea**; accept **Acanthamoeba** or **Entamoeba histolytica** or **Naegleria fowleri**; accept **amoebiasis** or **amoebic** dysentery; prompt on **Excavata** or **Amorphea** or **Unikonta**; prompt on **eukaryotes** before read; prompt on **protists** or **protozoans** before “protists”]

<Biology>

17. Per Binde mapped this activity across cultures and found it to be largely absent from pre-contact South America, and thus not a human universal. In 1994, Antigua and Barbuda pioneered a form of this activity addressed by the 2006 SAFE Port Act’s UIGEA. In psychology textbooks, fishing and this activity are the standard examples of variable-ratio partial reinforcement schedules. This activity legally requires “consideration” and is regulated by the Federal Wire Act. In 2010, Liechtenstein legalized this non-substance activity, whose addiction became an official disorder in the DSM-5. Statistics classes calculate why a form of this activity functions as a “tax on the poor” and analyze its namesake fallacy. For 10 points, a 1988 act regulates reservations that profit from what activity that attracts most tourists to Macau, Monaco, and Las Vegas?

ANSWER: **gambling** [or **wagering** or making **bets** or equivalents; accept **lottery** drawings; accept **casinos**; accept playing a **slot machine** or other casino games; accept **gambler's** fallacy; prompt on **gaming** or Indian **Gaming** Regulatory Act or playing **games** or equivalents; prompt on **crime** or similar; reject “video games”]

(The DSM-5 also discusses video game addiction but does not consider the evidence sufficient for a unique disorder. The UIGEA was the Unlawful Internet Gambling Enforcement Act of 2006.)

<Social Science>

18. A few weeks before one of these events, the controversial Hammett Letter was published. One of these events was legitimized after Edward Rucker was found in a Baltimore tavern. Sharing updates from one of these events was the first practical use of the telegraph by Samuel Morse. At one of these events, George Bancroft helped broker an unexpected compromise. The influence of the Hunkers at one of these events led the Barnburners to leave in protest. One of these events was disrupted by a walkout staged by the William Yancey-led “Fire Eaters”; after that one of these events, John C. Breckinridge was nominated by a separate “Southern” party. For 10 points, name this type of event that, in 1860, chose Stephen Douglas as his party’s nominee against Abraham Lincoln.

ANSWER: **Democratic** National **Conventions** [or **DNCs**; accept **Democratic** nominating **conventions** or any answer describing **conventions** where the **Democratic** Party nominated its candidate for president; prompt on nominating **conventions** or National **conventions** by asking “of which party?”]

<American History>

19. A short story by this author depicts the tension between a spice seller’s conjoined twin sons, whose names translate as “My Fate” and “My Destiny.” A character created by this author imagines turning into a goat or a grain of sand after killing his brother. In a novel by this author, Adham sees the makeshift tin and stick hut built by his exiled brother, just after Adham himself has been exiled for trying to see his father’s forbidden book. In that novel by this author, the scientist Arafa causes the death of the title character, whose four sons represent Adam, Moses, Jesus, and Muhammad. Amina breaks her collarbone during a car accident in this author’s trilogy about the al-Jawad family. For 10 points, name this author of *Children of Gebelawi* and the *Cairo Trilogy*.

ANSWER: Naguib **Mahfouz** [or Naguib **Mahfouz** Abdelaziz Ibrahim Ahmed Al-Basha]

<World Literature>

20. In this country, the Memorial of Zoungbodji commemorates the Zomai House and Tree of Oblivion as part of its Slave Route history. The “water people” of Ganvie constructed floating villages in this country’s Lake Nokoué (“noh-kway”). Villages in this country and its (emphasize) *eastern* neighbor are home to “living ghosts” who chase people and can kill with a single touch as part of Egúngún secret societies. People sleep around a sacred iroko tree as pythons crawl over their bodies in this country’s Temple of the Pythons in Ouidah (“WEE-dah”), which is considered the birthplace of Voodoo. In this modern-day country, the Fon people created the Dahomey Empire. The city of Cotonou is located in, for 10 points, what African country located between Togo and Nigeria whose capital is Porto-Novo?

ANSWER: **Benin** [or Republic of **Benin** or République du **Bénin**]

<Geography>

Tiebreaker. A conflict in this city between groups labeled “strong” and “weak” concerned the acceptability of eating meat from sacrifices. People in this city broke into factions by saying, “I belong to Cephas” or “I belong to Apollos,” a practice repudiated by a man ironically calling them “wise in this age.” In a letter addressed to a congregation in this city, a man alludes to a different letter “wrote unto you with many tears,” a phrase that gives an alternate name to the possibly lost “severe letter.” A passage addressed to people in this city states, “You are not your own” after comparing worshippers’ bodies to temples. The most quoted verse from a book addressed to denizens of this city begins “Love is patient, love is kind.” For 10 points, identify this Greek city that names two Pauline epistles.

ANSWER: **Corinth** [or **Kórinthos**; accept First **Corinthians** or Second **Corinthians** or Paul’s Epistles to the **Corinthians**]

<Religion>

BONUSES

1. A team led by Alfred Vidal-Madjar at the Institut d'Astrophysique de Paris observed this phenomenon occurring on the exoplanet HD 209458b. For 10 points each:

[10h] Identify this phenomenon that is hypothesized to cause the formation of chthonian ("K'THOH-nee-an") planets. In the hydrodynamic form of this phenomenon, pressure from below creates a flow of lightweight atoms that carries heavier atoms along with it.

ANSWER: atmospheric **escape** [accept hydrodynamic **escape** or hydrodynamic **blow-off**; accept Jeans **escape**; prompt on **evaporation**; prompt on descriptions of a planet's **atmosphere disappearing** or a planet **losing its atmosphere**]

[10e] The concentration of elements in this group provides the best evidence for hydrodynamic escape that occurred in the past. One element in this group is the third-most abundant gas in Earth's atmosphere.

ANSWER: **noble gases** [or **inert gases**; or **group 18** elements] (The unnamed element is argon.)

[10m] Vidal-Madjar's team identified that escape was occurring by studying the intensity drop in this feature in the hydrogen spectrum. Gas clouds between Earth and distant quasars created dense "forests" of this feature.

ANSWER: **Lyman-alpha** line [or **Ly-alpha**; accept **Lyman-alpha** forests; prompt on **Lyman** series]

<Other Science>

2. This title plant "thrives along disturbed edges" according to a book that recounts the myth of Skywoman Falling and uses the life force "Puhpowee" to illustrate the "grammar of animacy." For 10 points each:

[10h] Name this title plant of a book that outlines a reciprocal accord with nature called the Honorable Harvest; that book titled for "braiding" this plant is by the Citizen Potawatomi author of *Gathering Moss*, Robin Wall Kimmerer.

ANSWER: **sweetgrass** [or **Mary's grass** or **manna grass** or **vanilla grass** or **holy grass** or **bison grass** or *Hierochloe odorata* or *Anthoxanthum nitens*; accept *Braiding Sweetgrass*; prompt on **grass** or **Poaceae** or **Gramineae**]

[10m] *Braiding Sweetgrass* draws on Keewaydinoquay Peschel's expertise in "botany" given this prefix. This prefix modifies "medicine" and "psychopharmacology" to describe traditional ecological knowledge of Indigenous people.

ANSWER: **ethno-** [accept **ethnobotany** or **ethnomedicine** or **ethnopsychopharmacology**; prompt on folk **medicine**]

[10e] Richard E. Schultes studied the ethnobotany of these ritual experiences caused by entheogens. Terence McKenna, the curandera Maria Sabina, and Michael Pollan have promoted these sensory events caused by psychedelics.

ANSWER: **hallucinations** [accept **hallucinogens**; accept drug **trips**; accept **visions** or similar; prompt on **mystical** or **spiritual** experiences]

<Social Science>

3. An Arabic–Geʿez creole was spoken in this archipelago, where Mubarak founded a sultanate that carved water cisterns and allied with the Ottomans in the Ethiopian–Adal War. For 10 points each:

[10h] Name these islands that became an Umayyad penal colony after the Second Fitna. Yemen’s Ziyadid and Tahirid dynasties fought Aksum for control of these Red Sea islands, which traded bird eggs, coral, tortoiseshell, and pearls.

ANSWER: **Dahlak** Archipelago [or **Dahlak** Islands; accept **Dahlak** Sultanate; accept **Dahlak** Kebir]

[10m] The Dahlak Sultanate lost control of Red Sea trade after this ethnically Agaw dynasty expanded north of Adulis. This pre-Solomonic dynasty controlled northern Ethiopia after the semi-legendary Queen Gudit invaded Aksum.

ANSWER: **Zagwe** dynasty

[10e] During the Zagwe period, horses were exchanged for bars of this substance, called amoles, mined in Afar. Nepalese rice was traded to Tibet for this substance, which was not really sprinkled to ruin the earth during war.

ANSWER: **salt** [or table **salt**; or **NaCl**; accept **salt**ing the earth] (Salt may have actually been strewn in limited quantities as a fertilizer or as part of a ritual in ancient Assyria.)

<World History>

4. Elizabeth Daryush experimented with a rare verse form that counts only these units in her quaternion poem “Accidental.” For 10 points each:

[10e] Name these basic sound units of poetry that are counted along with accents in most English verse. English language haikus are made up of lines with five, seven, and five of these units.

ANSWER: **syllables** [accept **syllabic** verse; accept accentual-**syllabic** verse]

[10m] This American poet was a master of unaccented syllabic verse, which she employed in a poem that begins, “No water so still as the / dead fountains of Versailles.” Another poem by this author begins, “I too, dislike it.”

ANSWER: Marianne **Moore** [or Marianne Craig **Moore**] (The poems are “No Swan so Fine” and “Poetry.”)

[10h] This English-born poet used natural-sounding syllabic verse in poems like “Considering the Snail.” This gay author of the poem “On the Move” reckoned with the AIDS diagnoses of his friends in the collection *The Man With Night Sweats*.

ANSWER: Thom **Gunn** [or Thomson William **Gunn**]

<American Literature>

5. Nathan Milstein and the New York Philharmonic orchestra’s 1948 recording of this piece was pressed on the first-ever commercially available 12 inch LP. For 10 points each:

[10h] Name this piece. Ferdinand David removed the contrapuntal complexity in this piece’s first movement cadenza, which is unusually written out to include sixteenth-note passages requiring ricochet bowing.

ANSWER: Felix **Mendelssohn**’s **Violin Concerto** in E minor, Op. 64 [accept Jakob Ludwig Felix **Mendelssohn** Bartholdy in place of “Mendelssohn”]

[10m] One of the earliest partial recordings of Mendelssohn’s Violin Concerto was a 1912 recording by Eugène Ysaÿe (“oo-ZHEN ee-ZAI-ee”), a virtuoso violinist from this country. A late-Romantic composer and organist from this country is best known for his 1888 Symphony in D minor.

ANSWER: **Belgium** [or Kingdom of **Belgium** or Royaume de **Belgique** or Koninkrijk **België** or Königreich **Belgien**] (The second composer is César Franck.)

[10e] The written-out cadenza to Mendelssohn’s concerto is marked *ad libitum*, meaning that this aspect of the performance should be free. This Italian term refers to the speed or pace of a piece and can be reported in beats per minute.

ANSWER: **tempo** [prompt on **time**]

<Classical Music>

6. Cecilia Jarlskog introduced an invariant quantity defined by elements of this matrix. For 10 points each:

[10h] Name this almost-diagonal matrix that Lincoln Wolfenstein parameterized in powers of lambda based on an experimentally observed hierarchy of its parameters. Elements of this matrix include “V sub u d” and “V sub c s.”

ANSWER: **CKM** matrix [or Cabibbo–**Kobayashi–Maskawa** matrix; accept, BUT DO NOT OTHERWISE REVEAL, **quark mixing** matrix]

[10m] The effects of this phenomenon are proportional to the Jarlskog invariant. The observation of the “K sub L” eigenstate of the neutral kaon decaying into two pions provided strong experimental evidence of this phenomenon.

ANSWER: **CP violation** [or **charge** conjugation **parity violation**; accept **violation** of **CP symmetry** or **violation** of **charge** conjugation **parity symmetry**] (The second sentence refers to the Fitch–Cronin experiment.)

[10e] Five unobservable phases of the CKM matrix are absorbed by fields associated with these elementary particles whose flavors include up, down, and charm.

ANSWER: **quarks** [accept up **quark** or down **quark** or charm **quark** or strange **quark** or top **quark** or bottom **quark**]

<Physics>

7. One of these laws passed in 2022 provides 7.1 billion dollars for the PDI and requires a review of Other Transaction authority, which is not subject to the Federal Acquisition Regulation. For 10 points each:

[10h] Name these laws, one of which was subject to the only veto override during Donald Trump’s presidency.

ANSWER: **National Defense Authorization Acts** [or **NDAAs**]

[10m] INDOPACOM (“in-doh-PAY-com”) has criticized the Pacific Deterrence Initiative for allocating too much money for ships and aircraft and not enough for this type of technology exemplified by the AEGIS (“ay-jis”) and THAAD (“thad”) systems.

ANSWER: **missile defense** systems [or **anti-ballistic missile** systems; accept answers indicating technology for **defending** from, **detecting**, **intercepting**, or **destroying missiles**]

[10e] The 2021 NDAA almost included an amendment to block the reduction of troops in this country. The 2022 NDAA creates a commission to study the 20-year occupation of this country following the withdrawal in late 2021.

ANSWER: **Afghanistan** [or Islamic Emirate of **Afghanistan** or Də **Afġānistān** Islāmī Imārat or Imārat-i Islāmī-yi **Afġhānistān**; accept Islamic Republic of **Afghanistan** or Da **Afġānistān** Islāmī Jumhoryat or Jumhūrī-yi Islāmī-yi **Afġānistān**]

<Current Events>

8. This poem refers to its narrator as “a blind man, who lives in rocky Chios (“KEE-os”), and whose songs are the best forever,” which has often been taken as a depiction of Homer. For 10 points each:

[10h] Name this ancient Greek poem, which is often divided into “Pythian” and “Delian” sections. This poem is one of thirty-three archaic Greek poems written in dactylic hexameter and dedicated to various gods.

ANSWER: **Homeric Hymn to Apollo** [accept **Homeric Hymn 3** or the **Third Homeric Hymn**; accept any answers that describe it as the “greater,” “longer,” or “first” **Homeric Hymn to Apollo**; prompt on incomplete answers such as **Homeric Hymns** or **Hymn to Apollo**]

[10e] The *Homeric Hymn to Apollo* depicts Apollo killing the Python at this location. The Python provides the etymology for the Pythia, the priestess of the famous oracle dedicated to Apollo at this location.

ANSWER: **Delphi** [accept **Delphic** oracle; prompt on **Pytho**]

[10m] Another Greek literary work set at Delphi is this author’s tragicomedy *Ion* (“Al-on”). This author’s tragedies often depict gods, such as in this author’s play in which Agave (“uh-GAH-vee”) kills her own son.

ANSWER: **Euripides** (Agave kills her son in *Bacchae*.)

<World Literature>

9. Double-headed ear pendants called *lingling-os* found in this modern-day country's Kalanay Cave support the existence of an Iron Age "interaction sphere" between cultures in this country and the Sa Huỳnh culture outside it. For 10 points each:

[10h] Name this modern-day country where Robert B. Fox discovered a skull cap in the Tabon Caves. The Ibaloi people in this modern-day country created "fire mummies" discovered near Kabayan.

ANSWER: **Philippines** [or Republic of the **Philippines** or Republika ng **Pilipinas**] (The Sa Huỳnh culture was based in southern Vietnam.)

[10e] Most *lingling-os* found at Sa Huỳnh sites were produced from this mineral, likely exported from Fèngtiān in Taiwan. Chinese *bì* discs were generally made from this precious green stone.

ANSWER: **jade** [or **nephrite**; prompt on **greenstone**]

[10m] The Sa Huỳnh culture practiced a form of inhumation inside these objects, from which most *lingling-os* have been excavated. These objects name a prehistoric "plain" in modern-day Laos that was also linked to human burial.

ANSWER: **jars** [accept **urns**; accept Plain of **Jars** or Thong **Hai** Hin; prompt on **vessels** or **containers** or similar] <Other History>

10. Numerous locations received their names after the body parts of Finnbhennach ("finn-BIN-natch"), one of these animals, were scattered around Ireland. For 10 points each:

[10e] Name these animals that title a text detailing a famous raid in the Ulster Cycle. Cruachan Ai ("KROO-ah-hahn EE"), the fortress of Medb ("mayv"), was named for a liver dropped in its direction by one of these animals stolen from Cooley.

ANSWER: **bulls** [accept **cattle** or **cows** or **bó**; accept *Táin **Bó** Cúailnge* or *The **Cattle** Raid of Cooley*]

[10h] *Dindshenchas* poems that explain the origins of place names are most notably gathered in a book named for this kingdom. A ruler of this kingdom granted Saint Brigid as much land as her cloak could cover.

ANSWER: **Leinster** ("LEN-ster") [or **Laighin** or Cúige **Laighean**; accept the *Book of **Leinster*** or *Lebor **Laighech***]

[10m] One of these places that was once a hazel forest was named for Tea, a queen of the Milesians who was buried there. Cú Chulainn ("koo KULL-in") damaged a stone that roared for the rightful high kings of Ireland at that one of these places.

ANSWER: **hills** [or **ridges**; accept the **Hill** of Tara or **Cnoc** na Teamhrach; accept **Druim** Léith or the **Ridge** of Líath or **Druim** Cáin or the **Ridge** of Cáin]

<Mythology>

11. Answer the following about the proto-jazz composer James Reese Europe, for 10 points each.

[10e] Europe's New York-based Clef Club Orchestra used large ensembles akin to those used by this composer of military marches like "The Washington Post" and "The Stars and Stripes Forever."

ANSWER: John Philip **Sousa**

[10m] Despite differences in instrumentation, Europe's compositions are musically similar to this small-ensemble style of early jazz. An "original" band named for this style made the earliest jazz recordings of "Livery Stable Blues" and "Tiger Rag."

ANSWER: **Dixieland** [accept the Original **Dixieland** Jass Band; accept **traditional** jazz]

[10h] Europe's version of W.C. Handy's "St. Louis Blues" features strains that use this rhythmic technique, in which the accompaniment begins to play only accented downbeats every measure or every other measure, leaving only silences or soloist passages.

ANSWER: **stop-time** [or **stop-timing**; prompt on **syncopation** or word forms like **syncopate**]

<Other Fine Arts>

12. Outside the building where this event was taking place, the attorney Florynce Kennedy chained herself to a marionette representing this event. For 10 points each:

[10h] Name this event that was criticized in a pamphlet by Robin Morgan as “racism with roses” and a “military death mascot.” Organizers of this event denied that any burnings had taken place during protests.

ANSWER: **Miss America** 1969 [or the 42nd **Miss America** pageant; or the 1968 **Miss America**; accept the 1968 **Miss America** protests; accept **Miss America** 1969 protests; prompt on descriptions of the bra burning protest]

[10e] Some members of the New York Radical Women, which organized the Miss America protests, led a 1969 “speak-out” to support legalizing this practice. This practice was ruled as constitutionally protected in *Roe v. Wade*.

ANSWER: **abortion** [or descriptions such as **terminating a pregnancy**]

[10m] The abortion activist Robin Morgan, a founding member of the New York Radical Women, later served as an editor of this magazine. This feminist magazine was co-founded by Dorothy Pittman Hughes and Gloria Steinem.

ANSWER: **Ms.** magazine

<American History>

13. Ancel Keys compared dietary risk factors for diseases of this organ in Finland, Greece, and Yugoslavia in the Seven Countries Study. For 10 points each:

[10e] Name this organ that was found to accrue disease risks from smoking and hyperlipidemia in the Framingham Study. The top cause of death in postmenopausal women is this organ’s atherosclerotic coronary artery disease.

ANSWER: **heart** [accept coronary **heart** disease or ischemic **heart** disease; accept Framingham **Heart** Study; prompt on cardiac muscle or cardiovascular disease] (The other countries were Italy, the Netherlands, Japan, and the US.)

[10m] Cardiac troponin I assays detect these indicators, which include lipoprotein(a) and homocysteine for heart disease. This term refers to molecules, often measured in urine or blood, that indicate a condition.

ANSWER: **biomarkers** [accept **biological markers**; prompt on markers]

[10h] Paul Ridker led trials that identified this plasma pentraxin as a key cardiovascular disease biomarker. During inflammation, the liver produces this complement-promoting positive acute-phase protein with fibrinogen (“fai-BRIN-uh-jin”), haptoglobin, SAA, and MBL.

ANSWER: **C-reactive** protein [or **CRP**; accept high-sensitivity **C-reactive** protein or hs-**CRP**]

<Biology>

14. This author’s first novel, *Monsieur Vénus*, was banned in Belgium for explicit content that the text blamed on its nonexistent co-author Francis Talman. For 10 points each:

[10h] Name this French Decadent author who referred to herself as a “man of letters.” This androgynous author, who used a one-word pen-name, wrote *The Demon of the Absurd* and *The Crystal Spider*.

ANSWER: **Rachilde** (“rah-SHEELD”) [or Marguerite **Vallette-Eymery**]

[10e] Supposedly, Rachilde was inspired to enter Parisian literary culture by a supportive letter from this French author, who wrote *The Hunchback of Notre-Dame*.

ANSWER: Victor **Hugo** [or Victor-Marie **Hugo**]

[10m] Rachilde was a close friend of this French playwright. Rachilde established the myth about the riotous opening night of this author’s play *Ubu Roi* (“OO-boo r’WUH”).

ANSWER: Alfred **Jarry**

<European Literature>

15. A passage on how the “affective meaning” of this stuff transcends objective quality asserts that one experiences it in a “pre-ontological comprehension.” For 10 points each:

[10h] Name this substance that is called the “revenge of the in-itself” in a late passage of *Being and Nothingness*. The passage discussing this substance states that it transcends all distinctions between psychic and physical.

ANSWER: **slime** [or *le visqueux*; accept **stickiness** or the **viscous**]

[10e] This French existentialist philosopher wrote about the ontology of slime in *Being and Nothingness*.

ANSWER: Jean-Paul **Sartre** [or Jean-Paul Charles Aymard **Sartre**]

[10m] Earlier in *Being and Nothingness*, Sartre explains bad faith by discussing a person with this job whose movements are “a little too precise, a little too rapid.”

ANSWER: café **waiter** [accept **server** or **serveur**; accept **garçon**; prompt on café worker or restaurant worker]
<Philosophy>

16. A ruler of this kingdom purchased the corpse of Saint Adalbert of Prague, who was martyred while preaching to Baltic pagans, in exchange for the body’s weight in gold. For 10 points each:

[10e] Name this kingdom ruled by Bolesław (“boh-LESS-wahf”) the Brave, who succeeded his father Mieszko I (“m’YESH-ko”), the founder of the House of Piast (“p’YAHST”).

ANSWER: **Poland** [or Kingdom of **Poland** or Królestwo **Polskie** or Regnum **Poloniae**]

[10h] In 1000 CE, Bolesław and Otto III of the Holy Roman Empire agreed to establish the first Polish archbishopric at a congress in this Piast capital city, where Saint Adalbert was buried until the corpse was transferred to St. Vitus Cathedral.

ANSWER: **Gniezno** (“g’NEE-EZ-naw”)

[10m] Bolesław obtained the corpse of Saint Adalbert after the ruling Přemyslid (“CHEH-miss-lit”) dynasty of this kingdom refused to pay the gold ransom. The Přemyslids maintained sovereignty over only the Margraviate of Moravia and this kingdom after the defeat of Ottokar II at the Battle on the Marchfeld.

ANSWER: **Bohemia** [or Duchy of **Bohemia** or Ducatus **Bohemiae** or Herzogtum **Böhmen**; accept Kingdom of **Bohemia**; prompt on Czech Duchy or České knížectví]

<European History>

17. This artist sculpted regal alien-looking women with facial disks covered in coils in *The New Ones, will free Us*. For 10 points each:

[10h] Name this Kenyan-American sculptor. She took inspiration from her mother’s medical textbooks to sculpt large versions of *Dengue Virus*, and created digital collages of the histology of uterine tumors in a recent exhibition.

ANSWER: Wangechi **Mutu**

[10e] In 2019, sculptures from Mutu’s *Seated* series, which was sculpted using this material, began occupying niches at The Met. The first freestanding nude since antiquity was Donatello’s *David*, which was sculpted using this metal.

ANSWER: **bronze** [reject “copper”]

[10m] Mutu collaborated with the Ghanaian-British architect David Adjaye on the installation *Exhuming Gluttony*. More famously, Adjaye designed an inverted step pyramid shape intended to resemble a crown for this museum, which opened in 2016.

ANSWER: National Museum of **African American History** and Culture [or NMAAHC; accept Smithsonian Museum for **African American History** (and Culture) or similar]

<Painting/Sculpture>

18. Vladimir Lossky, a scholar of this religious tradition, wrote that it has “never made a sharp distinction between mysticism and theology” ever since the Great Schism. For 10 points each:

[10e] Name this broad Christian tradition that includes the non-Chalcedonian Coptic and Armenian Apostolic Churches, as well as the dominant Christian tradition in Russia.

ANSWER: **Orthodox** Christianity [accept Oriental **Orthodox** Christianity or Eastern **Orthodox** Christianity]

[10h] According to Lossky, the goal of Orthodox mystic practices and human life in general was achieving this state, whose Greek-language name refers to a merging or a metaphysical union with God.

ANSWER: **theosis** [reject “apotheosis”]

[10m] Orthodox practitioners of hesychasm (“HESS-ih-KAZ-um”), like St. Symeon the New Theologian, advocated repeating this prayer to achieve theosis. This popular Orthodox prayer originally did not include the final addendum “a sinner.”

ANSWER: the **Jesus** Prayer [or prosefchí tou **iisou**; accept **Lord Jesus Christ, Son of God, have mercy on me**, a sinner; prompt on The **Prayer** or i **efchí**]

<Religion>

19. Systems with geometrical frustration have more than one accessible microstate under this condition. For 10 points each:

[10e] Name this minimum energy condition that can never be reached, but only approached infinitesimally, according to the third law of thermodynamics. This condition is equivalent to minus 273.15 Celsius.

ANSWER: **absolute zero** [or **0 Kelvin** or **0 K**]

[10m] This chemist developed the third law of thermodynamics, as well as a relation derived from the Boltzmann factor for the ratio of reduced to oxidized molecules.

ANSWER: Walther **Nernst** [or Walther Hermann **Nernst**; accept **Nernst** equation]

[10h] This material has finite entropy at zero temperature, which Linus Pauling quantitatively predicted, in close agreement with measurements based on its low-temperature heat capacity. This material’s residual entropy inspired the name for a class of frustrated materials that includes dysprosium titanate.

ANSWER: water **ice** [or **ice** I_h (“ice one h”); accept spin **ice**; prompt on **water** or **H₂O** (“H-two-O”)]

<Chemistry>

20. In a novella by this author, the owner of the title crumbling estate insists on hiring only servants with names like Graves or Raven. For 10 points each:

[10h] Name this author of *Crochet Castle* and *Headlong Hall*, who parodied Gothic love triangles in an 1818 novella that features the morose widower Christopher Glowry.

ANSWER: Thomas Love **Peacock** (The novella is *Nightmare Abbey*.)

[10m] The servants Annette and Ludovico provide comic relief in this Gothic novel by Ann Radcliffe, in which Emily St. Aubert is held captive by Montoni.

ANSWER: *The **Mysteries of Udolpho***

[10e] Catherine Morland thinks the title place is haunted after overindulging in “horrid” novels like *The Mysteries of Udolpho* in this author’s novel *Northanger Abbey*. This author also wrote *Sense and Sensibility*.

ANSWER: Jane **Austen**

<British Literature>

Extra. Nigel R. Franks found that chimpanzees follow Lanchester's square law governing the minimum group size for this behavior, which is unusually common in primates and meerkats. For 10 points each:

[10m] Name this subject of a history by Margaret MacMillan that begins with prehistoric cases like Ötzi the Iceman. Stephen Pinker cited statistics from Lewis Richardson and Ted Gurr to claim that this behavior has declined over time in *The Better Angels of Our Nature*.

ANSWER: **violence** [accept **murder** or **homicide** or **killing** or similar; accept **warfare** or **conflict** or **battle** or **combat** or **raiding** or similar; accept **throwing** projectiles or similar; accept *The Better Angels of Our Nature: Why Violence Has Declined*; accept *War: How Conflict Shaped Us*; prompt on intergroup **aggression** or **crime** or similar]

[10e] In *The Goodness Paradox*, Richard Wrangham ("RANG-um") suggests that "proactive aggression" drives human conflict and asks why most violence is perpetrated by both humans and chimps of this gender, whom he has termed "demonic."

ANSWER: **males** [accept **men** or **boys**; accept **masculine** or word forms; accept *Demonic Males: Apes and the Origins of Human Violence*]

[10h] *Emergent Warfare in Our Evolutionary Past* contrasts male spider monkey raids with the reduced male canine teeth in this Miocene–Pliocene hominin genus. This 4-foot-tall facultative biped is known from an Ethiopian skeleton.

ANSWER: **Ardipithecus** [accept *Ardipithecus ramidus* or *Ardipithecus kadabba*; accept "Ardi"]

<Social Science>