

## 2021 ACF Regionals

Packet F by Princeton A, WUSTL A, UNC B, McMaster, Chicago A

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### Tossups

1. A tetracarbonyl (“tetra-carbo-NEEL”) hydride of this element catalyzes the conversion of alkenes to aldehydes, making this element the lighter of two metals typically used in the oxo process. This element’s thiocyanate (“thio-cyanate”), known as the Scott reagent, is used in forensics labs to detect cocaine. Like rhodium and iridium, this element forms a 19-valence-electron structural analog to ferrocene that is stable despite violating the 18-electron rule. Early radiotherapy machines used gamma rays from isolated “units” containing this element’s 60-isotope. This element is found in a coenzyme that converts homocysteine (“homo-SISS-teen”) to methionine (“meh-thio-noon”), and whose deficiency leads to pernicious anemia. For 10 points, name this element found in the corrin ring of vitamin B12, a first-row transition metal with atomic number 27 and symbol Co (“C-O”).

ANSWER: **cobalt** [or **cobalt-60**; accept **Co** until read]

<Chemistry>

2. The *fady* are a set of constantly-shifting concepts of this sort in Malagasy culture. This concept derives its name from a term that applies to sites of whale strandings and may be invoked in the form of *rāhui* to protect a certain area. Mary Douglas suggests that these concepts apply to entities that elude binary opposition and are not “irrational” because they maintain symbolic boundaries. A restricted register might be used to address a rock instead of a mother-in-law in Dyirbal (“JER-ball”) because mothers-in-law are subject to this concept. In Aboriginal cultures, you might say “that old lady” to refer to a dead woman to avoid naming her and triggering one of these concepts. For 10 points, give this word of Polynesian origin denoting an implicitly prohibited act like cannibalism or incest.

ANSWER: **taboo** [or **tapu**; accept *Purity and Danger: An Analysis of Concepts of Pollution and **Taboo***]

<Social Science>

3. A Biblical passage claims that this concept makes you “known by God.” A sermon quotes Teilhard de Chardin (“tay-YAR duh shar-DAN”) to say that using this concept would be “the second time in history that [humanity has] discovered fire.” That sermon quotes an answer to a lawyer which claims that “all the law and the prophets” hang on two statements about this concept. A passage describes how “knowledge puffs up,” but this concept “builds up.” Without this concept, speaking in tongues is only “a noisy gong or a clanging cymbal.” In a popular sermon, Michael Curry quoted Matthew’s claim that the two great commandments are to show this concept towards God and towards one’s neighbors. For 10 points, name this concept that “is patient” and “is kind,” according to 1 Corinthians 13, which is often read at weddings.

ANSWER: **love** [or word forms like **loving**; accept commandments to **love** God or **love** one’s neighbors; accept **agape**; or **charity**; accept “The Power of **Love**”] (“The Power of Love” is the popular name of Michael Curry’s royal wedding sermon.)

<Religion>

4. In a poem, a woman who “gives herself / to the one half” of one of these objects in her hand is “comforted” by “a solace” of these objects “seeming to fill the air.” A response to a poem about these objects says “I simply do not know what I am doing.” The line “they taste good to her” is repeated three times in reference to these objects in “To a Poor Old Woman.” These objects are replaced with a “chopped down” house and a broken leg in a Kenneth Koch (“coke”) parody of another poem. In that poem, these objects, which “were probably [being saved] for breakfast,”

are described as “so sweet” and “so cold” after the speaker apologizes for eating these objects “that were in / the icebox.” For 10 points, name these fruits central to William Carlos Williams’s poem “This is Just to Say.”

ANSWER: **plums** [prompt on fruits]

<American Literature>

5. A piano concerto by a composer from this country begins with rippling 22-tuplets in the left hand against massive clusters in the right hand. It’s not Italy or Russia, but musicians are told to “Think of autumn and of Tchaikovsky” in a work from this country that includes recordings of bird calls. In a violin concerto from this country, the soloist’s first notes are “long G, short A, down to long D.” In the finale of the Fifth Symphony by a composer from this country, *perpetuum mobile* (“per-PET-choo-um MO-bee-lay”) strings are followed by a slow horn melody inspired by swans. That composer from this country wrote no major works for the last 30 years of his life after a one-movement Seventh Symphony and the tone poem *Tapiola*. For 10 points, name this home of Einojuhani Rautavaara (“AY-no-yoo-ha-nee RAO-ta-VAH-ra”) and Jean Sibelius (“zhahn sih-BAY-lee-us”).

ANSWER: **Finland** [or **Suomi**] (The Rautavaara works are his Piano Concerto No. 1 and *Cantus Arcticus*.)

<Classical Music>

6. A drunk leader of this city, after receiving a letter detailing a plot against himself, put it unopened under his pillow to read the next day, allowing the conspirators to dress as women and kill him at a banquet that night. This city won a battle after sacrificing a red-maned filly at the behest of Scedasus, whose daughters had been raped by soldiers of the eventual losers. This city’s primacy declined because of the Third Sacred War. While demolishing this city, Alexander the Great ordered Pindar’s former house to be left intact. This city, which furnished the majority of its confederacy’s “Boeotarchs” (“BEE-oh-tarks”), was defeated by Macedonian forces in 338 BC at the Battle of Chaeronea (“CARE-oh-NAY-uh”). For 10 points, what city became preeminent in Greece after the Sacred Band and Epaminondas defeated Sparta at Leuctra?

ANSWER: **Thebes** [or Boeotian **Thebes**]

<Other History>

7. This condition is monitored by a hot-cathode device named for Bayard and Alpert. One device produces this condition by storing ions in a Penning trap, then sputtering them onto a cathode. Labs that produce this condition may heat apparatuses to 400 degrees Celsius in bake-out, then use a zirconium alloy as a “getter” to maintain this condition via chemisorption. Moisture and adhesives counteract this condition via outgassing. Klystrons and photomultiplier tubes require a properly wetted glass-to-metal bond to maintain this condition, which is produced in classrooms inside a bell jar. The permittivity under this condition equals 8.854 picofarads per meter and is written “epsilon-nought,” while its index of refraction is exactly 1. For 10 points, give this term for space with no matter in it.

ANSWER: **vacuum** [accept **free space**; accept **high vacuum** or **ultra-high vacuum**; prompt on low pressure by asking “what is the term for an extreme form of that condition?”]

<Physics>

8. A Coast Guard captain who flips a coin rather than using this variable to decide which side of an island to go to is discussed in John Taurek’s only famous paper, titled “Should [this factor] Count?” The “asymmetry intuition” and the non-identity problem are issues in the branch of ethics named for this variable. A diagram featuring a narrow, tall rectangle labeled “A,” where this variable is set at 10 billion, and the wide, short rectangle “Z,” where this variable is much greater and quality is much lower, is used to depict Derek Parfit’s “repugnant conclusion.” This variable is five times greater on the main track in the classic formulation of the trolley problem. For 10 points, utilitarianism calls for the “greatest happiness for the greatest” value of what variable, the subject of population ethics?

ANSWER: **number** of **people** [accept **quantity** or synonyms in place of “number”; accept **persons**, **human** beings, **lives**, or synonyms in place of “people”; accept **population** until read; prompt on **numbers** or *Should the Numbers Count?* by asking “number of what?”]

<Philosophy>

9. The narrator of a story titled for one of these objects imagines herself professing her love for a “tall” Singaporean man as she pushes him away after he kisses her. One of these objects titles a story whose narrator fixates on a tenant’s account of a man who had his organs fried in oil. The tubercular Miss Sophia narrates a Ding Ling story titled for one of these objects. The narrator believes that his brother killed his sister when she was five in a story titled for one of these objects, which opens the collection *Call to Arms*. A plea to “save the children” ends that story titled for one of these works, whose narrator sees the words “Eat people” in a book and gets the delusion that his brother is a cannibal. For 10 points, a Lu Xun (“loo shwin”) story, titled in reference to a Gogol story, is presented as a “Madman’s” example of what sort of work?

ANSWER: **diary** [or **journal**; or “Miss Sophia’s **Diary**”; or “**Diary** of a Madman”; or “A Madman’s **Diary**”; or “Kuánggrén **Riji**”]

<World/Other Literature>

10. Petitions by Anđeo Zvizdović (“AHN-jo zveez-DOH-veech”) prompted this ruler to issue the Ahdname (“ah-hid-NAH-may”) of Milodraz, granting protection to all Bosnian Franciscans. This ruler decisively defeated the Aq Qoyunlu (“ock ko-YOON-loo”) confederacy at the Battle of Otlukbeli, which occurred after his conquest of the Karamanids. Likely for opposing one of his campaigns, this ruler executed his father’s long-time advisor, Çandarlı (“chahn-dar-luh”) Halil Pasha. A letter threatening to send back this ruler’s rival, Orhan Çelebi (“CHELL-eh-bee”), prompted him to prepare for war by hiring the Hungarian engineer Urban to build siege weaponry. After a successful campaign against Constantine XI (“the eleventh”) Paleologos, this ruler styled himself as *Kayser-i Rum*. For 10 points, name this Ottoman sultan who captured Constantinople in 1453.

ANSWER: **Mehmet II** [or **Mehmet the Conqueror**; prompt on **Mehmet**]

<World History>

11. In a story often performed in *pansori*, a deity of this domain rescues Shim Chong after she sacrifices herself to restore her blind father’s vision. The palace of a deity of this domain has a garden with sections for each season. A ruler of this domain beats a servant’s bones to dust when it fails to obtain a monkey liver. An immovable pillar left by Yu the Great is housed by a god of this realm. A different deity of this realm is visited by Urashima Tarō, and his daughter Toyotama-hime marries Hoori (“HO-oh-ree”). That *kami* of this place owns jewels to control its movements. Sun Wukong obtains the *Jīngū Bàng* from Áo Guāng, one of four Chinese dragon kings to rule this realm. This domain is also governed, in addition to storms, by Susano’o. The jellyfish serves Ryūjin (“r’yoo-jin”), a god of, for 10 points, what realm?

ANSWER: the **sea** [or **ocean**; prompt on **water**]

<Mythology>

12. In the 1950s, this country’s “*fotoform*” movement emphasized abstract photographs. A memoir whose title asks this country to “rest quietly” is by Margaret Bourke-White. In a photo taken in this country, a watch or compass was edited out of Abdulkhakim Ismailov’s wrist. This country is home to the Photokina trade fair. Yevgeny Khaldei used an object made of tablecloths to set up a photo in this country that shows three soldiers on a roof. An artist in this country digitally removed many details from a photo of a river and flat green fields, a 12-foot-wide print of which sold for a record price in 2011. For 10 points, name this country where Andreas Gursky works, and where a 1945 photo shows a Soviet flag on the Reichstag.

ANSWER: **Germany** [or Federal Republic of **Germany**; or Bundesrepublik **Deutschland**; accept Nazi **Germany**; accept **West Germany**]

<Other Arts (Visual)>

13. A form of this procedure is applied to an ideal to determine if it is ramified. This procedure is applied to the bottom argument when defining the Jacobi symbol in terms of the Legendre (“luh-ZHOND”) symbol. Any principal ideal domain is necessarily a domain named for a property of this procedure, called a UFD. This procedure is applied to the input when using the product formula for the Euler totient (“OY-ler TOH-shint”) function. Euclid’s lemma is used to prove a theorem about this procedure. The difficulty of this procedure for large inputs ensures the security of the RSA algorithm. Applying this procedure to two numbers and then checking for shared terms provides a simple way of computing their GCD. For 10 points, the fundamental theorem of arithmetic guarantees the uniqueness of what procedure over the integers?

ANSWER: prime **factorization** [or word forms such as **factorize**; or integer **factorization**; or unique **factorization**; or unique **factorization** domain; prompt on decomposition]

<Other Science (Math)>

14. A character created by this author is punished when activists print a speech she gave about the brutal conditions she faces at a sausage factory. At a New Year’s party, a woman created by this author first feels “the outlines of things and people” disappear, a sensation she calls “dissolving margins.” At her wedding, a woman created by this author notices that the shoes she gifted her fiancé are being worn by another man. In that novel by this author, two girls throw each other’s dolls into the basement of the loan shark Don Achille (“ah-KEEL-lay”). The novel *Those Who Leave and Those Who Stay* is the third in a series about Lenù and Lila written by this author, who may be the translator Anita Raja. For 10 points, the novel *My Brilliant Friend* is the first of what pseudonymous Italian author’s Neapolitan Novels?

ANSWER: Elena **Ferrante** [prompt on Anita Raja]

<European Literature>

15. This organization released political cartoons featuring a fat, sunglasses-wearing villain and sponsored a theater group inspired by commedia dell’arte. The lawyers Ellen Eggers and Jerry Cohen represented this group, which was led from the “Forty Acres” complex. Members of this group were made to verbally abuse one another in “the Game,” inspired by the Synanon (“sin-anon”) cult. DiGiorgio made a contract with the Teamsters to thwart this group, which joined an event begun by Filipino laborers. In response to the Bracero Program, this organization led the Delano grape strike and March to Sacramento. For 10 points, name this union with a logo featuring an eagle, for which Dolores Huerta devised the motto “Sí, se puede” (“see say PWEH-day”) and which was led by César Chávez.

ANSWER: **United Farm Workers** of America [or **UFW**; accept **National Farm Workers Association** or **NFWA**]

(The theater group is the cultural arm of UFW, *El Teatro Campesino*.)

<American History>

16. An ocean trench named for this place was the first leg of Victor Vescovo’s Five Deeps Expedition aboard the *DSV Limiting Factor*. A structure in this place designed by William E. Gordon was the filming location for the final fight scene in *GoldenEye*. The last remaining species of parrot native to this place is a critically endangered amazon named for it. Several species of frog known as coquis (“ko-KEEZ”) are a popular symbol of this island, and can be found in its El Yunque (“JOON-kay”) National Forest. In December 2020, the second-largest single-aperture telescope in the world collapsed at this island’s Arecibo (“ah-reh-SEE-bo”) Observatory. For 10 points, name this Spanish-speaking US territory in the Caribbean whose capital is San Juan.

ANSWER: **Puerto Rico** [or Commonwealth of **Puerto Rico**; or Estado Libre Asociado de **Puerto Rico**; prompt on Arecibo Observatory until read by asking “what island?”]

<CE/Geo/Other/Pop Culture>

17. This artist depicted men in horizontal profile stacked in bunks in *Shipping out to Victory*, the first of a *War Series* heavy on brown and black tempera. Historical quotations like “is life so dear or peace so sweet...” title entries in another series by this artist, which is currently touring in the “American Struggle” exhibition. This artist’s wife,

Gwendolyn Knight, edited his often-didactic titles. Colorful New York tenements inspired the style of this “Dynamic Cubist,” who created silkscreen prints on the *Legend of John Brown*. This artist depicted three girls in red, yellow, and blue at a blackboard and included a blue and brown lattice above a crowd of people funneling into doors for “St. Louis,” “Chicago,” and “New York.” For 10 points, name this Harlem Renaissance artist of the *Migration* series.

ANSWER: Jacob **Lawrence**

<Painting/Sculpture>

18. In one of these places, the protagonist of a novel meets a “night-flier” who reveals his secrets while talking in his sleep. William is seduced in one of these places by Miss Matthews, while elsewhere his wife breaks her nose in a carriage accident, in Henry Fielding’s novel *Amelia*. The novels *Rookwood* and *Eugene Aram* exemplify a genre named for one of these places, which drew on stories from a namesake *Calendar*. After five marriages, the protagonist of another novel reunites with her “Lancashire husband” in one of these places. In the penultimate chapter of *Oliver Twist*, Oliver visits a crazed Fagin (“FAYG-in”) in one of these places, where Moll Flanders is born when her mother “pleads her belly.” For 10 points, what sort of place names a genre called the Newgate novel, which depicted criminals?

ANSWER: **prison** [or synonyms like **jail**; accept Newgate **Prison**; prompt on Newgate until read by asking “what type of place is that?”]

<British Literature>

19. Wang and Hecht combinatorily designed a protein that performs this function that, oddly, completely lacks beta sheets. Aluminum fluoride or vanadate ion mimic groups are used to approximate the transition states of this reaction for structural study. An alpha/beta Rossmann fold is a common element of AAA proteins that perform this reaction in various contexts, as are the Walker A and B motifs discovered in the NBD regions of ABC proteins. Jens Christian Skou discovered a P-type enzyme that catalyzes this reaction to maintain the cell’s resting potential by transporting ions. This reaction is coupled to endergonic reactions like primary active transport. For 10 points, what ubiquitous biochemical reaction generates a phosphate ion and ADP from the “energy currency” of the cell?

ANSWER: **breakdown** of **ATP** [or **ATP hydrolysis**; or **ATP dephosphorylation**; or **ATPase** activity; accept **adenosine triphosphate** in place of “ATP”; prompt on breakdown or hydrolysis or dephosphorylation by asking “of what molecule?”; prompt on ATP binding by asking “what reaction is performed after binding?”]

<Biology>

20. An 1824 “Great Fire” in this city was fought by the first organized municipal fire brigade in the world. Sophia Jex-Blake led seven women in fighting for this city’s university to allow women to become doctors. Robert Knox, an anatomy lecturer in this city, performed dissections using the Burke and Hare murder victims. A captain of this city’s guard was lynched after ordering his men to fire into a crowd during the Porteous Riots. Edward Seymour’s 1548 siege of this city forced a young queen to escape to Brittany during the Rough Wooing. This city’s Holyrood Palace, which is now a metonym for its parliament, was used by royals such as James VI. This city’s parliament united with a southern neighbor in the 1707 Acts of Union. For 10 points, the Stuarts ruled Scotland from what capital city?

ANSWER: **Edinburgh** [or **Dùn Èideann**]

<European History>

## Bonuses

1. After buying 5,000 tons of corn from Iowa farmer Roswell Garst, this man effusively encouraged corn planting in his home country. For 10 points each:

[10m] Name this leader. In one debate, he described having workers who could afford a 14,000-dollar house and claimed that his country's technology would surpass another's in seven years.

ANSWER: Nikita **Khrushchev** [or Nikita Sergeyeovich **Khrushchev**]

[10e] Before becoming president, this man argued with Khrushchev about American versus Soviet lifestyles in the Kitchen Debate.

ANSWER: Richard **Nixon** [or Richard Milhous **Nixon**]

[10h] In the Kitchen Debate, Khrushchev sampled this company's product, which Donald Kendall promoted in the USSR. The Soviet Union paid this company for its product in warships.

ANSWER: **PepsiCo**, Inc.

<American History>

2. Orientalism was a frequent inspiration for European opera composers. For 10 points each:

[10e] Giacomo Puccini used a Chinese folk melody as a motif in this opera. Calaf wins a riddle contest and sings "Nessun dorma" in this opera set in Beijing, whose title princess sings "In questa reggia."

ANSWER: **Turandot**

[10m] This opera set in Sri Lanka includes the tenor and baritone duet "Au fond du temple saint." That duet in this opera is sung by two characters who are both in love with Leila.

ANSWER: *The **Pearl Fishers*** [or *Les **pêcheurs de perles***] (by Georges Bizet)

[10h] An opera about Tamerlane by this composer contains one of the first starring tenor roles in opera history. Another Middle Eastern monarch in one of this man's operas addresses "Tender and beautiful fronds" in a recitative ("reh-sit-uh-TEEV").

ANSWER: George Frideric **Handel** [or Georg Friederich **Händel**] (The operas are *Tamerlano* and *Seise*.)

<Other Arts (Auditory)>

3. This man's album *The Long Goodbye* is framed as a breakup album about his relationship with the abusive Britney, who represents Britain. For 10 points each:

[10m] Name this British-Pakistani actor, rapper, and activist who won an Emmy for his work in HBO's *The Night Of*. He plays a metal musician slowly going deaf in *Sound of Metal* and starred in *Rogue One* as Bodhi Rook.

ANSWER: Riz **Ahmed** [or Rizwan **Ahmed**; or **Riz MC**; prompt on **Riz**]

[10h] The second track on *The Long Goodbye* takes its title from this short story by Sadaat Hasan Manto about an insane asylum inmate trapped between barbed wire fences, which separate the newly-formed India and Pakistan.

ANSWER: "**Toba Tek Singh**"

[10e] Ahmed frequently invokes the persona of this *jungli*, the protagonist of Rudyard Kipling's *The Jungle Book*. Ahmed titled one song "Half Moghul Half [this character]."

ANSWER: **Mowgli** [accept "Half Moghul Half **Mowgli**"]

<CE/Geo/Other/Pop Culture>

4. In the creation narrative of these people, death comes into the world after the coyote First Scolder drops a black rock into a lake. For 10 points each:

[10m] Name these people. They're not Mayans, but Changing Woman gives birth to monster-slaying Hero Twins who wield lightning arrows to defeat Yé'itsoh ("yay-eet-soh"), the Big Giant, in the stories of these people.

ANSWER: **Navajo** [or **Diné**]

[10e] The Navajo Hero Twins are sons of this object, who tests them with a deadly sweat lodge and poisoned tobacco before arming them against monsters. Five different Aztec gods served as this celestial object.

ANSWER: the **sun** [accept **Jóhonaa'éí**]

[10h] *Description acceptable.* Déélgééd (“day-EL-ged”) the Horned Monster, Tsé nináhálééh (“TSAY nin-na-HAL-eh”) the Monster Eagle, and others are conceived during a four-year period with this characteristic, caused by a fight between First Man and First Woman.

ANSWER: **men** and **women** living **separated** by a river [or the **sexes** living **separately**; or equivalents]  
<Mythology>

5. A painting by Eugène Delacroix shows this author sitting in an armchair as he dictates to his daughters, which he did for many of his later works despite keeping them nearly illiterate. For 10 points each:

[10m] Name this author. Feminist readings of one of this author’s works often discuss a female character “formed for softness and sweet attractive grace” who follows the advice of a creature “with burnished neck of verdant gold.”

ANSWER: John **Milton**

[10e] Because of his blindness, Milton dictated to his daughters during much of his time composing this epic poem, which recounts Adam and Eve’s expulsion from Eden.

ANSWER: ***Paradise Lost***

[10h] A book by these two critics claims that, since *Paradise Lost*, “all women writers have been to some extent Milton’s daughters.” That book proposes “anxiety of authorship” as a feminist alternative to the anxiety of influence.

ANSWER: Sandra **Gilbert** AND Susan **Gubar** [accept in either order] (The book is *The Madwoman in the Attic*.)  
<British Literature>

6. Examples of this geologic structure include the Weald (“weeld”) in England and the Ghawar oil field in Saudi Arabia. For 10 points each:

[10m] Name this type of fold whose limbs slope downward away from its center.

ANSWER: **anticline**

[10e] Anticlines often develop in softer rocks above “thrust” examples of these things. Earthquakes typically occur along this general type of structure.

ANSWER: **faults** [accept thrust **faults**]

[10h] This two-word term refers to the block of rock that moves upward along a fault. In large-scale thrust faults, this mass of rock is referred to as a nappe (“nap”).

ANSWER: **hanging wall** [prompt on partial answer]

<Other Science (Earth Science)>

7. Leonor Fini symbolized “all the powers that have been lost to contemporary woman” with these creatures. For 10 points each:

[10m] Name these creatures that, in one of Fini’s inversions of expected gender roles, cradles a passive, nude man. Gustave Moreau painted one of these creatures balancing on a hero’s chest as it challenges him.

ANSWER: **sphinx** [accept ***Sphinx Amoureux*** or ***Sphinx Amalburga*** or ***Oedipus and the Sphinx***]

[10e] This country’s artist Fabián Cháirez specializes in unconventional depictions of masculinity and drew protests for his painting of a nude Emiliano Zapata in heels and a pink sombrero. This country was home to Frida Kahlo.

ANSWER: **Mexico** [or **United Mexican States** or **Estados Unidos Mexicanos**]

[10h] *Description acceptable.* A Kahlo self-portrait titled for this characteristic eschews her colorful dresses for an oversized suit. Lyrics above Kahlo refer to this physical characteristic, which she had after she divorced Diego Rivera.

ANSWER: **cropped hair** [accept descriptions of Kahlo’s **hair** being **cut** off or **short**, but do not accept or prompt on “bald”]

<Painting/Sculpture>

8. *Description acceptable.* A woman gives a monologue about the purity of this character while a man recites “Libera me, Domine.” For 10 points each:

[10m] Name this character who drives into a tree while swerving to avoid a porcupine. A man claims to have received a telegram announcing this boy's death at the end of "Walpurgisnacht."

ANSWER: **George** and **Martha's** imaginary **son** [accept **child** or synonyms in place of "son"; accept the imaginary **son** in *Who's Afraid of Virginia Woolf?*; or **George's son**; or **Martha's son**; prompt on **son** or **child** or synonyms by asking "whose son?"; do not accept wrong answers like "George and Mary's imaginary child"]

[10e] George and Martha kill off their imaginary son at a drunken party with Nick and Honey in *Who's Afraid of Virginia Woolf?*, a play by this author.

ANSWER: Edward Franklin **Albee** III

[10h] *Description acceptable*. This other off-stage character in *Who's Afraid of Virginia Woolf?* is called "over two hundred years old" and has "tiny red eyes... like a white mouse." He tells George not to publish a novel about a boy who kills his parents.

ANSWER: **Martha's father** [or synonyms in place of "father"; accept **George's father-in-law**; prompt on partial answer; prompt on **George's employer** or **boss**; prompt on the **president** of the **university**]

<American Literature>

9. This king's nephew served as Marshal of France for four days before dying at the Battle of Leipzig. For 10 points each:

[10h] Name this last Polish monarch and former lover of Catherine the Great, who failed to prevent the partitions of his country.

ANSWER: Stanisław August **Poniatowski** [or **Stanisław II** Augustus; prompt on **Stanisław**]

[10e] Stanisław II supported Poland's Third of May Constitution, which embraced this philosopher's ideas. This man wrote *Considerations on the Government of Poland*, based on his theory of the "social contract."

ANSWER: Jean-Jacques **Rousseau**

[10m] Rousseau wrote a "Constitutional Project" for this republic that had declared independence in 1755. This republic, led by Pasquale Paoli ("pa-SKWAH-lay PAO-lee"), was later defeated at the Battle of Ponte Novu.

ANSWER: Republic of **Corsica**

<European History>

10. The DECIPHER toolkit for R can design highly specific molecules of this type when multiple similar variants of the desired template exist in the starting material. For 10 points each:

[10m] Name these molecules. Considerations for designing these molecules include avoiding the formation of internal hairpins and ensuring that they won't anneal to themselves.

ANSWER: **primers** [accept DNA **primers** or RNA **primers**]

[10e] Specially-designed primers are used for a site-directed PCR procedure that introduces these aberrations from the original template strand at desired sites. These errors can come in missense ("miss-sense") and frameshift types.

ANSWER: **mutations**

[10h] Site-directed mutagenesis can also generate libraries used in this procedure, named for the amino acid it uses to systematically replace residues of the target protein. This technique can quantify specific residues' bioactivity.

ANSWER: **alanine scanning**

<Biology>

11. In a play from this country, a woman ties up a doctor who assists her husband with a flat tire. For 10 points each:



[10e] The ex-political prisoner Paulina Salas stages a mock-trial for her presumed torturer Roberto Miranda in Ariel Dorfman's *Death and the Maiden*, a play from this home country of Pablo Neruda.

ANSWER: **Chile** [or Republic of **Chile**; or República de **Chile**]

[10h] The audience sees tortured prisoners while touring a house in Griselda Gambaro's *Information for Foreigners*, an Argentine play of this type. This term refers to theatre designed for a particular, often non-traditional type of space.

ANSWER: **site-specific** theatre [or *teatro de sitio específico*]

[10m] This Argentine author wrote a 1983 stage adaptation of his novel in which a political dissident is tortured while in prison, where he discusses classic films with his cellmate.

ANSWER: Manuel **Puig** [or Juan Manuel **Puig** Delledonne] (The novel is *Kiss of the Spider Woman*.)

<World/Other Literature>

12. A string quartet gradually gets louder until it drowns out an orchestra in this composer's *My Beautiful Scream*, which was written in the aftermath of 9/11. For 10 points each:

[10h] Name this composer of the 2015 Pulitzer-Prize-winning oratorio *Anthracite Fields*. With Michael Gordon and David Lang, this composer co-founded the ensemble Bang on a Can.

ANSWER: Julia **Wolfe**

[10m] This composer of *WTC 9/11* also wrote *Double Sextet* and *The Desert Music*. This composer used the technique of "phasing" in his works from the 1960s, such as *It's Gonna Rain* and *Piano Phase*.

ANSWER: Steve **Reich**

[10e] This word precedes the word "music" in the title of a 1972 Reich piece. The practice of audiences waiting until the end of a multi-movement work to perform this action with their hands began in the 19th century.

ANSWER: **clapping** [or **applause**; accept *Clapping Music*]

<Classical Music>

13. This ruler allegedly filled a lake with alcohol and a forest with meat, allowing his subjects to feast and have orgies in them. For 10 points each:

[10h] Name this extremely cruel ruler of the Shang dynasty who was deposed after the Battle of Muye ("moo-YEH"). Many of this ruler's cruel acts have been attributed to his corruption by his wife, Daji.

ANSWER: King **Zhou** of Shang [or **Di Xin**]

[10m] Exaggerated accounts of King Zhou's reign come from this history written by Sima Qian ("SUH-mah chee-EN"). It spans from the reign of the Yellow Emperor to Emperor Wu.

ANSWER: **Records of the Grand Historian** [or **Shiji**]

[10e] Sima Qian wrote *Records of the Grand Historian* during this dynasty's reign and was jailed for defending one of its generals for defecting to the Xiongnu ("sh'yung-noo"). This dynasty names the majority ethnicity of China.

ANSWER: **Han** dynasty

<World History>

14. One of these songs recounts how Queen Meera's extreme devotion to Lord Krishna led townspeople to believe that she was mad. For 10 points each:

[10h] Name this class of devotional Hindu hymns often dedicated to avatars of Vishnu. Meerabai is the subject of many songs of this sort, and she herself authored hundreds of these songs in praise of Krishna.

ANSWER: **bhajan** ("BUH-jun") (The *bhajan* in the lead-in is "Aisi Lagi Lagan.")

[10m] While many Hindu groups sing *bhajans*, they're particularly associated with this movement, whose name refers to passionate devotion to a deity and also names a type of *yoga*.

ANSWER: **bhakti** movement [or *bhakti yoga*; or **bhakta**]

[10e] In this central *bhakti* text, Krishna describes the *bhakti yoga* and two other *yogas* as paths to freedom. In this dialogue from the *Mahabharata*, Krishna explains Arjuna's *dharma* as a warrior.

ANSWER: **Bhagavad Gita**

<Religion>

15. Victor Reppert has controversially disputed the “myth” of a debate that this thinker won at Oxford’s Socratic Club. For 10 points each:

[10m] Name this philosopher whose “obliteration” of C. S. Lewis’s “argument from reason” may have pushed Lewis into writing children’s fiction. She also revived virtue ethics with her paper “Modern Moral Philosophy.”

ANSWER: G. E. M. **Anscombe** [or Elizabeth **Anscombe**; or Gertrude Elizabeth Margaret **Anscombe**]

[10h] Lewis’s “argument from reason” held that this position is self-refuting. An argument against this position’s ethical type claims that statements like “pleasure is good” will “always be synthetic and never analytic.”

ANSWER: **naturalism** [or word forms; accept metaphysical, methodological, or ethical **naturalism**; accept the **naturalistic** fallacy] (The argument is G. E. Moore’s “open question” argument.)

[10e] Reppert calls Lewis’s anti-naturalism argument his “Dangerous Idea,” in reference to Daniel Dennett’s book on this thinker. Alvin Plantinga held that naturalism was incompatible with this scientist’s theory of evolution.

ANSWER: Charles **Darwin** [accept **Darwin**’s *Dangerous Idea*]

<Philosophy>

16. In the Kretschmann configuration, this phenomenon arises at the interface between a metal film and a high-index prism. For 10 points each:

[10h] Name this phenomenon in which polarized light excites surface waves at a metal–dielectric interface.

Biosensors based on this phenomenon detect changes in film thickness from adsorbed biomolecules.

ANSWER: **surface plasmon resonance** [or **SPR**; accept localized **surface plasmon resonance** or **LSPR**; prompt on **resonance**]

[10m] SPR is one possible mechanism for the surface-enhanced form of this type of spectroscopy. This technique uses inelastic scattering to measure vibrational modes that change a molecule’s polarizability.

ANSWER: **Raman** spectroscopy [accept **Raman** scattering; accept surface-enhanced **Raman** spectroscopy or surface-enhanced **Raman** scattering; prompt on **SERS**]

[10e] Nanoparticles of this element undergo surface plasmon resonance at around 530 nanometers and thus appear red. This noble metal’s colloidal form is produced by reducing chloroauric (“chloro-OR-ick”) acid.

ANSWER: **gold** [or **Au**]

<Chemistry>

17. Answer the following about 19th-century French literary characters who were based on the real-life criminal Eugène-François Vidocq (“vee-DOCK”), for 10 points each.

[10e] Vidocq’s post-prison reform partly inspired Jean Valjean, and his work with an undercover police unit partly inspired Inspector Javert, in this Victor Hugo novel.

ANSWER: *Les **Misérables*** [accept ***Les Mis***]

[10m] Honoré de Balzac likely based this criminal from *The Human Comedy* on Vidocq. This character is arrested while living in the Maison Vauquer (“may-ZON vo-KAY”) in *Le Père Goriot* (“luh pair gor-YO”).

ANSWER: **Vautrin** (“vo-TRAN”) [or **Jacques** Collin; or Jacques **Collin**]

[10h] Vidocq’s *Memoirs* inspired the protagonist of this author’s *The Mysteries of Paris*, which established the genre of the “city mystery.” Jesuits scheme to steal a family’s fortune in this author’s serial novel *The Wandering Jew*.

ANSWER: Eugène **Sue** (“oo-ZHEN soo”) [or Marie-Joseph Eugène **Sue**]

<European Literature>

18. Multiple ornate lyres, including one with a bull’s head, were unearthed in this city’s “Royal Cemetery.” For 10 points each:

[10m] Name this ancient city where extended excavations led by Leonard Woolley uncovered the “royal game,” a board game that closely resembles the Egyptian *senet*.

ANSWER: **Ur** [accept “The Royal Game of **Ur**”]

[10e] At Ur, Woolley excavated one of these structures, whose construction was begun by Ur-Nammu. The White Temple at Uruk was built on one of these structures, which have multiple tiers of receding size.

ANSWER: **ziggurats** [prompt on step pyramids]

[10h] This king of Ur, the son of Ur-Nammu, completed the construction of Ur's Great Ziggurat. Misinterpretation of the Sumerian writing system led this ruler's name to be originally read as "Dungi."

ANSWER: **Shulgi** [or **Šulgi**]

<Other History>

19. In the 2010s, prominent hedge fund managers such as David Einhorn and Daniel Loeb set up insurance companies to take advantage of this type of capital. For 10 points each:

[10h] Name this type of investment capital that can be made up of the funds held by an insurance company to pay future claims. More generally, it is funding that is kept to pay for a business's immediate needs, as opposed to fixed assets.

ANSWER: **float** [or **floating** capital; or **circulating** capital]

[10m] The concept of float has been popularized by the CEO of this investment company, who refuses to split this company's shares. This company's insurance subsidiaries, such as General Re and GEICO, are a source of float.

ANSWER: **Berkshire Hathaway, Inc.**

[10e] This CEO of Berkshire Hathaway has explained float in his well-regarded shareholder letters. This partner of Charlie Munger is known as the "Sage of Omaha."

ANSWER: Warren **Buffett**

<Social Science>

20. Objects that are well-described by this specific term generally have a value of 12 or less for the last two digits of their NACA code. For 10 points each:

[10h] Name these idealized airfoils that can be modeled as a two-dimensional vortex sheet arrayed along the camber ("CAM-ber") line. They are the basis for an approximation developed by Max Munk and Ludwig Prandtl ("PRON-tull") in the 1910s.

ANSWER: **thin** airfoils [accept **thin** airfoil theory]

[10e] Prandtl also suggested that his home country of Germany should build several of these large facilities, which test aircraft by holding them steady and blowing a stream of air over them.

ANSWER: **wind tunnels**

[10m] Wind tunnels are used to measure how this quantity varies with the angle of attack. This dimensionless quantity is multiplied by dynamic pressure and planform area to give a force produced by the airfoil.

ANSWER: **lift coefficient** [or **coefficient of lift**; or **C-sub-L**; prompt on lift]

<Physics>