

## 2021 ACF Regionals

### Packet O (Finals 1)

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### Tossups

1. In order to buy one of these objects, the Countess de Fiesque once sold a wheat-field. Johannes Gutenberg made miniature examples of these objects for pilgrims traveling to Aachen (“OCK-in”). One of these objects gives the alternate name to *The Bloody Theater*, an Anabaptist hagiography of the faith’s martyrs. These objects name a didactic genre in which medieval writers such as Giles of Rome and Nizam al-Mulk advised princes on proper rule. Barbara Tuchman described “The Calamitous 14th Century” in a narrative history named for a “distant” one of these objects. After the Franco-Prussian War, the German Empire was proclaimed in a room that showed the victories of Louis XIV and was named for these objects. For 10 points, 357 of what objects adorn a namesake hall at Versailles (“vair-SIGH”)?

ANSWER: **mirrors** [accept Hall of **Mirrors**; accept *A Distant **Mirror**: The Calamitous 14th Century*; accept pilgrim-**mirror**; accept **miroirs**, **Spiegel**, **speculum**, or **specula**] (The Gutenberg mirrors would supposedly catch the light and power of relics for use at future times.)

<Other History>

2. In a painting featuring these animals, the artist wrote in tiny letters “At 12 feet from this picture you can see it.” Headington City Council attempted to remove a sculpture of one of these animals crashing into a roof. One artist responded to criticism of a work featuring this animal with the comment “But you didn’t, did you?” In another work, this animal moves towards a figure with a pose based on the *Borghese* (“bor-GAY-zay”) *Gladiator*. That painting featuring Morro Castle inaccurately shows large nostrils on one of these animals. Winslow Homer’s *The Gulf Stream* features many of these animals, and Hirst’s *The Physical Impossibility of Death in the Mind of Someone Living* is one of these animals in a tank of formaldehyde. For 10 points, name this animal that, in a Copley painting, attacks Watson.

ANSWER: **shark** [or tiger **shark**; accept *Watson and the **Shark***; accept *The Headington **Shark***; prompt on **fish**] (The first clue is about *The Gulf Stream*; Hirst coined the response to the common modern art criticism “Even I or my six-year-old child could do that” as “But you didn’t, did you?” in response to being told that anyone could put a shark in a tank.)

<Painting/Sculpture>

3. In a story by this author, a woman laments “Boys, the noodles I would make for you” in a “generous impulse” that expands a “closed, petty world.” A character created by this author uses a fake finger to point out the better moments of his life in response to a sign saying “I SAW YOU.” That character created by this author bets with the Dean on whether Assyria will invade Mesopotamia. This author described people “packed like sardines” inside a singularity in a collection where Mrs. Vhd Vhd (“VID vid”) gets stuck on a ladder during a search for milk in the story “The Distance of the Moon.” A scientific statement precedes each story in a collection by this author that, like his collection *t-zero*, includes the immortal being Qfwfq (“kuh-FOOF-kuh”). For 10 points, name this author of *Cosmicomics* and *If on a Winter’s Night a Traveler*.

ANSWER: Italo **Calvino**

<European Literature>

4. It’s not vision, but Corbetta and Shulman hypothesized that this faculty is controlled by anatomically distinct dorsal and ventral systems, explaining why occipito-temporal lesions are less damaging to this faculty than occipito-parietal lesions. Subjects drawing illusory conjunctions between colors and numbers supported a theory of

this faculty which suggests that feature maps are integrated into saliency maps. That theory's creator, Anne Treisman, modified Broadbent's theory of this faculty with her attenuation theory, which she developed from research on the cocktail party effect. "Blindness" caused by the "selective" version of this faculty causes people counting basketball passes to not notice a wandering man in a gorilla suit. For 10 points, name this ability to focus, which is impaired in a namesake "deficit disorder."

ANSWER: **attention** [or word forms; accept selective **attention** or **attentional** blindness; accept **focus** until read; accept **attention** deficit (hyperactivity) disorder; prompt on awareness]

<Social Science>

5. These people worshipped black statues of a hat-wearing woman holding a pen as the "Goddess English." In the 1980s, the Black-Panthers-esque VCK took on these people's cause, inspiring later politicians such as Mayawati ("MAH-yah-wuh-thee"). These people took 22 Vows as part of a mass conversion ceremony to Neo-Buddhism, causing their movement to be symbolized by a flag that depicts a white wheel on a blue background. Mahatma Gandhi created a term for these people that translates as "children of God," while B. R. Ambedkar ("UM-bayd-kar") fought for their rights and encouraged these people to publicly burn copies of the *Laws of Manu*. For 10 points, members of what persecuted Indian caste are often employed in such "undesirable" professions as sanitation or tanning?

ANSWER: **Dalits** [or **Untouchables**; accept **Scheduled Castes**, **depressed classes**, or **harijans**]

<World History>

6. *Name or description acceptable.* In an artwork named for this song, a boy kneels in front of a series of people arranged in descending height; that harp-shaped sculpture is by Augusta Savage. A saxophone cover of this song precedes a film's opening credits sequence, in which "Fight the Power" plays as a woman dances and shadowboxes. In a memoir, the author recalls hearing a resounding performance of this song after a demeaning speech at her eighth-grade graduation. This song was performed before "The Star-Spangled Banner" to open the 2020 NFL season. It describes the bitterness of the "chastening rod" and urges listeners to do the title action "till earth and heaven ring." For 10 points, name this song based on a James Weldon Johnson poem, often identified as an African-American analog of "The Star-Spangled Banner."

ANSWER: "**Lift Every Voice** and Sing" [accept "The **Black National Anthem**" or "The **Negro National Anthem**"] (The film is *Do the Right Thing*, and the memoir is *I Know Why the Caged Bird Sings*.)

<CE/Geo/Other/Pop Culture>

7. Optimal estimation when this quantity is zero is the subject of the Lehmann–Scheffé ("sheh-FAY") theorem, which can be used to find UMVUEs ("U-M-V-U-E's"). When the model is true, this quantity is nonzero for ridge regression and LASSO, but zero for OLS ("O-L-S"). The Gauss–Markov theorem is a result about linear estimation when this quantity is zero. When this quantity's [emphasize] *decrease* is outweighed by a related quantity's [emphasize] *increase*, overfitting can occur; that is because the variance plus the square of this quantity equals the mean squared error, by a namesake "tradeoff." This quantity equals the expected value of an estimator minus the true parameter. For 10 points, give this term that also names a more general phenomenon in experimental design, whose "selection" form is caused by non-random participant choice.

ANSWER: **bias** [accept **unbiased**; accept selection **bias**; prompt on bias–variance tradeoff] (The UMVUE is the "uniformly minimum-variance unbiased estimator.")

<Other Science (Math)>

8. An Andean bogeyman called the *pishtaco* harvests this substance in a legend inspired by its medicinal usage by conquistadors. The Petit Albert claims that an object made of horse dung, "Lapland sesame," wax, and this substance can render victims immobile when placed in a Hand of Glory. Pierre-Aimé Lair blamed alcohol and this substance for spontaneous combustions, and a "poor sinner's" variant fueled a robust trade in it by German executioners. Some people theorize a connection between paleolithic beauty standards and an abundance of this

substance based on the depiction of its accumulation in Venus figurines. At Mecone (“meh-KO-nee”), Zeus chose a portion disguised with an animal version of this substance. For 10 points, Prometheus used what substance to cover the bones of offerings?

ANSWER: **fat** [accept human **fat**; accept the **fat** of a hanged man; accept Armensünder**fett**; accept **dēmós**; do not accept or prompt on “oil” or “lard” or “tallow”] (The Petit Albert is a French grimoire that provides such instructions for a candle to be placed into a Hand of Glory.)

<Mythology>

9. As a child, the title character of a novel from this country observes a woman covered in white chalk singing beside a stream, a story she remembers while struggling to have a baby with her second husband Gilbert. A baby is born with a mark on its head after a woman is stabbed and pushed into a grave in a novel from this country titled *The Joys of Motherhood*. In another novel, the protagonist’s aunt becomes a mistress of a politician from this country known as The General, who dies in a plane crash. In that novel, university strikes in this country prompt the protagonist to emigrate to the US, where she takes a fellowship at Princeton and starts the blog “Raceteenth.” For 10 points, name this home country of Flora Nwapa, Buchi Emecheta, and the author of *Americanah*, Chimamanda Ngozi Adichie.

ANSWER: **Nigeria** (The novel in the first sentence is *Efuru*.)

<World/Other Literature>

10. Reactions like HCCI (“H-C-C-eye”) are studied during this process in its namesake “rapid machines.” “Fogging” adds water mist to lower the temperature in a “wet” form of this process. Two “dead center” positions define a ratio named for this process that, along with the adiabatic index, determines the efficiency of the Otto cycle. An alternate name for a diesel engine indicates that this process, not a spark, triggers ignition. This process names a “factor” denoted  $Z$  that is exactly 1 for an ideal gas, since it equals “ $PV$  over  $nRT$ .” Temperature rises during adiabatic instances of this process, like the stroke after intake and before power in internal combustion engines. Boyle’s law describes pressure rising during this process. For 10 points, a piston performs work on a gas by what process of reducing its volume?

ANSWER: **compression** [accept **compressibility** or **compressibility** factor; accept rapid **compression** machines or wet **compression** or **compression** ignition; accept **reducing volume** or equivalents until “reducing” is read; prompt on **change in volume** or **delta-V**; prompt on **contraction**; prompt on doing **work** until read; prompt on applying or increasing **pressure**; do not accept or prompt on “expansion”]

<Chemistry>

11. This composer used a dense comb-like notation to indicate the wails of women in an opera that includes a “Ring-play” dance of farmers and a “frolic” of bears. This composer wrote “The Great Crush Collision March” for a planned train wreck, and his music was popularized by Joshua Rifkin. In an opera by this composer that ends with a “slow drag,” the aria “Wrong is Never Right” is used to scold men who peddle a “bag of luck.” A piece by this composer repeats the syncopated notes “short E, up to long C.” In an opera by this composer, a girl is elected village leader after conjurers try to throw her into a wasps’ nest. Music by this composer of *Treemonisha* was used in the film *The Sting*. For 10 points, name this African-American composer of the “Maple Leaf Rag” and “The Entertainer.”

ANSWER: Scott **Joplin**

<Classical Music>

12. La Crosse, Kansas, which was once the “world’s capital” of this technology, now contains a museum dedicated to it. While working for Washburn and Moen, John “Bet-a-Million” Gates was inspired by Doc Lighthall to demonstrate this technology at San Francisco’s Military Plaza. Mabel Doss Day was one of the “anti-clippers” who supported this technology and called on the Texas Rangers to enforce its spread. Despite having sent his patent request two months later than its actual inventor, Jacob Haish claimed to be the originator of an “S-shaped” version

of this technology. Joseph Glidden's invention of this "devil's rope" brought the demise of the open range. For 10 points, name this sharp material that was used by farmers in the western United States to prevent cattle from roaming.

ANSWER: **barbed wire** [accept **razor wire** or **bobbed wire** or **barbed fence**; accept **devil's rope** until read; prompt on **wire**; prompt on **fences** by asking "what material were they made out of?"]

<American History>

13. In a novel named for this material, the narrator follows "the warden" to find the pale-haired "girl." In one work, women singing "O Little Town of Bethlehem" interrupt a discussion of this substance. A cult hammers people's hearts with this material in a novel followed by *Bro* and *23,000*. In a novel, a man wants to swallow this material and die thumbing his nose at God. This substance titles works by Anna Kavan and Vladimir Sorokin. Asa Breed explains how Marines could cross a swamp with a type of this substance given to Newt and Angela. A type of this material made by Dr. Felix Hoenikker kills Papa Monzano in a Kurt Vonnegut novel that features Bokonomism. For 10 points, in *Cat's Cradle*, all the world's water is turned into a "nine" version of what substance?

ANSWER: **ice** [accept **ice-nine**; or **Lyod**]

<American Literature>

14. The Pauli limit for this quantity can be surpassed in transition metal dichalcogenides ("dy-CAL-kuh-jen-ides") with strong spin-orbit coupling or in the inhomogeneous FFLO state. Large values of this quantity cause pair-breaking above the Chandrasekhar-Clogston limit. The surface integral of this quantity is quantized within an Abrikosov ("ah-bree-KOH-soff") vortex, near which this quantity decays exponentially on a scale that defines the London penetration depth. Type I and II superconductors differ in whether they have one or two critical values for this quantity. Tiny changes in this quantity are measured by a pair of Josephson junctions in a SQUID. This quantity is expelled from a superconductor in the Meissner effect. For 10 points, superconducting coils at the LHC produce what vector field at values that can exceed 8 teslas?

ANSWER: **magnetic field** [accept **B-field** or **H-field**; accept critical **magnetic field**; accept **magnetic flux** until "quantized" is read; prompt on **critical field** by asking "what kind of field?"]

<Physics>

15. This country celebrates the inauguration of its first railway with the 1859 patriotic song *De Feierwon* ("duh FIRE-vohn"). This country's ruler Maria-Adelaide was forced to abdicate because she supported Germany during World War I. After being renovated by the Marquis de Vauban ("voh-BAWN"), a fortress named after this country became known as the "Gibraltar of the North," due to its impregnability. Alexander II convened an 1867 pan-European conference to resolve this country's independence after Napoleon III attempted to buy this country for 50 million florins. This country's personal union with the House of Orange ended after the accession of Adolphe of Nassau to the throne. For 10 points, name this "grand duchy" that, along with Belgium and the Netherlands, forms the Low Countries.

ANSWER: **Luxembourg** [or Grand Duchy of **Luxembourg**]

<European History>

16. These things are defined via "unnecessary obstacles" with eccentric examples like Professor Snooze being menaced by a man-eating plant in Bernard Suits's *The Grasshopper*. In a passage about these things, a philosopher sneered at a reference to a thread's "continuous overlapping of fibres" after exhorting "Don't think, but look!" Margaret Gilbert criticized David Lewis's application of these practices to social phenomena in *Convention*. After determining that these practices are only linked by their "family resemblance," another book introduces a type of them exemplified by a builder shouting words like "slab" and "beam." Wittgenstein's *Philosophical Investigations* introduced the "language" type of, for 10 points, what practices whose "theory" deals with the prisoner's dilemma?

ANSWER: **games** [accept language **games**, coordination **games**, or **game theory**; accept **coordination problems**; prompt on **problems** or **activities**; anti-prompt (ask "can you be less specific?") on **sports**]

<Philosophy>

17. *Two answers required.* These two authors collaborated on an unfinished “Fragment of a Sexton’s Tale” titled “The Three Graves.” A poem by one of these two authors praises a “prophetic Lay” written by the other, whom it calls a “Friend of the Wise! And Teacher of the Good!” One of these poets may have lifted from the other’s “The Mad Monk” in describing “a time when meadow, grove, and stream... to me did seem apparelled in celestial light.” These were the two most famous “Lake Poets.” One of these poets is the “dear friend” praised in the other’s poem *The Prelude*. One of these poets wrote “Dejection: An Ode” in part as a reply to the other’s “Ode: Intimations of Immortality.” For 10 points, name these co-authors of *Lyrical Ballads* who wrote, respectively, “Tintern Abbey” and *The Rime of the Ancient Mariner*.

ANSWER: William **Wordsworth** AND Samuel Taylor **Coleridge** (The poem in the second sentence is Coleridge’s “To Wordsworth.”)

<British Literature>

18. In the *Mù huànzǐ jīng* (“moo HWAHN-dzuh jing”), the Buddha advises a king to use variants of these objects made from the aṣṭaka, which represent 108 afflictions. Possessed Candomblé practitioners might wear *adenla*, or conical Yoruba (“YO-roo-ba”) crowns adorned with birds and these objects, which form veils covering the wearer’s face. *Iyawó* (“ya-WO”) wear these colorful objects arranged into bunches in *mazos* during initiation, and receive these objects assembled into *eleke* (“eh-leh-kay”). Muslims use *misbaha* consisting of these objects to recite *dhikr* (“thicker”). During meditation on Joyful, Sorrowful, and Glorious mysteries, these objects, which are arranged into decades, assist in the counting of Hail Marys. For 10 points, Catholics use strings of what objects as an aid when saying the Rosary?

ANSWER: **beads** [accept prayer **beads**; accept **necklace**; prompt on *collar de mazo*, *ileke*, or *eleke* until read; prompt on *rosaries*, *decades*, *japamālā*, or *fózhū* by asking “what are they made of?”]

<Religion>

19. One setup for this technique is known as the “double banana montage,” and “wickets” often lead to misdiagnosis in this technique. Consumer devices for this technique, which was invented by Hans Berger, include Emotiv and Muse. Sodium amytal is injected into the internal carotid (“kuh-ROT-id”) artery before this technique is performed in the Wada test. The 10–20 system defines layouts for this technique, which can detect results known as N100 and P300. Artifacts caused by blinking are often filtered out from the results of this technique, which detects event-related potentials and is less invasive than electrocorticography. This technique is used to diagnose epilepsy and measures delta, theta, alpha, and beta waves. For 10 points, name this method of measuring the brain’s electrical activity.

ANSWER: **electroencephalography** [or word forms like **electroencephalograph** or **electroencephalogram**; or **EEG**; prompt on *Wada* test until read; do not accept or prompt on “EKG,” “ECG,” “EMG,” “EOG,” “ECoG,” “electrocardiography,” “electromyography,” “electrooculography,” or “electrocorticography”]

<Biology>

20. An artist who encased these objects in blocks of ice for Dries (“drees”) Van Noten launched a group of these objects into space. Contemporary artists Makoto Azuma and Daniel Ost are known for their work with these objects, which in the 1800s were collected in tussie-mussies. A 37-foot-tall work featuring many of these objects depicts a half-rocking-horse, half-dinosaur head. This medium is used in a system that has formal *rikka* and casual *nageire* (“na-geh-EE-reh”) branches. In that system, these objects are placed in a scalene triangle with “heaven,” “earth,” and “human” branches. Jeff Koons’s sculptures *Split Rocker* and *Puppy* are covered in these things, which are made into floats on a New Year’s Day parade in Pasadena. For 10 points, name these objects arranged in *ikebana*, in whose “language” love is symbolized by a red rose.

ANSWER: **flowers** [or equivalents like **plants**, **shrubs**, **greenery**, **vegetation**, or **topiary**; accept the Pasadena **Rose** Parade until “roses” is read; anti-prompt (ask “can you be less specific?”) on any specific type of flower]

<Other Arts (Visual)>

## Bonuses

1. This poet describes a time when “I would be more or less insane... the news would pour out of various devices” because “I lived in the first century of world wars.” For 10 points each:

[10h] Name this author who described a “gift” that “if you refuse... you choose death of the spirit,” but accepting it is “daring to live for the impossible” in “To be a Jew in the Twentieth Century.”

ANSWER: Muriel **Rukeyser**

[10m] The phrases “He said” and “I remember” begin many lines in a Rukeyser poem named “Waiting for” this man. Another poem about this man’s death begins “About suffering they were never wrong, / The old Masters.”

ANSWER: **Icarus** [accept “Waiting for **Icarus**”] (The other poem is “Musée des Beaux Arts.”)

[10e] Rukeyser described a hot-dog vendor in “The Ballad of Orange and Grape,” which is set in this location. Alain Locke was “the Dean” of this location’s namesake Renaissance, which included Langston Hughes.

ANSWER: **Harlem** [accept East **Harlem**; accept **Harlem** Renaissance; prompt on New York City by asking “which neighborhood?”]

<American Literature>

2. One eloquent woman of this name waged a *jihad* of words against Yazid I, excoriating him publicly even though he was holding her captive. For 10 points each:

[10h] Give this name of both a daughter of Ali and a daughter of Muhammad. Shias annually reenact the lament of Ali’s daughter of this name for her brother, which is held as the first instance of wailing for that brother’s death.

ANSWER: **Zaynab** [accept **Zaynab** bint Ali or **Zaynab** bint Muhammad]

[10m] Zaynab bint Ali’s role in waging *jihad* through her sermons is increasingly credited with keeping the story of this Islamic tragedy alive. This massacre that killed her brother, Husayn, is mourned every Muharram.

ANSWER: Battle of **Karbala**

[10e] Zaynab’s role in Karbala narratives has led to states mobilizing her image as a model of Muslim womanhood, such as this country’s Ayatollah Khamenei referring to its women as “lion-hearted” in reference to an epithet of hers.

ANSWER: **Iran** [or Islamic Republic of **Iran**; or Jomhuri-ye Eslami-ye **Iran**]

<Religion>

3. Karl Sand, who studied at one of these institutions, assassinated the playwright August von Kotzebue (“COT-seh-boo”). For 10 points each:

[10e] Secret societies known as *Burschenschaften* formed at what sort of institutions? Heidelberg is home to the oldest one of these institutions in Germany.

ANSWER: German **universities** [prompt on schools]

[10m] The assassination of August von Kotzebue prompted Klemens von Metternich to create these laws, meant to crack down on German nationalism. These laws banned student governments at German universities.

ANSWER: **Carlsbad** Decrees

[10h] Facial marks known as *schmisse* were idolized by participants in these events, which were popularized by German fraternities. Participants in these events, known as *mensur*, used *schlager*.

ANSWER: **fencing** matches [prompt on duels]

<European History>

4. Inuit singers “duel” each other in this style in the playful *katajjaq* ritual. For 10 points each:

[10e] Name this style of low-voice singing, popularized by Tuvan groups such as the Alash ensemble, in whose language it is called *khoomoi* (“HO-may”). Tibetans often use this vocal style when reciting Buddhist mantras.

ANSWER: **throat** singing [accept **overtone** singing]

[10h] Early Tibetan Buddhists developed the *Dorje Phurba* dance, whose name refers to an “eternal” one of these objects. As part of the Korean *gut* (“goot”) ritual, women dance around holding elaborate types of these objects.

ANSWER: **knives** [accept **daggers**, **swords**, or equivalents]

[10m] The *rol mo* is a Tibetan example of this type of percussion instrument. Two of these instruments are brought together when a pedal is pressed in the “hi-hat” used in jazz and rock drum kits.

ANSWER: **cymbals**

<Other Arts (Auditory)>

5. This concept achieves its aims with the “cunning of reason” according to a book that compares it to a “slaughter-bench.” For 10 points each:

[10m] Name this concept whose “original” and “reflective” types are discussed in a set of lectures that infamously claimed that Africa is not part of it. Alexandre Kojève (“koh-JEV”) interpreted that work’s theory of the “end” of this concept.

ANSWER: world **history** [or *Weltgeschichte*; prompt on **spirit** or *geist*]

[10e] *Lectures on the Philosophy of History* is by this German thinker, whose *Phenomenology of Spirit* discusses his concept of dialectical synthesis.

ANSWER: Georg Wilhelm Friedrich **Hegel**

[10h] A Hegel aphorism about historical knowledge claims that “the owl of Minerva flies only at” this event.

Catherine Malabou adapted that metaphor in a book titled for “Plasticity at” this event “of writing.”

ANSWER: **dusk** [or **dämmerung**; or **soir**; or *Plasticity at the Dusk of Writing*; accept **twilight** or **evening**; prompt on **night** or **nighttime**; do not accept or prompt on other synonyms]

<Philosophy>

6. Answer the following about challenges faced by classical mechanics in handling progressively greater numbers of gravitating bodies, for 10 points each.

[10e] This is the smallest number of gravitating bodies whose motion has no known closed-form solution. When one of this number of bodies is very small, it may find equilibrium at a Lagrange point.

ANSWER: **three** [accept **three**-body problem]

[10h] This physicist conjectured that four or more bodies may exhibit a singularity in which one body reaches infinite acceleration without a collision. He briefly served as prime minister of France under Raymond Poincaré (“pwann-kah-RAY”).

ANSWER: Paul **Painlevé** (“pan-leh-VAY”) [accept **Painlevé** conjecture]

[10m] Simple *N*-body simulations track the potential on one of these grids of nodes and polygons. They are used to discretize space in finite element methods, and to define triangle-based surfaces in STL files for 3D modeling.

ANSWER: **meshes** [accept particle **meshes** or polygon **meshes** or triangle **meshes**; prompt on **graphs** or **networks** or **lattices** or **triangulations**]

<Physics>

7. In reference to this man, another author defined a patron as “one who looks with unconcern on a man struggling for life in the water, and, when he has reached ground, encumbers him with help.” For 10 points each:

[10h] Name this author of a series of *Letters to His Son*, which includes quality fatherly advice like “often be seen to smile, but never heard to laugh while you live.”

ANSWER: Philip **Stanhope**, 4th Earl of **Chesterfield** [accept either underlined portion]

[10e] This author complained that Chesterfield’s *Letters to His Son* “teach the morals of a whore, and the manners of a dancing-master.” He also criticized Chesterfield’s lukewarm patronage of his *Dictionary of the English Language*.

ANSWER: Samuel **Johnson**

[10m] This author’s novel about Henry Esmond’s grandsons, *The Virginians*, includes cameos by Johnson and Chesterfield. A novel by this author begins with a girl throwing Johnson’s *Dictionary* out a carriage window.

ANSWER: William Makepeace **Thackeray** (The second novel is *Vanity Fair*.)

<British Literature>



8. Answer the following about the sometimes-dubious science of skincare formulas, for 10 points each.

[10m] A popular humectant in moisturizing products is this sole non-sulfated GAG that forms a part of skin's extracellular matrix. This disaccharide ("dy-SACK-uh-ride") polymer also scavenges free radicals, reducing UV damage.

ANSWER: **hyaluronic acid** [or **hyaluronan**; prompt on **HA**]

[10e] Many products also boast this triple helical protein, whose various isoforms comprise much of the ECM of bone, cartilage, and skin. The benefits of its topical application or consumption, though, are doubtful at best.

ANSWER: **collagen**

[10h] This vitamin derivative is a popular "brightening" ingredient. The DNA repair enzyme PARP-1 breaks down a dinucleotide cofactor containing this molecule to yield it and an ADP-ribose molecule for poly-ADP-ribosylation.

ANSWER: **nicotinamide** [or **niacinamide**] (The cofactor referred to is NAD<sup>+</sup>, and niacinamide is a B3 derivative.)  
<Biology>

9. Analysis of these things in Harvard's Forbes Collection formed the basis for an encyclopedia by Rutherford John Gettens and George L. Stout. For 10 points each:

[10h] Name these things which helped prove that three alleged Pollock paintings could not have been painted until after his death. In a 2016 book, Kassia St. Clair traced the "Secret Lives" of these things.

ANSWER: **pigments** [accept **dyes**, **hues**, or **colors**; accept **Painting Materials: A Short Introduction**; accept *The Secret Lives of Color*; prompt on **paint** by asking "what component of paint?"] (The alleged Pollock paintings were found out by the orange pigments used, which were not commercially available before Pollock's death. Dyes are not the same thing as pigments, but the St. Clair book discusses both.)

[10e] The Forbes Pigment Collection is a valuable reference in performing this action, which is often paired with conservation. A botched attempt at this action in Spain led an image of Christ on a scroll to be dubbed "Ecce mono."

ANSWER: art **restoration** [or word forms like **restoring**; prompt on **repairing art** or **fixing art** or equivalents]

[10m] The Forbes Collection includes a red pigment that medieval Europeans believed came from blood shed during battles between elephants and these creatures. Gaudi placed a mosaic one of these animals at the entrance to Park Güell.

ANSWER: **dragons** [accept **Dragon's Blood Red**; accept El **Drac**; accept **salamander**]

<Painting/Sculpture>

10. The last speech of Anarchist orator Lucy Parsons was made to denounce this company. For 10 points each:

[10h] Name this company whose striking workers were supported by Lucy and her husband Albert before the Haymarket Square riots. An MIT biologist and heiress of this company's fortune funded the research to develop the birth control pill.

ANSWER: **McCormick** Harvesting Machine Company [accept **International** Harvesting Company; accept Katherine Dexter **McCormick**]

[10e] Lucy Parsons and Mother Jones were the only two women to speak at the founding convention for this union, whose leaders included "Big Bill" Haywood and whose members were known as "Wobblies."

ANSWER: **Industrial Workers of the World** [or **IWW**; accept "**Wobblies**" until read]

[10m] Late in her life, Lucy Parsons also assisted in the defense of this group, who were accused of raping two white women on a train. They were exonerated in the 1932 case *Powell v. Alabama*.

ANSWER: **Scottsboro Boys**

<American History>

11. In one story of the Miao people, a pair of siblings undertake this action by cutting up their misshapen child and scattering the pieces after surviving a great flood. For 10 points each:

[10e] Name this action. Nüwa performs this action by hand with yellow earth, but then swings a rope dipped in mud to complete it, creating lower social classes. In Genesis, God performs this action with dust and later a rib.

ANSWER: **creation of humanity** [or equivalents; accept **creation of woman** or **creation of man**; anti-prompt (ask “can you be less specific?”) on **creation** of **Adam** and **Eve**]

[10h] In a Melanesian story, To-Kabinana creates women from these objects, while To-Karvuvu creates flat-nosed women when he tries to do the same. One of these objects emerges after Sina buries an eel’s head in a Samoan story.

ANSWER: **coconuts** [accept **coconut** trees; prompt on **trees**]

[10m] The orisha Obatala creates deformed people after getting drunk on this substance. A bride offers this alcoholic substance to her husband-to-be in the Igbokwe ceremony of the Igbo.

ANSWER: **palm wine** [prompt on **wine** or **alcohol**]

<Mythology>

12. An essay by Carol Hanisch titled for this adjective and another adjective takes issue with the concept of therapy, claiming that “Women are messed over, not messed up!” For 10 points each:

[10m] Name this adjective equated with “political” in that essay. The Combahee River Collective’s “A Black Feminist Statement” also draws a similar relation, noting that this concept is necessarily political for Black women.

ANSWER: **personal** [accept “The **Personal** is Political”]

[10h] Another figuring of the personal in political and academic discourse is this sociologist’s reconciliation of the personal “I” and the distancing “they” using the “both/and” stance of her seminal work, *Black Feminist Thought*.

ANSWER: Patricia Hill **Collins**

[10e] Collins discusses the matrices of domination that organize the distinct injustices that personal identity groups face, extending this framework recognizing overlapping systems of oppression coined by Kimberlé Crenshaw.

ANSWER: **intersectionality** theory

<Social Science>

13. Learmonth Dalrymple, a prominent member of this organization, pushed to found Otago’s first secondary school for girls. For 10 points each:

[10h] Name this international organization. A founding member of its New Zealand branch, Kate Sheppard, pushed heavily for Lord Glasgow to pass a law granting women’s suffrage in New Zealand.

ANSWER: **Women’s Christian Temperance Union** [or **WCTU**]

[10e] In conjunction with the WCTU, these people organized Ngā Kōmiti Wāhine (“NAH KOH-mee-tee WAH-hee-nay”) to tackle such issues as suffrage and prohibition. These indigenous peoples of New Zealand gained universal suffrage in 1893.

ANSWER: **Māori**

[10m] The WCTU pushed to repeal the New Zealand Contagious Diseases Act of 1869, which targeted workers in this profession. Deaths of workers in this profession are detailed in the “Dear Boss” and “From Hell” letters.

ANSWER: **prostitution** [or word forms; or equivalents like **sex work**]

<Other History>

14. In a story by this author, a man reading a novel in a green velvet armchair becomes engrossed in the plot, in which a couple sets out to murder a man who is reading a novel in a green velvet armchair. For 10 points each:

[10e] Name this Argentine author of the story “The Continuity of Parks.” He provided a “Table of Instructions” for a nonlinear reading of his novel *Hopscotch*.

ANSWER: Julio **Cortázar**

[10m] In another Cortázar story, the narrator obsesses over these creatures. He stares at these creatures for hours at a time while frequenting the Jardin des Plantes, before eventually turning into one himself.

ANSWER: **axolotl** [or **ajolote**; prompt on **salamander**]

[10h] Cortázar’s story “The Night Face Up” ends with a man desperately trying to wake up as one of these events is about to occur. In Cortázar’s “The Idol of the Cyclades,” Somoza is killed while attempting one of these events.

ANSWER: human **sacrifice** [prompt on answers like **murder** or **killing**]

<World/Other Literature>

15. This mathematician introduced a chaotic map defined on the unit square plus two semicircular caps that works by compressing a set vertically, stretching it horizontally, and folding it back into a “horseshoe.” For 10 points each:  
[10h] Name this mathematician who also proved that the 3-sphere can be everted and, over 40 years before the complete proof, proved a generalized form of the Poincaré (“pwann-kah-RAY”) conjecture in dimensions greater than four.

ANSWER: Stephen **Smale**

[10m] In a pair of papers in 2002 and 2003, this Russian mathematician used Ricci flow with surgery to prove the Poincaré conjecture. Subsequently, this man declined the Fields Medal and likely retired from mathematics.

ANSWER: Grigori **Perelman** [or Grigori Yakovlevich **Perelman**]

[10e] Smale included the Poincaré conjecture in a list of 18 problems for the 21st century, in analogy to this German mathematician’s 23 problems for the 20th century.

ANSWER: David **Hilbert**

<Other Science (Math)>

16. In 1756, this composer’s father Leopold wrote a popular book about how to play the violin. For 10 points each:

[10e] Name this composer who wrote 5 violin concertos and a *Sinfonia Concertante* for violin and viola, as well as a serenade called *Eine Kleine Nachtmusik*.

ANSWER: Wolfgang Amadeus **Mozart**

[10m] This Mozart symphony, one of two in a minor key, begins with violins playing the following notes over string accompaniment: “E-flat, D, long D,” then “E-flat, D, long D.” You may give the number or the nickname.

ANSWER: Symphony No. **40** in G minor [or “**Great G minor**” Symphony; prompt on **G minor** Symphony]

[10h] Mozart’s third work in this chamber genre inspired a Schubert piece for a similar ensemble also in C major. Both of those pieces in this genre have lengthy first movements whose opening violin melodies feature a turn ornament after a held note.

ANSWER: **string quintet** [accept **String Quintet** in C major; prompt on **quintet**]

<Classical Music>

17. The Sempill Mission helped introduce aircraft carriers to this military force. For 10 points each:

[10e] Name this military force that had earlier defeated the Russian Baltic Fleet at the Battle of Tsushima.

ANSWER: Imperial **Japanese Navy** [or **Nippon Kaigun**; or **Dai-Nippon Teikoku Kaigun**]

[10h] Due to its prevalence among Japanese naval officers, this crippling disease began to be known as the “Edo sickness.” Takaki Kanehiro introduced protein-rich barley to help fight bouts of this disease in the navy.

ANSWER: **beriberi** [or **thiamine deficiency**; or **B1 deficiency**]

[10m] One of the earliest funders of Japan’s navy, Mitsubishi, was one of these vertically-integrated family-owned conglomerates. They were broken up during Japan’s occupation by Allied forces.

ANSWER: **zaibatsu** [do not accept or prompt on “*keiretsu*”]

<World History>

18. In an unfinished novel by this author, a young girl referred to as “the Nameless Nobody” is neglected by her violinist stepfather and falls in love with the daughter of “Prince X.” For 10 points each:

[10h] Name this author who failed to finish that novel because he was subjected to a mock execution and arrested after reading a critic’s letter to a literary circle.

ANSWER: Fyodor **Dostoevsky** [or Fyodor Mikhailovich **Dostoevsky**] (The novel is *Netochka Nezvanova*.)

[10m] Dostoevsky fictionalized his prison time in Siberia as the memoirs of the gentleman Aleksandr Goryanchikov in this novel, in which he defines man as “a creature that can get accustomed to anything.”

ANSWER: *The **House of the Dead*** [or *Notes from the **House of the Dead***; or *Memoirs from the **House of the Dead***; or *Notes from a/the **Dead House***; or *Zapiski iz **Myortvogo doma***]

[10e] This Dostoevsky novel ends with Sonya following Raskolnikov to Siberia after he confesses to the axe murder of an old pawnbroker.

ANSWER: ***Crime and Punishment*** [or ***Prestupleniye i nakazaniye***]

<European Literature>

19. Answer the following about advantages and drawbacks to using lithium–air batteries in electric vehicles, for 10 points each.

[10e] Among electrochemical cells, lithium–air batteries have the highest theoretical ratio of these two quantities.

Einstein’s most famous equation governs how nuclear reactions interconvert these two quantities.

ANSWER: **energy** AND **mass** [accept in either order; accept **mass** defect in place of “mass”; prompt on ***E*** AND ***m***; prompt on ***E* equals *mc*<sup>2</sup>**]

[10h] Using an aqueous electrolyte lowers energy density but improves efficiency by reducing this quantity. When this quantity is large, it is proportional to the log of the ratio of current density and exchange current density.

ANSWER: **overpotential** [prompt on ***eta***; prompt on electric **potential** difference]

[10m] The product of a lithium–air battery is a highly corrosive solid of lithium and this anion (“ANN-ion”). This homonuclear two-atom anion has a charge of negative two.

ANSWER: **peroxide** [do not accept or prompt on “oxide” or “superoxide”]

<Chemistry>

20. Protests erupted in 2014 in Vietnam in response to the Chinese deployment of the Hai Yang Shi You 981 oil rig near the Paracel Islands in this body of water. For 10 points each:

[10e] Name this body of water. China has drawn a so-called “nine-dash line” to mark its claims in this area, where the Wushi oil field is located at the Pearl River Mouth basin.

ANSWER: **South China Sea** [or **Nán Hǎi**; or **Bien Dong**]

[10m] The discovery of oil fields in this endorheic (“en-doh-REE-ick”) basin led to the construction of a highway across the Taklamakan Desert. The Uyghur (“WEE-gur”) name for this basin refers to six oasis cities on its rim.

ANSWER: **Tarim** Basin [or **Altishahr**; or **Nánjiāng**; do not accept or prompt on “Xinjiang”]

[10h] This province is home to Daqing (“DA-ching”), China’s largest oil field. This province’s capital, Harbin, hosts the largest ice sculpture festival in the world.

ANSWER: **Heilongjiang** (“hey-long-jang”)

<CE/Geo/Other/Pop Culture>