

Penn Bowl 2021: Flenn Bowl

Packet 5

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Tossups

1. A sonnet by this author tells the addressee that “Dante shall give Fame leave to set thee higher / than Casella” in praise for his “tuneful and measured song.” In an “occasional lyric,” this author wrote that the “son of memory” and “great heir of fame” doesn’t need physical memorials because “our fancy of itself bereaving / dost make us marble.” The title character of a work by this author challenges the giant Harapha to a fight despite being in (*) chains. That character of this author laments being “eyeless in Gaza” before pulling down a temple of Dagon on himself. A sonnet by this author ends with the line “They also serve who only stand and wait,” and discusses his advancing blindness. For 10 points, *Samson Agonistes* and “When I Consider How My Light is Spent” are by what author of *Paradise Lost*?

ANSWER: John Milton

<Jack Sugrue, British Literature>

2. In a game [emphasize] *against* this team, Giants baserunner J. T. Snow rescued Dusty Baker’s 3-year-old son from getting run over at home plate, leading the MLB to raise the minimum batboy age to 14. This team is currently fighting an investigation into its role in the 2019 fentanyl overdose of its reliever Tyler Skaggs. This team was at the center of a 1994 movie that starred (*) Matthew McConaughey and a teenaged Joseph Gordon-Levitt. This team harnessed the power of its “Rally Monkey” to come back from a three games to two series deficit and defeat the Barry Bonds-led Giants in the 2002 World Series. In 2021, a pitcher from this team hit in the Home Run Derby and started the All-Star Game on consecutive nights. For 10 points, Mike Trout and two-way star Shohei Ohtani play for what West Coast American League team, nicknamed the Halos?

ANSWER: Los Angeles Angels [or Los Angeles Angels of Anaheim; or California Angels; or Anaheim Angels; prompt on Los Angeles; prompt on California; prompt on Anaheim] (The movie was *Angels in the Outfield*.)

<Gabe Ajzenman, Miscellaneous>

3. An E-major work by a composer with this surname begins with the right hand playing alone for four measures and repeatedly trilling on a B–F-sharp open fifth. Pergolesi’s *Stabat Mater* was commissioned to replace a setting by a composer with this surname. A composer with this surname may have written his works in pairs, one in major and one in the parallel minor key. Another composer with this surname established a fast-slow-fast form popular in early overtures. A G-minor (*) fugue with an ascending, chromatic subject concludes an early set of 30 *Essercizi* (“ess-air-CHEET-see”) by a composer with this surname. The works of that composer with this surname were catalogued by Alessandro Longo and Ralph Kirkpatrick. For 10 points, give this surname of the Baroque composer of 555 keyboard sonatas, Domenico.

ANSWER: Scarlatti [accept Alessandro Scarlatti or Domenico Scarlatti]

<Michael Yue, Music>

4. A 2013 paper reported the quantum tunneling of this molecule between six rotational positions in a beryl crystal. In 2010, Stoyanov proposed a structure including 6 molecules of this compound to replace earlier models by Eigen and Zundel. This compound can be represented in simulations by the SPC or SPC/E models. Proton transfers between molecules of this compound are described by the (*) Grothuss mechanism. This compound and methane form clathrates that are enriched in sediments at the ocean floor. Calcium sulfate is commonly employed to exclude this compound from reaction vessels. This compound self-ionizes with an equilibrium constant of 10-to-the-negative-14th at room temperature. For 10 points, name this “universal solvent” whose formula is H₂O.

ANSWER: water [or H₂O until read; or water ice; or water vapor]

<Sam Botterbusch, Chemistry>

5. Vindicating Max Friedländer, one of these objects was removed from Petrus Christus’s *A Goldsmith in His Shop* after being discovered to have been a later addition. Along with textiles like dresses and carpets, Renaissance paintings often included pseudo-Kufic script in the design of these objects, which were decorated with elaborate punchwork by the Sienese school. In medieval art, an almond-shaped object called a *mandorla* was often paired with these objects. The letters (*) omega, omicron, and nu often appear in the cruciform style of these objects in icons depicting Christ Pantokrator. These objects lost popularity by the High Renaissance, having earlier evolved from Giotto’s flat circles to Massaccio’s tilted circles and rings. For 10 points, name this golden religious iconography that often adorned the heads of saints.

ANSWER: halos [prompt on cross by asking “what object is the cross inside?”; accept aureoles or nimbuses]

<Aseem Keyal, Painting>

6. This was the westernmost waterway planned to be dammed as part of Herman Sörgel’s unfeasible Atlantropa project. In 1936, the “Convoy of Victory” helped to break a blockade in this waterway, also home to the Battle of Cape Spartel two months later. 5.96 and 5.33 million years ago respectively, this waterway’s forerunner closed and opened, resulting in a massive “Salinity Crisis” that would be ended by the Zanclean Flood. Conflict has arisen over the ownership of Perejil (“pay-ray-HEEL”) Island in this waterway, whose earlier blockading by (*) Republican forces were bypassed by the *Luftwaffe*’s airlifting of the Army of Africa. In antiquity, two large rock formations that abut this strait were known as the “the Pillars of Hercules.” For 10 points, name this strait that connects the Atlantic Ocean to the Mediterranean Sea.

ANSWER: Strait of Gibraltar [or Estrecho de Gibraltar; or Madīq Jabal Tāriq; accept Gibraltar after “strait” is read; prompt on Mediterranean Sea until read by asking “the Mediterranean Salinity Crisis was caused by the closing of a prehistoric equivalent to which modern waterway?”; prompt on Alboran Sea]

<Tracy Mirkin, European History>

7. Barbara Schmitter Heisler wrote a book on the sociology of this phenomenon which she claims has re-introduced the impact of ethnicity after the bad assumptions in Herbert Gans’s straight line model were realized. Metaphors such as “the hook” were used by Doug Massey to describe historical forms of this phenomenon in America. It’s not the minimum wage, but a 2017 study by George Borjas claimed to debunk a previous study on the economic impact of this behavior by (*) David Card, who found virtually no impact on low-skilled wages as a result of a 1980 “natural experiment” that sharply increased the rate of this phenomenon in Miami. Real-world analyses of this phenomenon often reference the Mariel Boatlift. For 10 points, name this phenomenon when people leave their home country to live or work somewhere else.

ANSWER: immigration [accept assimilation; prompt on migration]

<Harris Bunker, Social Science>

8. In 1888, an heir to a fortune derived from this product was accused of providing cloth to a Congolese native in exchange for being allowed to sketch the cannibalism of a young girl. The origin narrative of one type of this product was recently challenged by Fawn Weaver and Clay Risen to include the contributions of the slave “Nearest” Green. It’s not coffee, but Aeneas Coffee’s best-known invention was inspired by Irish makers of this product, whose legalized sale led to the economic rise of (*) Walgreens. Anonymous threats signed “Tom the Tinker” were issued during an event named for this product that saw John Neville’s effigies burned and his house besieged. George Washington’s presidency weathered an insurrection sparked by a per-gallon tax on this beverage. For 10 points, name this drink notably produced by Jack Daniel’s.

ANSWER: whiskey [accept bourbon whiskey; accept scotch whiskey; prompt on alcohol, spirits, or liquor]
<Tracy Mirkin, Other History>

9. This philosopher discussed the “double infinity” facing human sciences in a section titled “The Disproportion of Man.” Ian Hacking identified the “argument from dominance” in a fragment by this philosopher that asks “to which side shall we incline?” in a game being played at “the extremity of this infinite distance.” Popular astronomy books often quote this thinker’s remark that “the eternal silence of these infinite spaces frightens me.” This philosopher put forth an (*) argument that can be conceptualized as a decision matrix with infinity in its upper-left quadrant; that argument hinges on the projected infinite utility of theism. For 10 points, name this French thinker whose *Pensées* argue that we should act as though God exists, his namesake “wager.”

ANSWER: Blaise Pascal
<Jordan Brownstein, Philosophy>

10. This author complained that a monologue “had been broken up into many very short sentences” while lamenting the four earlier translations of his first novel. This author proposed that novels should have “architectonic clarity” and use polyphony in an essay collection that examines the works of authors like Cervantes, Musil, and Kafka. During a Moravian folk festival, Helena mistakenly attempts suicide with a bottle of laxatives in a novel by this author that describes her (*) affair with a man who sends a postcard reading “Optimism is the opium of the people!” In a novel by this author of *The Art of the Novel*, Tereza struggles with her husband Tomáš’s infidelity. For 10 points, name this author of *The Joke* and the 1968 Prague Spring in *The Unbearable Lightness of Being*.

ANSWER: Milan Kundera
<Margaret Tebbe, European Literature>

11. One algorithm for this general task uses a zero-weight node, often called NYT, in an updating procedure that preserves the sibling property. When performing this task, a file may be appended with a pseudo-EOF character. An algorithm for this task includes search and look-ahead buffers as part of a sliding window. The adaptive FGK algorithm builds on a method for this task that generates a prefix-free binary (*) code that varies in length based on the frequency of inputs. That algorithm is combined with one of the dictionary-based Lempel–Ziv algorithms in Deflate. Shannon’s source coding theorem gives a bound on many algorithms for this task like Huffman coding, which is an example of its lossless type. For 10 points, name this task of reducing the space required to store information.

ANSWER: compression [accept specific kinds like adaptive Huffman coding, Lempel–Ziv, or LZ algorithms; prompt on encoding by asking “for what purpose?”]
<Shan Kothari, Other Science>

12. **Supporters of this cause pushed for it with the case of Edith Cavell, whose execution was painted by George Bellows. Upper class supporters of this cause flocked to what was mockingly-called the “Tired Businessman’s Camp” in Plattsburg, New York. Muckraker Fremont Older agitated for the pardon of two people convicted for bombing supporters of this cause, Warren Billings and Tom Mooney. Gerald Nye chaired a committee that accused banking interests backing this cause of being (*) “Merchants of Death.”** After this cause’s success, George Creel authorized “Four Minute Men” to give speeches supporting it. For 10 points, name this goal, which broke Woodrow Wilson’s campaign slogan: “He kept us out of the war.”

ANSWER: the United States entering World War I [accept Preparedness Movement; do not accept any answer indicating another country entering World War I]

<Emmett Laurie, American History>

13. **The effects of this quantity on material strength are modeled by Ludwik’s power law function of it, which, unlike Hollomon’s equation, includes behavior up to the yield point. For a deflected Euler–Bernoulli beam, the negative of the curvature times the distance from the neutral surface equals this quantity’s xx -component. Inducing this quantity improves a material’s yield strength in work hardening. This quantity is measured using Wheatstone bridges to detect small changes in resistance as the wiring in a gauge is compressed or lengthened. For small values of this quantity, its logarithmic and (*) Cauchy definitions reduce to L minus L -naught all over L -naught. The Poisson ratio is the negative ratio of the transverse and axial forms of this quantity. Epsilon denotes this dimensionless quantity that measures material deformation. For 10 points, Young’s modulus is the ratio of stress to what quantity?**

ANSWER: strain [or strain tensor; accept engineering strain; accept thermal strain; prompt on deformation or deformation tensor until “deformation” is read]

<Jonathen Settle, Physics>

14. **Vicki Mortimer used a split-screen set design to show a usually unseen climactic event performed by this operatic character in a 2016 Covent (“KUV-int”) Garden production by Katie Mitchell. A 1959 Zeffirelli production debuted Joan Sutherland as this character, her most often performed role. Mathilde Marchesi (“ma-TIL-duh mar-KAY-zee”) wrote the most popular cadenza for an aria by this character that is often performed in E-flat rather than F major. This character describes a ghost to her maid Alisa in the aria “Regnava nel (*) silenzio,” and accidentally signs a marriage contract before the sextet “Chi mi frena” (“kee mee fray-na”). This character sings an aria often performed with a solo flute rather than a glass harmonica, “Il dolce suono,” after murdering Arturo. For 10 points, name this lover of Edgardo who sings a famous “mad scene” in the Donizetti opera that she titles.**

ANSWER: Lucia di Lammermoor [or Lucia Ashton; or Lucie Ashton; or Lucie de Lammermoor; or Lucy Ashton; or Lucy of Lammermoor; prompt on Lady Ashton]

<Michael Yue, Other Arts>

15. **These people are the subject of a long Objectivist found-poem created by chopping up twenty-six volumes of interviews with them into verse; that poem is by Charles Reznikoff. Another poem compares being one of these people to “a gift” and states that “If you refuse, / Wishing to be invisible, you choose / Death of the spirit.” That poem titled for being one of these people is by Muriel Rukeyser. Another poem compares the title character to “An engine / Chuffing me off like” one of these people before stating “I think I may well (*) be [one of these people].” The speaker concludes “the dead nations never rise again” in a Longfellow poem titled for a cemetery for these people in Newport. The speaker of Sylvia Plath’s poem “Daddy” compares herself to, for 10 points, members of what ethnoreligious group that includes writers like Bernard Malamud and Philip Roth?**

ANSWER: Jewish people [or Jews; or Yehudim; accept Holocaust victims or survivors] (The poem in the first clue is *Holocaust*.)

<Taylor Harvey, American Literature>

16. After killing envoys sent to negotiate over the issue of these people, Emperor Go-Daigo's son Prince Kanenaga self-stylized as King of Japan and became a Chinese vassal. Zheng Ruoceng ("jung rwo-tsung") detailed the history of these people in the *Chouhai tubian* ("cho-hye too-b'yen"). The self-appointed King of Hui ("hway"), Wang Zhi ("wong jurr"), was a prominent one of these people active during the reign of the Jiajing Emperor. King Sejong ordered the Gihae Eastern Expedition to suppress these people. The Hongwu Emperor imposed the (*) *Haijin* policy to deal with these people. Many of these people based on Tsushima Island were called *Wokou* ("wo-ko"). Madame Ching was one of these people that commanded a large fleet of junks named the Red Flag Fleet. For 10 points, name these people who raided the Chinese and Korean coastlines.

ANSWER: pirates [accept Wokou until read]

<Emmett Laurie, World History>

17. Along with justification, John Wesley attempted to solve the debate around this concept by introducing prevenient grace into his theology. Caelestius was condemned at a Council of Carthage for his rejection of this concept; he was a disciple of Pelagius who rejected this concept as he believed it conflicted with free will. In his book *Augustinus*, Cornelius Jansen argued that humans lack (*) free will because of this concept. St. Augustine claims that concupiscence is present in people as a result of this concept, which Mary was free of as a result of the Immaculate Conception. Humanity is said to suffer from total depravity as a result of this concept. Baptism removes the punishment of, for 10 points, what inherent flaw in human nature as a result of Adam and Eve disobeying God?

ANSWER: original sin [or peccatum originale; do not accept or prompt on "sin"]

<NourEddine Hijazi, Belief>

18. In a novel in this language, a merchant hangs his son upside down in a well to punish him for hunting magpies; that novel opens with a family controversy over a child being named "London." In a novel in this language, a boy annoys his revolutionary older brother by singing for the soldiers stationed outside their house, who later conscript their father into filling a trench in the road. The 2019 International Booker Prize went to a novel in this language, *Celestial Bodies*. In a novel in this language, a man briefly (*) exiles his wife from home after she fractures her collarbone while leaving the house against his orders. Later generations of the central family of that novel in this language are the subject of *Sugar Street* and *Palace of Desire*. For 10 points, name this language of Jokha Alharthi and the author of *Palace Walk*, Naguib Mahfouz.

ANSWER: Arabic

<Jordan Brownstein, World Literature>

19. Saint Nino, a relative of this man who converted Queen Nana and King Mirian to Christianity, is commonly represented by her country's grapevine cross. It's not St. Thomas, but roughly five million people annually visit a Syro-Malabar church named for this saint in India as part of a nine-day pilgrimage. An Eastern Orthodox monastery named for this man in al-Khader is renowned for its healing properties after he was legendarily imprisoned there. This man is the common protagonist of *Pace Egg* plays in a country where his (*) namesake cross became the only acceptable saint's banner in use. This Cappadocian man gained prominence in one country after he was named the patron saint of the Order of the Garter. A Caucasian country north of Turkey and Armenia derives its name from, for 10 points, what patron saint of England who defended a city of Libyans from a dragon?

ANSWER: St. George [accept al-Khidr]

<NourEddine Hijazi, Belief>

20. **This complex's three distinct four-iron-four-sulfur clusters, designated F_A ("F-sub-a"), F_B, and F_X, can be protected from oxidative destruction by the Mehler reaction. PGR5 is required for a pathway that protects this complex, whose activity is inhibited by diquat and paraquat. The strongest known biological reducing agent is this structure's primary donor, a dimer called (*) P700 because its absorbance peaks at 700 nanometers.** In cyclic phosphorylation, circular flow around this complex alone drives ATP synthesis. This complex transfers electrons from plastocyanin to ferredoxin, which reduces NADP⁺ to NADPH. Cytochrome b₆f shuttles electrons to this complex from its counterpart, which contains the oxygen-evolving complex. For 10 points, name this light-powered thylakoid membrane protein complex whose name indicates it was discovered first.

ANSWER: **photosystem I** [or **PSI**; accept **plastocyanin-ferredoxin oxidoreductase** until "plastocyanin" is read]
<Shan Kothari, Biology>

Bonuses

1. Saprolite forms at this material's upper surface, which is the lowest region studied by the Critical Zone Observatory network. For 10 points each:

[10m] Identify this solid material beneath the Earth's surface whose weathering forms the parent material for the regolith and soil above it.

ANSWER: **bedrock**

[10h] Geologists often study bedrock with two related methods that use arrays of geophones to measure how P-waves and S-waves interact with the boundaries between strata that differ in their acoustic impedance. Name either method.

ANSWER: **seismic refraction** OR **seismic reflection** [accept **refraction seismology** OR **reflection seismology**]

[10e] The oil industry uses seismic reflection and refraction to discover petroleum deposits, many of which are trapped beneath domes made of this low-density material that makes up the evaporite mineral halite. Bolivia's vast Salar de Uyuni is covered by this material.

ANSWER: **salt** [or **sodium chloride**; or **NaCl**]

<Shan Kothari, Other Science>

2. In a twilight scene from this movie, Jai and Radha glance at each other from across a courtyard while Jai plays a harmonica and Radha extinguishes lamps one by one. For 10 points each:

[10h] Name this 1975 Ramesh Sippy film, in which Thakur Baldev Singh ("tock-er bull-dave sing") hires the petty criminals Veeru and Jai to capture the ruthless dacoit Gabbar Singh. Along with *Yaadon Ki Baaraat*, it was one of the first masala films.

ANSWER: **Sholay** [or **Embers**]

[10m] This actor played Jai in *Sholay* alongside Dharmendra's Veeru. This iconic actor's roles in Salim-Javed films like *Sholay* and *Deewaar* made him the leading "angry young man" of Indian film during the 1970s. He made his Hollywood debut as Meyer Wolfsheim in Baz Luhrmann's *The Great Gatsby*.

ANSWER: Amitabh **Bachchan** [or Inquilaab **Srivastava**]

[10e] Playback singers like Lata Mangeshkar and Kishore Kumar sang in dance numbers from *Sholay* and other movies from the Hindi-language film industry known by this portmanteau term.

ANSWER: **Bollywood**

<Shan Kothari, Other Arts>

3. This author entreated writers to "let [the villainess] hate the heroine wholeheartedly, and refuse, yes, even on the last page, to take her hand in forgiveness." For 10 points each:

[10h] Name this author who wrote the essay "What Are We Writing For?" and a series of girls school novels under the pseudonym Brunette Coleman. He reused some of that material for early novels like *Jill* and *A Girl in Winter*.

ANSWER: Philip **Larkin**

[10e] Larkin's pseudonym may have been inspired by this man's "Anna Lucasta" pseudonym. Larkin made significant contributions to the novel *Lucky Jim* by this author, whose son Martin wrote *Money*.

ANSWER: Kingsley **Amis**

[10m] In this poem, Larkin writes that "Time has transfigured them into / Untruth" and "What will survive of us is love" in his description of the final resting place of an earl and countess.

ANSWER: "An **Arundel Tomb**"

<Margaret Tebbe, British Literature>

4. Answer the following about the materiality of the materialistic work of Andy Warhol, for 10 points each.

[10e] To achieve a mass-produced aesthetic, Warhol used a stencil and silk-screening technique for his red-and-white series depicting 32 cans of this food.

ANSWER: Campbell's **soup**

[10m] Warhol was quoted saying "I love [this material]. I want to be [this material]." This material titles a series of concerts by Warhol featuring psychedelic projections and the music of The Velvet Underground and Nico.

ANSWER: **plastic** [or The Exploding **Plastic** Inevitable]

[10h] A portrait of Warhol's friend Jean-Michel Basquiat ("boss-kyah") was superimposed on one entry of a Warhol series in which he used copper-based metallic paints that were exposed to this substance.

ANSWER: **urine** [or **piss**; or **pee**; accept equivalents] (The paintings are from the *Oxidation* series.)

<Aseem Keyal, Painting>

5. To celebrate the new century, in 1600, a historian of this empire named Fernando Alvarado Tezozomoc became the first person to appear in the role of *tlatoni* ("tla-toh-AH-nee") at a public event in forty years. For 10 points each:

[10e] Name this empire, recorded by the Nahuatl-language historian Chimalpahin. Bernardo de Sahagún compiled the Florentine Codex about this empire.

ANSWER: **Aztec** Empire

[10m] Sahagún worked with Nahua scholars at the Colegio de Santa Cruz in this area of Mexico City. The Mexican Army massacred protesting students in this section of Mexico City before the 1968 Summer Olympics.

ANSWER: **Tlatelolco** [prompt on **Cuauhtémoc** ("k'wow-TAY-mock")]

[10h] After his death, Chimalpahin's work was passed to Fernando de Alva Ixtlilxochitl ("eesht-leel-sho-cheetle"), a mestizo historian and descendent of this city's King Nezahuapilli. This city was ruled by the poet king Nezahualcoyotl.

ANSWER: **Texcoco**

<Emmett Laurie, World History>

6. These objects are typically found in "earth" and "mind" forms, the latter of which includes the *Book of the Dead* revealed by Karma Lingpa. For 10 points each:

[10h] Identify these objects representing knowledge, which Padmasambhava ("pud-muh-sam-buh-vuh") hid, only to be discovered by future Tertön. An English equivalent is fine.

ANSWER: **terma** [or **hidden treasures**]

[10e] Padmasambhava was an early leader in Buddhism in this region, taking the name Guru Rinpoche. The Dalai Lama leads the Yellow Hat school of Buddhism in this region.

ANSWER: **Tibet** [or **Bod**; or **Xizang**; accept **Tibetan** Buddhism]

[10m] The Mahayoga tradition within the Nyingma school of Tibetan Buddhism comprises one of the three Inner examples of these esoteric practices in Buddhism. Coming from the Sanskrit word for "loom," the word for these practices is now used to describe practices being slowly adopted by mainstream Buddhism and Hinduism.

ANSWER: **Tantra** [accept **Tantric**]

<NourEddine Hijazi, Belief>

7. Name some antisocial rappers, for 10 points each.

[10h] This rapper blew up with a song off his album *Please Excuse Me For Being Antisocial*. This rapper sang “I got a brand new Draco with me / Clip got thirty-three, Scottie Pippen” in “Start Wit Me” on the same album.

ANSWER: Roddy **Ricch** [or Rodrick Wayne **Moore**, Jr.]

[10e] This rapper described himself as an “antisocial extrovert” on “DNA,” a track from his Pulitzer-Prize-winning album *DAMN*.

ANSWER: Kendrick **Lamar**

[10m] Vince Staples appears on “Wool,” the final track on this rapper’s *I Don’t Like Shit, I Don’t Go Outside*. He rapped about using “daddy’s jag” for “batting practice” in a feature on Frank Ocean’s “Super Rich Kids.”

ANSWER: **Earl Sweatshirt** [or Thebe Neruda **Kgositsile**]

<Emmett Laurie, Miscellaneous>

8. In the post-USSR era, radical political and demographic developments have led to a massive uptick in corruption within many of the Balkan nations. For 10 points each:

[10e] A rise in local bribery rates accompanied this country’s 1990s economic liberalization under President Ramiz Alia, the designated successor to longtime strongman Enver Hoxha (“HO-jah”).

ANSWER: **Albania** [or **Shqipëri**]

[10m] Government corruption, the arrest of Otpor! members, and the murder of Ivan Stambolić all contributed to the 2000 “Bulldozer” revolution in this capital city, so named for a vehicle that rammed its Radio Television building.

ANSWER: **Belgrade**

[10h] A 2019 Alexander Nanau documentary follows poor government response following this 2015 event that left 64 fans of the band Goodbye to Gravity dead. Victor Ponta’s Social Democratic Party lost power after this event.

ANSWER: **Colectiv** nightclub **fire** [accept answers that convey a **fire** in a nightclub in **Romania**; prompt on nightclub **fire** by asking “in which country?”; prompt on **fire** in **Romania** by asking “in what type of place?”]

<Tracy Mirkin, European History>

9. These proteins bind to cytosine 6 on their non-permissive faces during prokaryotic DNA replication. For 10 points each:

[10h] Name this family of proteins that bind to Ter sequences and cause the DNA replisome to dissociate if approached from one direction, thus terminating DNA replication.

ANSWER: **Tus** proteins [or **terminator utilization substance** or **terminus utilization substance**]

[10e] Bacteria need Tus protein to terminate the replication of these circular pieces of DNA.

ANSWER: **plasmids**

[10m] Following replication termination, one of these enzymes decatenates the duplicated plasmids. During replication, one of these enzymes relieves torsion in the double helix upstream of the replication fork.

ANSWER: **topoisomerases**

<Sam Botterbusch, Biology>

10. A flashing neon sculpture of the goddess Mumbadevi hangs over the door of one of these places operated entirely by “hairy-armed” women such as the narrator’s lover Padma. For 10 points each:

[10h] Name this sort of business where the frame story of *Midnight’s Children* is set. Another novel meditates on the difficulty of classifying a product made by one of these companies that was once run by Mamachi.

ANSWER: **pickle** factories [or companies that sell or package **pickles**, **chutneys**, **jam**s, or **jellies**; or equivalents]

[10e] The Braganza Pickles factory from *Midnight’s Children* and Paradise Pickles & Preserves from *The God of Small Things* are both in this country, the birthplace of authors Salman Rushdie and Arundhati Roy.

ANSWER: **India** [or **Bharat**]

[10m] The pickle factory in *Midnight’s Children* is owned by Mary Perreira, a member of this profession who set the novel’s events in motion by swapping Saleem’s and Shiva’s name-tags to impress Joseph D’Costa.

ANSWER: a **nurse** [or nurse**maid**; or **midwife**; or **nanny**; or **ayah**; prompt on **hospital** workers]

<Jordan Brownstein, World Literature>

11. “Below cost pricing” is typically defined when the price offered by a firm lies below this value. For 10 points each:

[10m] In the short run, a firm should shut down if its average revenue is below what quantity? This firm-level quantity is defined as average total cost minus average fixed cost.

ANSWER: **average variable costs** [or **AVC**; prompt on **variable** cost or **VC**; prompt on the **break-even point**]

[10e] The profitable part of the marginal cost curve typically defines this economic quantity. Curves representing this economic quantity are typically graphed sloping up from left to right.

ANSWER: **supply** [or word forms like **short-run supply** or **quantity supplied**]

[10h] Given a convex variable cost curve, the marginal cost curve will intersect the variable cost at this specific point of the average variable cost curve. Description acceptable.

ANSWER: at the **bottom** of the average cost curve [accept answers indicating it is the **vertex** or the global **minimum** of, say, a quadratic average variable cost curve; prompt on **critical** point]

<Harris Bunker, Social Science>

12. This symphony’s B-flat-minor second movement begins with an English horn melody beginning G-flat, F, high B-flat, which is derived from the soft low cello theme “D [pause], C-sharp, high F” in this symphony’s opening measure. For 10 points each:

[10h] Name this symphony premiered by Paris Conservatory students after Charles Lamoreux rejected it from his concert series. It uses the same kind of unifying structure as its composer’s symphonic poem *The Cursed Hunter*.

ANSWER: César **Franck**’s Symphony in D minor [or equivalents; prompt on **Symphony in D minor**; do not accept or prompt on any answer giving a numbered symphony like “Symphony No. 1” or “first symphony”]

[10m] Vincent d’Indy (“dan-DEE”) insisted that Franck’s symphony was not influenced by this other symphony that the Paris Conservatory premiered two years before Franck’s. The *Maestoso* section of this symphony’s second and final movement begins with its featured instrument playing a massive C-major chord.

ANSWER: **Organ** Symphony [or Camille **Saint-Saëns**’s Symphony No. **3** in C minor; or **Saint-Saëns**’s **Opus 78**]

[10e] In one of its first major concerts, the Paris Conservatory orchestra also premiered this composer’s 1830 programmatic symphony depicting his love for Harriet Smithson, the *Symphonie Fantastique*.

ANSWER: Hector **Berlioz**

<Michael Yue, Music>

13. Plutarch associated Romulus with this god after the latter ascended into the sky while giving a speech on a hill. For 10 points each:

[10h] Identify this god who formed the original Capitoline Triad with Jupiter and Mars. Ovid postulates that he was a Sabine deity who had a partner named Hora.

ANSWER: **Quirinus**

[10e] Quirinus was also used as an epithet for this two-faced deity. A temple dedicated to him had doors that were closed during peacetime, which Livy claimed only happened twice.

ANSWER: **Janus**

[10m] The later Capitoline Triad included this deity, who had a temple with her epithet of Medica on the Esquiline Hill. The Temple of Vesta housed a statue of this deity, which was said to protect Rome from being sacked.

ANSWER: **Minerva**

<NourEddine Hijazi, Belief>

14. Alphonse Loiset, a confidence man peddling memory-improvement tricks, marketed his classes with a later-regretted testimonial from this man. For 10 points each:

[10e] Name this author and unscrupulous investor who invented an unsuccessful memory game while procrastinating on writing *The Adventures of Huckleberry Finn*.

ANSWER: Mark **Twain** [or Samuel **Clemens**]

[10m] Twain survived financially on advice from H. H. Rogers, an oil executive who entered this industry by buying Marcus Daly's Anaconda company. This industry's namesake "Kings" dominated local politics in Butte, Montana.

ANSWER: **copper** mining [accept **Cu**; prompt on **metal** or **mining**]

[10h] Twain's publishing house, a failure, had a rare success with the memoirs of this man. Ferdinand Ward scammed this man and his son out of all of their money in a Ponzi scheme.

ANSWER: Ulysses S. **Grant**

<Emmett Laurie, American History>

15. This poet wrote "I judge from My Geography / Volcanoes nearer here" in a poem that concludes by mentioning a "Vesuvius at Home." For 10 points each:

[10e] Name this poet who called possibility "A fairer House than Prose" in her poem number 466. This reclusive poet also wrote "Hope is the Thing with Feathers."

ANSWER: Emily **Dickinson**

[10h] A Language poet with this surname wrote the 2017 collection *Debths* and echoed Dickinson's line "My Geography" in the title of her book *My Emily Dickinson*. A 19th-century woman poet with this surname wrote the best-selling poetry collection *Passion-Flowers*.

ANSWER: **Howe** [accept Susan **Howe** or Julia Ward **Howe**; accept Julia **Ward**]

[10m] Dickinson begins her poem by noting that "Volcanoes be in Sicily" and this other place. Elizabeth Bishop's travels in this large geographic region influenced her collection *Questions of Travel*, which includes the poem "Arrival at Santos."

ANSWER: **South America** [or **Brazil**; accept **Latin America**; prompt on **America** or the **Western Hemisphere**]

<Taylor Harvey, American Literature>

16. A regular grid of mounting holes is located on the top of these experimental devices, whose core is usually a metal honeycomb structure. For 10 points each:

[10h] Name these rigid devices used to set up optics experiments. These devices are similar to smaller benches or rails that are often used in introductory physics labs.

ANSWER: optical **tables**

[10e] Optical tables must meet many stringent requirements because aligning the beams from these devices is difficult. These devices emit high-power coherent light.

ANSWER: **lasers** [or **light amplification by stimulated emission of radiation**]

[10m] In a typical interferometry setup, one of these devices is mounted on the table in front of incoming laser light. Examples of these devices consist of a cube of two right-angle prisms and glass coated with a dichroic coating.

ANSWER: **beam splitters**

<Jonathen Settle, Physics>

17. Three Mycenaean clay tablets excavated and translated by Michael Ventris use this original-language term to refer to the head of a local bronze-workers guild. For 10 points each:

[10h] Give this prolific Greek term often translated as “king,” “chieftain,” or “prince.” The *Iliad* uses Achilles and Agamemnon to demonstrate the mutual respect-based subservience held by holders of this title to the similar *wanax*.

ANSWER: **basileus** [accept **basileús**; accept **gwasileus** or **qa-si-re-u**]

[10e] Unlike *basileus*, the term *wanax* largely died out following the Mycenaean collapse, which began this period of Greek history. The Middle Ages are often referred to with this pejorative nickname due to the lack of records.

ANSWER: Greek **Dark Ages** [accept “The **Dark Ages**”; prompt on **Homeric** Age or **Geometric** period]

[10m] In Classical Greece, *basileus* was appended to this other position’s name to refer to the overseer of religious affairs. The ecclesia nominated nine of these concurrent administrators, including an “eponymous” one and a polemarch (“POH-luh-mark”).

ANSWER: **archon** [or **árchōn**; or **árchontes**; accept **archon basileus**; accept **eponymous archon** or **archon eponymos**]

<Tracy Mirkin, Other History>

18. This author discussed the “school of the dead,” the “school of dreams,” and the “school of roots” in *Three Steps on the Ladder of Writing*. For 10 points each:

[10h] Name this author who called for women writers to proclaim a “unique empire” in an essay that uses “white ink” as a metaphor for her concept of *écriture féminine*.

ANSWER: Hélène **Cixous** (“ay-LEN seek-SOO”)

[10e] That Cixous essay is titled for the “laugh” of this figure from Greek mythology. In a Carol Ann Duffy poem, this snake-haired figure describes turning a bee into “a dull grey pebble” with her gaze.

ANSWER: **Medusa** [or *la méduse*]

[10m] Cixous’s essay “The Hour of [this author]” is titled in reference to a novel by this Brazilian author in which Macabea is hit by a car after having her fortune told.

ANSWER: Clarice **Lispector** [or Chaya Pinkhasivna **Lispector**] (That novel is *The Hour of the Star*.)

<Margaret Tebbe, European Literature>

19. This technique has been applied to identify *in vivo* cancer metabolic markers under ultralow spin conditions. For 10 points each:

[10h] Name this technique in which samples are rotated at a 54.74-degree angle with respect to the applied magnetic field. This technique allows certain anisotropic interactions such as chemical shift anisotropy to be averaged out.

ANSWER: **magic angle spinning** [or **MAS**; prompt on, but DO NOT REVEAL, **NMR** or **solid-state NMR** or **ssNMR**]

[10e] Magic angle spinning is used to improve the resolution in the solid-state variety of this technique where a strong magnetic field is applied to a sample in order to determine its molecular structure.

ANSWER: **nuclear magnetic resonance** spectroscopy [or **NMR** spectroscopy]

[10m] One of the main goals of magic angle spinning is to remove this type of spin-spin coupling between nuclei. The magnitude of these interactions falls off with the inverse third power of distance.

ANSWER: **dipole** coupling [or **dipolar** coupling; prompt on **J-coupling**]

<Paul Lee, Chemistry>

20. Graham Harman frequently reuses this example to illustrate the withdrawal involved in object–object relations. For 10 points each:

[10h] Name this example of cause-and-effect that Al-Ghazali claims is entirely mediated by God in Discussion 17 of *The Incoherence of the Philosophers*. Both the natural phenomenon and the object acted upon are required.

ANSWER: **fire** burning **cotton** [accept synonyms like **flame** in place of “fire”]

[10m] Al-Ghazali’s position that God, not fire, is responsible for the burning of the cotton is a form of this theory that all events are caused directly by God. Nicholas Malebranche was a champion of this theory.

ANSWER: **occasionalism**

[10e] With the example, Al-Ghazali intended to refute the account of efficient causes offered by this philosopher and medical pioneer, who is most commonly known in English sources by the Latinized form of his name, Ibn Sina.

ANSWER: **Avicenna**

<Jordan Brownstein, Philosophy>