ACADEMIC COMPETITION FEDERATION

2023 ACF NATIONALS

Playoffs Round 6

Packet By

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TOSSUPS

1. In this play, a speech that describes a race that "heard sounds, but could not listen" and lived in holes like ants also lists mantic techniques like watching the flight of "crook-clawed" birds. Scholars such as Margalit Finkelberg have tried to untangle the baffling geography of this play, which places its setting both near Arabia and north of the Amazons and the Bosporus. Nymphs aboard winged ships and a god riding a griffin appear in this play, whose leading actor may have originally spoken his lines from behind a giant wooden dummy that is dragged onto the stage by personifications of Strength and Violence named Kratos and Bia. The protagonist of this play prophesies Io's future but refuses to reveal his foreknowledge of his enemy's downfall, despite the urgings of a chorus of Oceanus's daughters. For 10 points, name this play attributed to Aeschylus in which the title titan is shackled to a mountain.
ANSWER: _**Prometheus Bound**_ [or _**Promētheús Desmṓtēs**_; or _**Prometheus Vinctus**_]
<European Literature>

2. MIT hosts the template-based ASKCOS ("ASK-coss") platform for performing this task, building on a rule-based approach to it first used in the 1972 computer program LHASA ("LAH-suh"). Machines learn this task by querying databases like KEGG ("keg") and Reaxys ("ree-AX-is") to find valid transformations between SMARTS ("smarts") strings. Solutions to this task are illustrated using hollow arrows that point in the antithetic direction. Ideal solutions to this task may rely on domino or telescoping steps to reduce work-up. This task requires *Umpolung* if the polarities do not alternate. An approach to this task that strategically disconnects retrons to find convenient starting materials was pioneered by E. J. Corey. The "total" form of this task targets natural products with many stereocenters, like Taxol. For 10 points, name this task of assembling complex organic molecules from smaller ones.
ANSWER: organic **synthesis** [or retro**synthesis**; or retro**synthetic** analysis; or total **synthesis**; or similar answers describing the planning, design, or execution of the **synthesis** of organic molecules; or planning organic **reaction**s or reaction **pathway**s to make molecules; or the prediction of chemical **reaction**s; reject "molecular design" or "drug design" or similar answers that do not mention the formation of a molecule]
<Chemistry>

3. A dialogue-only short story by an author with this surname begins and ends with Cornelia addressing her mirror. In a story by an author with this surname, an old woman's dreams manifest mundane objects like pebbles and feathers before the ending reveals the narrator is her dog. A story by an author with this surname ends with the narrator's realization his wife has stolen the characteristics of the dead Violeta, who preceded them in living in the title "House Made of Sugar." Rabindranath Tagore's friendship with a writer with this surname inspired her to write an essay about him "on the Banks of the River Plate." This is the surname of the only female editor of the anthology *The Book of Fantasy*, which she edited with Jorge Luis Borges and her husband, Adolfo Bioy Casares ("bee-OY cah-SAH-race"). For 10 points, the founder of the journal *Sur* had what surname shared by the Argentine sisters Silvina and Victoria?
ANSWER: **Ocampo** [accept Victoria **Ocampo** or Ramona Victoria Epifanía Rufina **Ocampo**; accept Silvina **Ocampo**] (The first two stories are "Cornelia Before the Mirror" and "Leopoldina's Dream.")
<World Literature>

4. William Platt filed a lawsuit that exposed the difficulties this company encountered while selling federal land grants. A dubious project commissioned by this company was replaced by a rival's Big Fill. After having a revelation while fleeing through the Black Hills, Grenville Dodge resigned from the military to join this company led by "Hub" Hoxie. Written exchanges with Warren Fisher Jr. regarding this company were read aloud on the House floor after being obtained from James Mulligan in an event that plagued the 1884 election campaign of the leader of the "Half-Breeds." Charles Dana's *New York Sun* exposed the leadership of this company for selling cheap stock to Schuyler Colfax, the Vice President of Ulysses S. Grant. For 10 points, name this company responsible for the Crédit Mobilier scandal and the construction of the eastern portion of the first transcontinental railroad.
ANSWER: **Union Pacific** Railroad Company [accept *Platt v. **Union Pacific** Railroad Company*; prompt on Crédit Mobilier until read by asking "executives from what company created and owned Crédit Mobilier?"] (The Big Fill replaced the dangerous Big Trestle that was decommissioned after six months. Dodge discovered the path on which he was fleeing would make a perfect route for a transcontinental railroad.)
<American History>

5. This poem's speaker bluntly states "The dawns ruin it" after describing a creature waiting under an oak bush who "remembers freedom" in a dream. The speaker of this poem claims that "you communal people" have forgotten "The wild God of the world," though "Men that are dying" remember that "Intemperate and savage" deity in this poem. This poem, which first appeared in *Cawdor and Other Poems*, closes with an image of "the fierce rush: the night-herons by the flooded river cried fear at its rising / Before it was quite unsheathed from reality." The speaker provides "the lead gift in the twilight" in this poem, whose author's style of inhumanism is displayed in the claim "I'd sooner, except the penalties, kill a man than" the title animal, whose "broken pillar of the wing jags from the clotted shoulder." For 10 points, name this Robinson Jeffers poem about a wounded bird of prey.
ANSWER: "**Hurt Hawks**"
<American Literature>

Note to moderator: read answerline carefully.
6. Julius von Mayer deduced this statement by intuition, but his poor understanding of physics prevented him from rigorously defining it. When the metric admits a timelike Killing vector field, this statement holds for a particle moving along a geodesic. This statement is equivalent to the argument in
Institutions de Physique ("ann-stee-toos-YAWN duh fee-ZEEK") that the living and dead forces have the same measure. The first derivation of this statement is credited to Émilie du Châtelet ("emily doo sha-teh-lay"). The principle of least action as stated by Pierre Louis Maupertuis ("mo-pair-TWEE") requires trajectories to obey this statement, but Hamilton's principle does not. This statement holds when the Lagrangian is invariant under time translations. This statement, which was once at odds with caloric theory, was supported by the measurement of the mechanical equivalent of heat by James Joule. For 10 points, what statement is expressed by the first law of thermodynamics?
ANSWER: **conservation of energy** [or **energy conservation** or descriptions that **energy** is **conserve**d; accept **mass-energy conservation**; accept **conservation of energy and momentum** or **energy-momentum conservation**; accept **first law of thermodynamics** until "first law" is read; accept descriptions that **energy** is **convert**ed from one form to another, such as "**potential energy** is **convert**ed into **kinetic energy**"; prompt on first law until "first law" is read; reject "mass-energy equivalence" or "conservation of mass" or "conservation of momentum"]
<Physics>

7. In a rare televised speech, a politician in this country said "as a community, we are living away beyond our means" in response to an energy crisis. This country's modernization was outlined in the 2021 "personal history" *We Don't Know Ourselves*. Police captured a bowtie-wearing double murderer in the apartment of the chief law officer of this country, whose media called the scandal "grotesque, unbelievable, bizarre, and unprecedented," or "GUBU" ("GOO-boo"). Candidates in this country and its northern neighbor ran in the "Anti H-Block" party. Awareness of domestic issues in this country was heightened by The Late Late Show on RTÉ ("arr-tay-ay"), its national broadcaster. In this country, Charles Haughey's ("HAW-hee's") government proposed the 8th Amendment, almost fully banning abortions with support from Fianna Fáil ("fee-AH-nuh FAYL"). For 10 points, name this country whose booming economy of the 1990s was called the "Celtic Tiger."
ANSWER: **Ireland** [or Republic of **Ireland**; or **Éire** ("AY-ruh"); or Poblacht na h**Éireann**; reject "Northern Ireland"]
<European History>

8. In a Slovene folktale, the Count of Ljubljana ("l'yoob-l'YAH-nuh") uses one of these objects to try to kill the warlock Lampret from 26 miles away. In a Johann Apel tale, William crafts some of these objects while in a magic circle at a crossroads and surrounded by owls and bones. A modern Polish legend contends that author Jan Potocki ("yan poh-TOT-skee") was killed by one of these objects crafted from his mother's sugar bowl and blessed by a priest. Jean Chastel claimed to have killed the Beast of Gévaudan ("zhay-voh-DAN") using some of these objects derived from a chalice, inspiring Curt Siodmak to invent a piece of fakelore about them. In a German folktale, the Devil crafts seven of these objects, the first six of which are hyper-accurate while the seventh causes an unexpected occurrence; that folktale was adapted into an opera by Carl Maria von Weber. For 10 points, silver examples of what objects are said to kill werewolves?
ANSWER: magic **bullet**s [accept silver **bullet**s; prompt on <u>gun</u>s, <u>rifle</u>s, <u>pistol</u>s, fire<u>arm</u>s, or <u>weapon</u>s]
<Mythology>

9. This work lists the misuse of compound words, the use of strange words, the use of tasteless epithets, and the use of inappropriate metaphors as the four types of bad taste in language, and gives examples from Alcidamas to illustrate all of them. Apparent inconsistencies in this work's treatment of the second of the three *pisteis* ("PEE-stays") have led some commentators to propose that one of its chapters was written by a different author. This work proposes a classification of judicial, deliberative, and epideictic ("ep-ih-DIKE-tick") genres. This treatise defines a loose variety of syllogism called an enthymeme ("EN-thih-meem"). This treatise's opening sentence defines the title concept as the counterpart of dialectic, in a likely allusion to the analogy between that concept and cookery in Plato's *Gorgias* ("GOR-gee-us"). This treatise's second book details the techniques of *ethos*, *logos*, and *pathos*. For 10 points, name this treatise by Aristotle on the art of persuasion.
ANSWER: ***Rhetoric*** [or ***Rhētorikē***; or *The Art of **Rhetoric***; or *On **Rhetoric***; or *Treatise on **Rhetoric***]
<Philosophy>

10. Marsha Caddle is implementing this leader's sustainability project Roofs to Reefs. Re-allocating special drawing rights through regional development banks was proposed by this leader while speaking with Bill Nye at Global Citizen NOW. The IMF's disaster clause for debt was pioneered by this leader, whose country is the largest issuer of bonds with hurricane clauses. This leader critiqued the "double jeopardy" of developing countries "financing the Industrial Revolution" and facing its environmental consequences at COP 27. This protégée of Owen Arthur and lead head of government in CARICOM ("care-ih-com") secured all 30 seats for the BLP in a 2022 snap election. Sandra Mason became the first president of this leader's country after she spearheaded a 2021 effort to remove Queen Elizabeth II as head of state and become a republic. For 10 points, the Bridgetown agenda is the platform of what current prime minister of Barbados?
ANSWER: Mia **Mottley** [or Mia Amor **Mottley**]
<Current Events>

11. The Heresy of the Hound affected a religious movement founded in this decade, the lightly-satirical Church ov MOO ("moo"). The Neo-Templar Order of the Solar Temple gained notoriety in this decade for actions it took in Quebec and Switzerland. Late in this decade, Hon-Ming Chen claimed he would perform three miracles shortly before God would become visible on TVs worldwide. During this decade, a pair of leaders known as Ti and Do announced a readiness to achieve the Evolutionary Level Above Human. The Chen Tao UFO religion predicted the apocalypse in this decade, during which Marshall Applewhite and 38 followers committed ritual suicide in San Diego to coincide with the approach of Comet Hale–Bopp. For 10 points, Millenarian movements like Heaven's Gate assigned significance to the last years of what decade because of the turning of the third millennium?
ANSWER: **1990s** [prompt on '__90s__] (The Church ov MOO is considered the first internet religion.)
<Religion>

12. The difference in two values of this quantity produced by Wouthuysen ("vowt-how-sen")–Field coupling makes it theoretically possible to detect the 21-centimeter line at redshifts greater than six. Vielva et al. detected non-Gaussianity ("non-GOW-see-AAN-it-ee") in this quantity's distribution by calculating the skew and kurtosis of spherical Mexican hat wavelet coefficients. After electron–positron annihilation, the ratio of this quantity for neutrinos to this quantity for photons equals the cube root of four-elevenths. WMAP ("W-map") discovered a region where this quantity is abnormally low, which might be explained by a supervoid. The horizon problem asks why the CMB's value for this quantity is uniform. The wavelength of a star's emissions is related to this quantity for a star by Wien's ("veen's") displacement law. For 10 points, spectral class and what other quantity are plotted against luminosity on HR diagrams?
ANSWER: **temperature** [accept absolute **temperature**; accept stellar **temperature**; accept (effective) CMB **temperature** or CMB **temperature** anisotropies/fluctuations or CMB **temperature** distribution; accept HI ("H-one") excitation **temperature** or HI ("H-one") spin **temperature**; prompt on T; or reject "spin"]
<Other Science>

13. This ruler and his wife are interpreted as the title Constantine and Helena in front of the True Cross in the final miniature of the Syriac Lectionary. This ruler burned a library inside a fortress whose name is derived from the words for "eagle" and "taught" in the Daylami dialect. That campaign by this ruler was recounted by one of the Juvayni brothers. The death of this ruler necessitated the marriage of his son and Maria Palaiologina. The anonymous Templar of Tyre recounts how Hethum I assisted a campaign by this ruler, who later eliminated a religious sect founded by Ḥasan-i Ṣabbāḥ ("HUH-sun-ee sub-BAH"), nicknamed the "Old Man of the Mountain." Naṣīr al-Dīn al-Ṭūsī convinced this ruler to establish an observatory at Marāgha. This ruler besieged the fortress of Alamut, destroying the Assassins. This ruler had Caliph al-Mustaṣim trampled to death in a carpet. For 10 points, name this founder of the Ilkhanate.
ANSWER: **Hūlāgū** Khan [or **Hülegü** Khan or **Holâku** Khân or **Qülegü** Khan] (The Syriac Lectionary depicts the Ilkhanate, in particular Hūlāgū's Nestorian wife, Doquz Khatun, as protectors of Levantine Christianity. The fortress of Alamut is named for the words *aloh* and *amukht*. The penultimate sentence is about the 1258 Sack of Baghdad.)
<World History>

14. This work's opposition between "the watery vagueness and the triviality of the sand" draws from an extremely detailed chart of "antitheses" that the author created to show the "duality of experience" resulting from the loss of Eden. This work's preface asks "O what authority gives existence its surprise?" This work, in which pre-existing characters deliver dramatic monologues in forms like a villanelle and a Jamesian prose piece, was first published alongside *For the Time Being*. In this poetic work, a "so good, so great, so dead" playwright does not appear on stage, so one of that playwright's characters speaks for him in the section "Caliban to the Audience." For 10 points, name this long poetic work subtitled "A Commentary on Shakespeare's *The Tempest*," written by W. H. Auden.
ANSWER: "The **Sea and the Mirror**" [or "The **Sea and the Mirror**: A Commentary on Shakespeare's *The Tempest*"]
<British Literature>

15. *Quaestiones* ("KWAI-stee-oh-nays") on this subject were developed by scholars like Hugo de Porta Ravennate. Experts on this subject were known as "those who precede," or *antecessores* ("on-teh-KEH-soar-ays"). Rival Italian versions of a text on this subject were known as the *Littera Bononiensis* and the *Littera Florentina*. The motto of Berytus refers to the city's role as a primary scholarly hub for this subject in late antiquity. Irnerius was called the "lantern of" this subject for founding a school of "glossators" who worked on it at the University of Bologna ("boh-LOH-nyah"). This subject was addressed in the *Epanagoge* ("eh-pah-nah-goh-GEE"), which supplanted the *Ecloga* by returning to the principles set out in the *Institutes* of Gaius. So-called "Novels" on this subject were added to a work containing the *Digest*, which was prepared by the quaestor Tribonian's commission. For 10 points, name this subject that was codified by Justinian's order in the *Corpus Juris Civilis*.
ANSWER: **law** [or civil **law**; or **jurisprudence**; or **legal** theory; or *ius*; accept Roman **law**; accept Byzantine **law**; accept *Corpus **Juris** Civilis* until read] (The motto of Berytus, modern Beirut, was "Berytus Nutrix Legum," or "Berytus, Mother of Laws.")
<Other History>

16. This procedure is the most common cause of a disease diagnosed via the Billingham criteria that appears with diarrhea, liver damage, or a morbilliform rash. This procedure's efficacy is correlated to the CD34-positive cell dose. Fludarabine and melphalan are used for reduced-intensity conditioning prior to this procedure, while full-intensity regimens use cyclophosphamide, busulfan, or total irradiation. Liyna Anwar's death highlighted the difficulty accessing this procedure faced by South Asians. Tissue from a CCR-5-delta-32-carrier used in this procedure cured the Berlin patient's HIV. This procedure may result in graft-versus-tumor effects. Allogeneic kinds of this procedure may use a haploidentical relative donor when a preferred 10 of 10 HLA match is unavailable. For 10 points, Be The Match operates a donor registry for what procedure used to treat leukemia and other hematological problems?
ANSWER: hematopoietic **stem cell transplant** [or **HSCT**; accept **bone marrow transplant** or **BMT**; accept peripheral blood **stem cell transplant** or peripheral **stem cell transplant** or PB**SCT**; accept **transplant**ation in place of "transplant"; prompt on transplantation; reject "blood transfusion"]
<Biology>

17. A textbook named for these things, which uses data from a gas furnace to illustrate how to model them, was co-written by four authors including Gregory Reinsel and Greta Ljung ("l'yoong"). The variability of these things can be expressed in terms of the rescaled range, which can be used to estimate their Hurst exponent. According to Granger and Newbold, the levels of these things are often near random walks, which often leads to spurious regressions with low Durbin–Watson statistics. The Box–Jenkins method is used to analyze models fitted to data from these things called ARMA ("AR-muh") or ARIMA ("uh-REE-muh") models. These sequences can be decomposed into irregular, cyclical, trend, and seasonal components. Run charts are often used to plot these sequences, which are exemplified by the daily closing values of a stock market index. For 10 points, name these sequences of data that are recorded at temporal intervals.
ANSWER: **time series** data [prompt on econometric **data** sets or **data** points until "data" is read; prompt on **series**; prompt on **sequence**s until read]
<Social Science>

18. A man of this name hands a small church to a seated Christ in front of a checkerboard background in an ivory plaque likely carved in Milan. A woman undergoes an ordeal by fire in the background of a work titled for a man of this name who is presented with a severed head in its left panel. A hand surrounded by a blue halo emerges from the top of a manuscript page to crown a man of this name as the four evangelists unfurl a scroll in front of him. A man of this name was the recipient of a gold cross with an engraved crucifixion scene that was inlaid with a 3rd-century cameo of Augustus. The "justice" of a ruler with this name is depicted in a diptych by Dirk Bouts. A style named for rulers of this name is typified by the Cross of Lothair displayed at Aachen Cathedral. For 10 points, the patronage of Holy Roman Emperors of what name led to a namesake "Renaissance" in the 10th century?
ANSWER: **Otto** [accept **Otto**nian dynasty or **Otto**nen; accept **Otto**nian Renaissance; accept **Otto** I or **Otto** the Great or **Otto** der Grosse; accept **Otto** III; accept *Justice of Emperor **Otto** III*; accept Gospels of **Otto** III or **Otto**nian Gospels] (The first sentence refers to one of the Magdeburg Ivories. The third sentence refers to the Liuthar Gospels.)
<Painting & Sculpture>

19. A character working at one of these places repeatedly looks out of the window as a pool where she dumped a corpse is drained. In a scene from a 1933 film set at one of these places, the soundtrack reverses and characters march in slow motion as feathers float in the air. An audience is entranced by a Charlie Chaplin film at one of these places that is infiltrated due to information given by the cook Joseph after his firing. A character who runs one of these places is seemingly sedated and drowned by his wife and mistress in *Diabolique*. Jean waves goodbye to his Jewish friend Julien as Julien is seized by the Gestapo in a 1987 Louis Malle ("lwee mahl") film set at one of these places during the Holocaust. Antoine Doinel's misbehavior gets him kicked out of one of these places in François Truffaut's ("troo-FOH's") *The 400 Blows*. For 10 points, what places are the setting of the French films *Au Revoir les Enfants* ("oh reh-VWAH lez on-FAHN") and *Zero for Conduct*?
ANSWER: **school**s [or boarding **school**s; accept private **school**s or Catholic **school**s or any other kind of **school**s; accept Carmelite **convent**s; prompt on **dorm**itories or **bed**rooms by asking "located in what larger type of facility?"]
<Other Fine Arts>

20. After describing his relatively melodious third violin sonata as a "weak sister," this composer concluded that to write worthwhile music he "must keep away from musicians." The opening Moderato movement of this composer's piano trio repeats a 27-bar section three times, leaving out the violin the first time and the cello the second. A "distant Amen" concludes the second movement of this composer's brief fourth violin sonata, which is subtitled "Children's Day" and has a finale titled "*Allegro (Con slugarocko)*." This composer often overlapped quotations of American folk songs in his scherzi, which have descriptive titles like "In the Barn" and "This Scherzo is a Joke." A soft, calm B-flat major quotation of the fate motif from Beethoven's Fifth Symphony opens a movement by this composer titled "The Alcotts." For 10 points, name this American composer of the *Concord Sonata*.
ANSWER: Charles **Ives** [or Charles Edward **Ives**]
<Classical Music>

BONUSES

1. Harmonically, this C major piece begins with the progression I ("one"), IV ("four"),
V6/5/V ("five-six-five-of-five"), V ("five"). For 10 points each:
[10m] Name this short, virtuosic piano piece nicknamed for its rapid arpeggios in the right hand, which cover the entire keyboard. It is the first of 27 similar pieces for solo piano.
ANSWER: Étude **Op. 10, No. 1** [or "**Waterfall**" Étude; accept, but DO NOT REVEAL, Frédéric Chopin's **Étude No. 1**]
[10e] The "Waterfall" Étude is a work by this pianist and composer, who spent most of his life in France. Among his other compositions are four ballades ("bah-LAHDS"), alongside many waltzes and mazurkas.
ANSWER: Frédéric **Chopin** ("SHOW-pahn") [or Frédéric François **Chopin**; or Fryderyk Franciszek **Chopin**]
[10h] With the exception of three uncatalogued études, Chopin's études are grouped into two sets of 12: Op. 10, and this opus number. The set of études under this opus number includes "The Butterfly" and "Winter Wind."
ANSWER: Op. **25**
<Classical Music>

2. This idea is named for an analyst at the Mackinac ("MACK-uh-naw") Center who described less vehement opposition to school choice in Michigan. For 10 points each:
[10m] Name this idea that Joseph Lehman contrasted with politicians "ordering dessert from a menu." Joshua Treviño outlined six degrees within this idea ranging from "unthinkable" to "policy."
ANSWER: **Overton window** [prompt on window of discourse]
[10h] According to this idea developed by Elisabeth Noelle-Neumann, shifts towards radicalism in the Overton window could elicit more radical opinions and the feeling of isolation amongst previously mainstream views.
ANSWER: **spiral of silence**
[10e] These institutions try to shift the Overton window with research or legislative testimony. Examples of these policy nonprofits in DC include the Heritage Foundation and Brookings Institution.
ANSWER: **think tank**s [prompt on research institutes; prompt on policy institutes; prompt on research foundations]
<Other Academic>

3. Synthetic or viral inhibition of caspase-8 prevents extrinsic apoptosis, shifting cells to this second-line death program instead. For 10 points each:
[10h] Name this highly immunogenic form of programmed cell death mediated by RIPK3 ("rip-K-3") and its substrate, MLKL.
ANSWER: **necroptosis** ("neh-crop-TOH-sis") [accept intrinsic **necroptosis** or extrinsic **necroptosis**; prompt on regulated necrosis; reject "necrosis" or "apoptosis"]
[10e] While apoptosis shuts down cellular functions like translation that consume this molecule, those processes persist during necroptosis and contribute to the lethal decline in intracellular concentrations of this energy currency.
ANSWER: **ATP** [or **adenosine triphosphate**]
[10m] A major drain of ATP during necroptosis is hyperactivation of PARP-1 ("parp-one"), an enzyme involved in this process. Other ATP-draining enzymes involved in this process in eukaryotes include MutS ("mute-S") and MutL ("mute-L") homologues.
ANSWER: **DNA repair** [accept **nucleotide excision repair** or **NER**; accept **base excision repair** or **BER**; accept **mismatch repair** or **MMR**; accept **non-homologous end joining** or **NHEJ**; accept **single-stranded break repair** or **SSB repair**; accept **double-stranded break repair** or **DSB repair**; prompt on repair; prompt on DNA damage response]
<Biology>

4. Answer the following about the teleological argument for the existence of God, for 10 points each.
[10m] This clergyman's 1802 book *Natural Theology* gives a form of the teleological argument based on the analogy of a watchmaker.
ANSWER: William **Paley**
[10e] Philo compares the teleological argument to the Brahmins' assertion that the world was spun by an infinite spider in this philosopher's *Dialogues Concerning Natural Religion*.
ANSWER: David **Hume** [or David **Home**]
[10h] This British philosopher's book *The Existence of God* says that God is the simplest explanation for a universe hospitable to complex life. In a 1968 paper, he argues, contra Hume, that historical evidence for miracles is possible.
ANSWER: Richard **Swinburne** [or Richard Granville **Swinburne**]
<Philosophy>

5. Theodore Dreiser slapped Sinclair Lewis over accusations that *Dreiser Looks at Russia* plagiarized this journalist's writings. For 10 points each:
[10h] Name this journalist who was unceremoniously expelled from Germany in 1934 before later publishing the essay "Who Goes Nazi?" in the style of an amusing party game.
ANSWER: Dorothy **Thompson** [or Dorothy Celene **Thompson**]
[10e] In the essay, Thompson designates the "strongest natural-born Nazi in the room" as Mr. L, who allegorizes a leader of one of these entities. The Taft–Hartley Act made leaders of these entities, like Walter Reuther, denounce communism.
ANSWER: labor **union**s [or trade **union**s; prompt on United Auto Workers or UAW]
[10m] Thompson rose to prominence while reporting for the *New York Herald Tribune*, the same newspaper that hosted the "Today and Tomorrow" column by this person who names a "consensus" on public opinion with Gabriel Almond.
ANSWER: Walter **Lippmann** [accept Almond–**Lippmann** Consensus]
<American History>

6. This anion ("ANN-eye-on") is reduced in the most common redox couple for dye-sensitized solar cells. For 10 points each:
[10h] Name this hypervalent anion used as a model system for three-center, four-electron bonding. Thiosulfate reduces this ion, dissociating one of its covalent bonds, in a common colorimetric redox titration.
ANSWER: **triiodide** ("tri-iodide") [or **I3−** ("I-three-minus"); reject "iodide"]
[10e] Hypervalent species like triiodide violate this basic principle of chemical bonding. According to this rule, the sum of lone pairs and bonding pairs of electrons on every main-group atom is four.
ANSWER: **octet** rule
[10m] Photochemists use triiodide to simulate the hypervalent transition state of this organic reaction mechanism. In this concerted mechanism, donation of a lone pair into a sigma-star orbital coincides with leaving group departure.
ANSWER: **SN2** [or **bimolecular nucleophilic substitution**; prompt on substitution or nucleophilic substitution]
<Chemistry>

7. Answer the following about the Federation of Australia, for 10 points each.

[10h] In 1889, Henry Parkes restarted talk of a federated Australia in an oration delivered at an art school in this town in rural New South Wales. That oration in this town quoted James Brunton Stephens's poem *The Dominion*.
ANSWER: **Tenterfield** [accept **Tenterfield** Oration or **Tenterfield** Speech; accept **Tenterfield** School of Arts]
[10e] Tenterfield, like other border towns in northern New South Wales, favored Federation to promote free trade with this colony. Parkes was returning from Brisbane, this colony's capital, when he stopped at Tenterfield.
ANSWER: **Queensland** [or Colony of **Queensland**]
[10m] The Federation of Australia led to the enactment of the White Australia policy, which this man first relaxed in 1949 as Minister of Immigration. As Prime Minister, this man lost Australian support after saying he was "all the way with LBJ."
ANSWER: Harold **Holt** [or Harold Edward **Holt**]
<Other History>

8. In one text, a blind character sneaks out to fulfill his dying wish of throwing silver into the crowd at this place and hearing people fight over it. For 10 points each:
[10h] Name this historical location where a character insults Flosi by offering him a blood-soaked robe, leading Flosi's men to set fire to the house of the protagonist and his family.
ANSWER: **Thingvellir** [accept meetings of the **Althing** or equivalents; accept **Lögberg** or **Law Rock**; prompt on Iceland]
[10e] Disputes are taken up at meetings of the Althing throughout one of these medieval Icelandic tales about the Viking Njál ("n'YAHL").
ANSWER: **saga**s [accept *Njáls **saga*** or *Brennu-Njáls **saga*** or ***Saga** of Burnt Njál*]
[10m] An Icelandic grammatical treatise calls these people "the arbiters of all matters of rhetoric or diction" as "lawyers of laws." These court poets incorporated rhyme and alliteration into their poetry, unlike in Eddic tradition.
ANSWER: **skald**s [accept **skald**ic poetry]
<European Literature>

9. Ignatius of Loyola emits beams of light that strike allegorical figures of the four continents in an Andrea Pozzo fresco painted on one of these features. For 10 points each:
[10e] Name these building features where Corregio painted his *Assumption of the Virgin*. Mannerist painters used trompe l'oeil ("tromp LOY") techniques to make these features appear higher.
ANSWER: **ceiling**s [or **vault**s; accept **ceiling** painting]
[10h] *Two answers required.* Andrea Pozzo's ceiling paintings for Sant'Ignazio exemplify both of these styles of illusionistic ceiling painting. One of these styles has an Italian name meaning "from below upward" while the other is distinguished by ornate architectural elements. Name both.
ANSWER: di **sotto in sù** AND **quadratura** [accept answers in either order]
[10m] This Venetian artist included figures representing the four continents in his quadratura ceiling frescoes for Bavaria's Würzburg Residence.
ANSWER: Giovanni Battista **Tiepolo** [or Giambattista **Tiepolo**]
<Painting & Sculpture>

10. The triumphant speaker of Lǐ Bái's "Departing from Báidì in the Morning" leaves behind these animals on each side of the river as his "swift boat passes tens of thousands of mountains." For 10 points each:

[10m] Name these mammals whose "mournful" cries are a stock image in Classical Chinese poetry. These mammals "make sorrowful noise" in the poem "The River Merchant's Wife."
ANSWER: **ape**s [accept **monkey**s; accept **simian**s; accept **gibbon**s; accept **macaque**s; accept **hóu**; prompt on primates]
[10e] The "third call" of an ape moves the speaker to tears in this poet's "Autumn Day in Kiu Prefecture." This friend of Lǐ Bái wrote "Song of the Wagons."
ANSWER: **Dù** Fú [or **Tu** Fu; or **Dou** Fu]
[10h] Like others in the *Chǔ Cí* ("choo tsih"), this Qū Yuán ("chew yoo-en") poem about court exile includes the saddening image of apes. The speaker makes several spirit journeys in this poem, which inaugurated a namesake genre of irregular, morose *fù*.
ANSWER: "**Lí Sāo**" [or "**Encountering Sorrow**"; or "The **Lament**"; or "**Meeting with Sorrow**"; or "The **Lament** on Encountering Sorrows"; or "An Elegy on **Encountering Sorrow**s"; or "The **Sadness of Separation**"; or "A Shaman's **Lament**"; or "**Confronting Grief**"]
<World Literature>

11. To suppress this movement, Edward Lansdale first developed "psywar" tactics like creating voices to come from the graves of dead fighters and making them look like victims of vampires called *aswang*s. For 10 points each:
[10h] Name this guerrilla movement of peasant farmers who opposed the Bell Trade Act for granting American citizens equal access to the country's natural resources.
ANSWER: **Huk**s [or **Huk**balahap; accept, BUT DO NOT REVEAL, **Huk**bong Bayan Laban sa Hapon]
[10e] Ramon Magsaysay appointed a member of this family special envoy to the Huks. The 1983 assassination of that politician from this family on an airport tarmac sparked the People Power Revolution in the Philippines, which installed his wife as president.
ANSWER: **Aquino** ("ah-KEE-noh") [accept Ninoy **Aquino** or Benigno **Aquino** or Benigno Simeon **Aquino** Jr.; accept Corazon **Aquino** or Cory **Aquino** or Maria Corazon Sumulong Cojuangco-**Aquino**]
[10m] The name for the Huks translates as a "people's army" for this general sentiment, which earlier spread through China in response to the Twenty-One Demands.
ANSWER: **anti-Japanese** sentiment [or **Japanophobia** or **Nipponophobia**; accept descriptions of **opposing Japan** or being **against Japan** or similar answers; accept **Nihon** or **Nippon** in place of "Japan"; prompt on xenophobia or nationalism]
<World History>

12. This event was moved from its eponymous location in 2008 after the murder of four French tourists in Aleg. For 10 points each:

[10m] Name this event whose last occurrence in South America in 2019 involved a road trip between Lima and Tacna. This event run by the Groupe Amaury ("ah-moh-REE") has been dominated by Nasser Al-Attiyah using a modified Hilux ("HYE-lux").
ANSWER: **Dakar** Rally [or The **Dakar**; accept Paris–**Dakar** Rally; prompt on rallying or rally raid]
[10e] Hosting the Dakar Rally is the latest sportswashing scheme by this Middle Eastern kingdom that hosts the WWE's Crown Jewel event and sponsors the LIV ("liv") Golf Tour.
ANSWER: **Saudi** Arabia [or Kingdom of **Saudi** Arabia; or Al-Mamlakah al-ʿArabīyah as-**Saʿūdīyah**; or **KSA**; prompt on Arabia]
[10h] Thierry Sabine started the Dakar Rally after getting lost in this region that forms a nature reserve with the Aïr ("ah-EER") Mountains in Niger ("nee-ZHAIR"). In 1973, a possibly drunk driver took out a lone tree in this region that was the most isolated tree in the world.
ANSWER: **Ténéré** [or **Tiniri**; accept Tree of **Ténéré**; accept Aïr and **Ténéré** National Nature Reserve; prompt on the Sahara or aṣ-sahra' al-Kubrá]
<Geography>

13. Maps of lake morphology described by this term are created by preparing a survey of the shoreline and then doing a series of soundings. For 10 points each:
[10m] Give this term that refers to the topography of the floor of aquatic environments.
ANSWER: **bathymetry** [accept **bathymetric** maps]
[10h] This lake morphometric quantity is found in the denominator of Håkanson and Jansson's ("YAHN-son's") dynamic ratio for predicting sediment distribution. The morphoedaphic ("MORPH-oh-ee-DAFF-ick") indices used to predict fish yields are a simple ratio of some nutrient value, such as the concentration of dissolved solids, to this quantity.
ANSWER: **mean depth** [or **average depth**; prompt on depth]
[10e] Mean depth exhibits a general inverse correlation to this quantity. The primary form of this quantity is the amount of biomass generated by autotrophs.
ANSWER: biological **productivity** [accept primary **productivity** or primary **production**]
<Other Science>

14. This emperor sparked an aristocratic "Magnate Conspiracy" by ceding land to the Ottomans in the Peace of Vasvár ("VAHSH-vahr"). For 10 points each:
[10m] Name this Holy Roman Emperor who grudgingly ceded Strasbourg to Louis XIV ("the fourteenth") in the Peace of Ryswick ("RISE-vike"), which ended the War of the League of Augsburg.
ANSWER: **Leopold I** [or **Leopold I**, Holy Roman Emperor; prompt on Leopold, Holy Roman Emperor]
[10e] Two years later, Leopold I triumphantly signed the Treaty of Karlowitz ("CAR-luh-vits") with the Ottomans after this general's victory at Zenta. This general later joined forces with the Duke of Marlborough to defeat France at Blenheim ("BLEN-um").
ANSWER: Prince **Eugene of Savoy** [or François-**Eugène de Savoie**; or **Eugen von Savoyen**; or Principe **Eugenio di Savoia**-Carignano; prompt on Eugene, François-Eugène, Eugen, or Eugenio]
[10h] A year after Karlowitz, Leopold I secured Hohenzollern ("hoh-in-TSOH-lurn") military aid in the War of Spanish Succession in a treaty with Frederick III of Brandenburg. In return, Leopold I let Frederick assume this title, which acted as a workaround to a ban on royal titles within the empire.
ANSWER: **King in Prussia** [or **König in Preussen**; accept Frederick I, **King in Prussia** or Friedrich I, **König in Preussen**; reject "King of Prussia"; reject "König von Preussen"]
<European History>

15. Deutsch ("doytch"), Barenco, and Ekert showed that almost any 2-qubit ("two-Q-bit") gate has this property and conjectured that the only gates to lack it are 1-qubit gates and classical gates. For 10 points each:

[10h] Name this property that is, perhaps surprisingly, generic in quantum computing. David Deutsch proved that quantum computers with this property can perfectly simulate any finitely realizable physical system.
ANSWER: **universal**ity [or quantum **universal**ity]
[10m] A universal set of quantum gates is obtained from using gates that perform this operation and a CNOT ("C-not") gate. A Hadamard gate can be viewed as two of these operations on the standard geometrical representation of qubit state space.
ANSWER: qubit **rotation**s [or **rotation**s on/of the Bloch sphere; prompt on descriptions of any of the following actions happening to a qubit on the Bloch sphere: moving or transforming or transporting; reject "translations"]
[10e] These devices excite trapped ions in Cirac ("see-rahk") and Zoller's CNOT gate. The gain medium of these devices amplifies light via stimulated emission.
ANSWER: **laser**s [or **light amplification by stimulated emission of radiation**]
<Physics>

16. A 2013 Candida Moss book that opens by discussing the death of Mariam Fekry argues that early Christians essentially fabricated the existence of these people. For 10 points each:
[10e] Name these people, such as Saint Stephen, whom Christians regard as having died for their faith.
ANSWER: **martyr**s [accept proto**martyr**s]
[10h] Moss's *The Myth of Persecution* cites the findings of this Jesuit philological society that published the 68-volume *Acta Sanctorum*. This society, named for a 17th-century Flemish hagiographer, holds that most accounts of early Christian martyrdom were either heavily edited or made up.
ANSWER: **Bollandist** Society [or Societas **Bollandistarum**; or Société des **Bollandistes**]
[10m] Modern scholars also doubt the veracity of the embellished accounts of martyrdom in *Acts and Monuments*, a book by this English Protestant writer. That book is sometimes known as this man's "Book of Martyrs."
ANSWER: John **Foxe** [accept **Foxe**'s Book of Martyrs]
<Religion>

17. This website is a common source for literary text mining corpora, since it stores around 50,000 books in plain text format. For 10 points each:
[10e] Name this large online archive of public-domain books named for a German printer.
ANSWER: **Project Gutenberg** [prompt on Gutenberg]
[10m] A paper by Reagan et al. used sentiment analysis on a Project Gutenberg corpus to support this author's rejected MA thesis, which proposed that all stories conform to eight basic emotional shapes like "Rags to Riches," "Man in a Hole," and "Cinderella."
ANSWER: Kurt **Vonnegut** [or Kurt **Vonnegut** Jr.] (The University of Chicago rejected his thesis.)
[10h] Many digital humanities scholars follow a 1997 book by Franco Moretti that performs this task for 19th-century novels. This task is a central tool for a field of criticism pioneered by Robert Tally and Bertrand Westphal.
ANSWER: **map**ping literature [or **map**ping books; or literary **cartography**; or creating **map**s of books or equivalents; accept creating a literary **atlas**; accept literary **geo**graphy; accept **Geo**criticism; accept *Atlas of the European Novel*]
<American Literature>

18. This sociologist's essay "The Aesthetic Significance of the Face" says that the face's "singular malleability" makes it the "geometric locus" of the "inner personality." For 10 points each:

[10m] What German thinker wrote about face-to-face interactions in "The Sociology of the Senses"? He also wrote an essay discussing the "blasé outlook" instilled by urban life.
ANSWER: Georg **Simmel** (The unnamed essay is "The Metropolis and Mental Life.")
[10h] According to a theory developed by Daft and Lengel, face-to-face interaction is more effective than mediated interaction because it has this property, which they define as the ability of information to change understanding.
ANSWER: **rich**ness [accept media **rich**ness theory; accept information **rich**ness theory]
[10e] This Canadian communication theorist argued that the type of mediated communication affects its meaning, an idea summed up by his phrase "the medium is the message."
ANSWER: Marshall **McLuhan** [or Herbert Marshall **McLuhan**]
<Social Science>

19. The rise of this musical style's popularity in the 1940s was decried by purists known as the "moldy figs." For 10 points each:
[10e] Name this style of jazz pioneered by Charlie Parker and characterized by the use of speedy tempos and complex harmonies. It takes its name from syllables used in scat singing.
ANSWER: **bebop**
[10m] This bandleader, a swing-era trombone player known for "I'm Getting Sentimental Over You" and "I'll Never Smile Again," claimed "bebop has set music back 20 years." His younger brother Jimmy was also a bandleader.
ANSWER: Tommy **Dorsey** [or Thomas Francis **Dorsey**, Jr.]
[10h] "Moldy fig" critic Rudi Blesh cited Louis Armstrong's landmark 1928 recording of this King Oliver song as the beginning of jazz's decline. A cascading trumpet cadenza opens this song named for an area near Lake Pontchartrain.
ANSWER: "**West End Blues**"
<Other Fine Arts>

20. For 10 points each, name these targets of ire in Jeremy Collier's *A Short View of the Immorality and Profaneness of the English Stage*.
[10e] Collier criticizes this author of *Marriage à la Mode* and *Mac Flecknoe* for "making debauch'd persons his Protagonists" and for "making them happy in the Conclusion of the Play."
ANSWER: John **Dryden**
[10m] Collier criticizes the characters of Pinchwife and Lady Fidget in this comedy. In this play, Horner remarks that the churchman is the "greatest atheist," which Collier cites as an example of the abuse of clergy.
ANSWER: The **Country Wife** (by William Wycherley)
[10h] Collier quotes several "profane" songs from this author's *Comical History of Don Quixote*. This author, who collected bawdy songs in the book *Wit and Mirth*, wrote the play *The Campaigners* in response to Collier's attacks.
ANSWER: Thomas **D'Urfey** [or Tom **Durfey**]
<British Literature>