Penn Bowl 2021: Flenn Bowl

Packet 13 (Tiebreakers)
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Tossups

1. **The Vietnam War inspired a poem by a woman of this ethnicity that advises to "turn your head like the owl behind you" to avoid being killed, bought, or raped. While living in California, a poet of this ethnicity wrote Whitmanesque poems like "I Hear You Call, Pine Tree" and popularized a verse form with a collection he dedicated to Yeats. A Texas-based poet of mixed Native American, Black, and this ethnicity won the 1999 National Book Award for her collection *Vice*, which includes many of her characteristic dramatic monologues. Donald (*)** Keene inspired many American poets with his extensive translations of poets of this ethnicity. Poems by people of this ethnicity inspired a poem that compares "faces in the crowd" to "petals on a wet black bough." For 10 points, name this ethnicity of poets like Yone Noguchi and Ai Ogawa, both of whom wrote haikus.
ANSWER: **Japanese** [accept **Japanese**-American; accept *issei*, *nisei*, *sansei*, *yonsei*, or *gosei*; prompt on Asian-American] (The first clue refers to a poem by Janice Mirikitani.)
<Taylor Harvey, American Literature>

2. **A cycloalkene with this many ring carbons can undergo a "click" ligation reaction with tetrazine. Centers with this many ligands may adopt a square antiprismatic geometry. This is the oxidation state of the central metal in a protonless compound that converts alkenes to vicinal cis-diols. The annulene of this number is produced from a Reppe synthesis polymerizing ethyne around a nickel catalyst and is the lowest-numbered even annulene to be (*)** nonaromatic. That annulene of this number adopts a tub conformation. Xylene contains this many carbon atoms, and sulfur's most common allotrope is a ring with this many atoms. The total number of atoms in ethane is, for 10 points, what number of valence electrons in most noble gases?
ANSWER: **eight** [or **8**; accept **+8** or **8+**]
<Sam Botterbusch, Chemistry>

3. **In a novel from this series, a man saves his future love interest from a wild boar but is prevented from marrying her by her mother. That novel from this series ends with the protagonist dying after stabbing her new husband and her love interest walking into quicksand in despair. A sub-series of this series was written under the pseudonym Jedediah Cleishbotham and titled (*)** *Tales of My Landlord*. In another novel from this series, a knight saves a woman by winning a jousting match when his opponent dies of "contending passions." That novel from this series ends with Athelstane allowing Rowena to marry the title character and Rebecca leaving for Granada. For 10 points, name this series of novels including *The Bride of Lammermoor* and *Ivanhoe* written by Sir Walter Scott.
ANSWER: ***Waverley*** novels [accept ***Tales of My Landlord*** until read]
<Margaret Tebbe, British Literature>

4. **Missy Holbrook's lab at Harvard showed that the ion-induced swelling of gels can prevent damage in this type of tissue, which can form tyloses to prevent the spread of pathogens. Diffuse-porous species have constant, narrow cell diameters throughout this tissue. The risk of cavitation in this tissue can be described with a vulnerability curve whose *y*-axis depicts the percent loss of (*)** conductivity. Adjacent cells in this tissue are connected by pits, which have a torus-margo shape in most gymnosperms. Negative hydrostatic pressure drives the flow through this tissue according to the cohesion–tension theory. This tissue can include both vessel elements and tracheids. For 10 points, name this tissue that plants use to conduct water from roots to leaves, in contrast to phloem.
ANSWER: **xylem** [prompt on wood by asking "what kind of tissue makes up wood?"]
<Shan Kothari, Biology>

5. **The speaker cries "Hark! / Unhand my girdle-knot" in comparing lost maidenhood to a dead one of these animals covered in "white grass" in a poem from the *Book of Odes*. Sunlight shines on moss in a four-line poem titled for this animal that Eliot Weinberger and Octavio Paz translated repeatedly in a book titled for "Nineteen Ways of Looking at" its author. (*)** Wang Wei's most famous poem is titled for this animal, which is the form that Maricha takes to help Ravana capture Sita in the *Ramayana*. Book III of Ovid's *Metamorphoses* gruesomely describes dogs like Blackhair and Shaggy tearing into their master after he turns into one of these animals. For 10 points, Actaeon was turned into what animal after seeing the goddess Diana bathing?
ANSWER: **deer** [or **lu**; accept **stag**s or more specific species]
<Jordan Brownstein, World Literature>

6. **A hero in one work in this language places the sun and the moon halfway up a tree so that they will shine on both the rich and the poor. One character from another work in this language realizes her son has died when a brush he gave her begins to bleed and another character makes a giant eagle out of iron and a gold and silver plough while completing tasks so that he can marry his unnamed bride. Earlier in that work in this language, (*)** Louhi promised her daughter in reward for the creation of the Sampo, which she later stole. The *Kanteletar* is a collection of this language's folk poetry compiled by Elias Lönnrot. For 10 points, name this language used to write about Väinämöinen and Lemminkäinen in the *Kalevala*.
ANSWER: **Finnish** [or **Suomi**]
<Margaret Tebbe, European Literature>

7. **A paper by this thinker uses the example of daylight savings time to argue for flexible exchange rates. This thinker used the analogy of asking an expert billiards player about their shots in his namesake "twist" argument that economic theories shouldn't be tested by the "realism" of their assumptions. This author of "The Methodology of Positive Economics" proposed that the long-run Phillips curve is vertical at the natural rate of unemployment. This economist critiqued (*)** Keynes's consumption function with his theory that agents "smooth" their spending based on expected future income. With Anna Schwartz, this proponent of the permanent income hypothesis blamed the Fed for the Great Depression in *A Monetary History of the United States*. For 10 points, name this Chicago School monetarist who wrote *Capitalism and Freedom*.
ANSWER: Milton **Friedman**
<Adam Robbins, Social Science>

8. **A 2018 National Gallery exhibit examining these objects included a William Orpen portrait echoing** *Whistler's Mother*. **One of these objects "is saying nothing that has already been said before," according to the 1966 extended analysis of a painting. According to Vasari, a showpiece for Clement VII ("the seventh") titled for one of these objects was created by its 21-year-old artist by dividing a wooden ball in half. Roundels of Christ's Passion appear around one of these objects below a signature noting the painting's artist (*)** "was here"; that painting later hung in the Royal Alcazar. That fortress is the setting of a painting in which the portraits of Queen Mariana and Philip IV appear in one of these objects behind the Infanta Margaret Theresa. For 10 points, *Las Meninas* and the *Arnolfini Portrait* include what reflective objects?
ANSWER: **mirror**s (The painting in the third line is Parmigianino's *Self-Portrait in a Convex Mirror*.)
<Aseem Keyal, Painting>

9. **The Celtic site of Acropolis Roquepertuse was an early site notable for its glorification of this practice. Cúchulainn ("koo-KULL-in") and two of his companions are challenged to perform this action with a giant in the story Bricriu's ("BRIH-crew's") Feast. After Efnysien dies in his cauldron, his mortally wounded half brother orders his men to perform this action on him. Gaheris is banished from Arthur's court after he kills his mother Morgause in this manner after discovering her affair with Sir Lamorak. A knight carrying a (*)** bough of holly arrives at Arthur's court with a challenge that is accepted when one character performs this action. After being killed in this manner, Bran the Blessed continued to entertain his soldiers. For 10 points, in a poem by the Pearl Poet, Sir Gawain performs what action on the Green Knight, which does not kill him?
ANSWER: **behead**ing [accept equivalents of **cutting their head off**; prompt on killing and synonyms before "kill" is read]
<NourEddine Hijazi, Belief>

10. **A group advocating this idea was infiltrated by the first African-American FBI agent, James Wormley Jones. Edward Blyden left the US to accept a teaching post due to his support for this idea. The A.M.E.'s first southern bishop, Henry McNeal Turner, organized unsuccessful trips in support of this idea. Associate Justice Bushrod Washington was the first President of an organization promoting this idea that supported (*)** Joseph Jenkins Roberts. A mail fraud conviction brought down a businessman promoting this idea who founded the Black Star Line. Henry Clay was a longtime proponent of this idea, as was a man deported to Jamaica by Calvin Coolidge, Marcus Garvey. For 10 points, Liberia was founded by supporters of what idea?
ANSWER: **Back to Africa** [or **colonization** movement; accept any answer that indicates the repatriation of African-Americans back to **Africa**]
<Emmett Laurie, American History>

11. **A "mathematically-divided conceptual heaven" is derided in an essay that calls this concept "a movable host of metaphors, metonymies, and anthropomorphisms." This concept is defined as "objective uncertainty, held fast through appropriation with the most passionate inwardness" in Kierkegaard's** *Concluding Unscientific Postscript*, **which holds that this concept "is subjectivity." The question, "Supposing [this concept] is a (*)** woman – what then?" opens *Beyond Good and Evil* by Friedrich Nietszche, who wrote an essay about this concept and its opposite "in a Nonmoral Sense." Heidegger used the Greek word *aletheia* to define this concept as "unconcealment." Ludwig Wittgenstein developed "tables" for analyzing statements in terms of this concept. For 10 points, name this state of agreeing with facts, the opposite of falsehood.
ANSWER: **truth** [or *Wahrheit*; accept **truth** tables]
<Jordan Brownstein, Philosophy>

12. **A character in this series makes up a story about a conflicted "importer-exporter" to cover up an affair with Marisa Tomei. That same character in this show, despite lying about being a marine biologist, successfully extracts a golf ball from a whale's blowhole. In this series, an irritable "bubble boy" tries in vain to argue that (*)** "moops" is a misprint. Susan Ross was killed off in this series after licking cheap wedding envelopes chosen by her fiancé George. This series coined the terms "queen of the castle" and "master of my domain" as euphemisms in its episode "The Contest," and it also invented the alternative holiday of Festivus. For 10 points, name this 1990s "show about nothing" whose characters include George Costanza, Elaine, Kramer, and Jerry.
ANSWER: *Seinfeld* [accept "The **Seinfeld Chronicles**"]
<Adam Robbins, Miscellaneous>

13. **The *Tantraloka* is central to a Kashmiri sect worshipping this deity, who is central to a tantric sect led by Nandinatha which teaches that the soul is marred by three impurities. In Tamil, the Nayanar monks wrote the Tirumurai hymns to honor this deity, inspiring syrcretizations with him and a deity whose sons include the Maruts and is worshipped by 11 deities named after him. This deity's wife waking him up from his meditation is celebrated in Vasant Panchami by a sect whose followers spread the (*)** tripundra, or three white lines across their foreheads. The Sri Rudram hymn is recited in honor of this deity, whose followers hold a festival held during the night to celebrate his marriage to Parvati. Lingam represent the genitals of, for 10 points, what husband of Parvati, a destructive deity among the Hindu trimurti?
ANSWER: **Shiv**a [accept **Shiva-Rudra**]
<NourEddine Hijazi, Belief>

14. **This country used an "eraser" on color TV programs to enforce its black and white TV only policy, which temporarily ended to broadcast a meeting with a foreign president. The UN Land for Peace resolution targeted lands held by this country. Its eye-patch sporting Foreign Affairs Minister helped negotiate a treaty on behalf of this country. Peace attempts by this country solicited the "Three Nos" of the Khartoum Declaration. For deals made with this country, a different country's president was (*)** assassinated at a celebration of Operation Badr. This country engaged in peace talks shortly after a 1977 electoral victory for Likud. For 10 points, name this country, whose Prime Minister Menachem Begin signed the Camp David Accords with Egypt.
ANSWER: State of **Israel**
<Emmett Laurie, World History>

15. **When used as particle accelerators, these devices are loaded with irises so that phase velocity inside them matches particle velocity. Assuming field energy is concentrated in the core region, a pseudo-rectangular one of these devices approximates the behavior of their rib type in Marcatili's method. When obtaining a sample's dielectric properties using a vector network analyzer to measure reflected and transmitted signals, a sample placed into these devices is not required to be toroidal. Phase velocity exceeds the speed of light in these devices which are characterized by a (*)** cutoff frequency below which no propagation occurs. Microwave communication is usually done over these devices. These devices support TE and TM modes, but not TEM modes. For 10 points, name these hollow devices used to transmit electromagnetic waves.
ANSWER: **waveguide**s [accept dielectric **waveguide**s; accept optical **waveguide**s; prompt on cavity or cavities by asking "what objects are cavities without axial bounds?"; prompt on optical fibers or fiber-optic cables by asking "optical fibers are an example of the optical type of what devices?"; prompt on transmission lines; do not accept or prompt on "cables"]
<Jonathen Settle, Physics>

16. *Composer and genre required.* **After the premiere of the last of these works, the public set its opening melody to the words "yet again he had no ideas." That melody's chain of thirds is compared to one of its composer's late "Serious Songs" in an essay collected in** *Style and Idea*. **The finale of the second-last of these works begins with a soft F-minor unison string melody doubled by bassoons, and a lyrical cello melody begins its C-minor** *Poco allegretto* **third movement. The composer asserted "any (*)** ass can see" similarities between an earlier composer's work and the first of these works' finale, which quotes an alphorn tune. A passacaglia on a Bach bassline ends the E-minor fourth and last of these works. The first of these works was hailed by Hans von Bülow as "Beethoven's Tenth." For 10 points, name these orchestral works by the composer of *A German Requiem*.
ANSWER: **symphonies** by Johannes **Brahms** [prompt on partial answer]
<Michael Yue, Music>

17. **Approaches to estimating this function often seek to minimize the mean integrated squared error. The Parzen–Rosenblatt window is a common non-parametric method used to estimate this function using kernels. This function for the sum of two continuous random variables is equal to the convolution of this function of those variables. For the standard normal distribution, this function is (*)** 1 over the square root of 2 pi, times *e* to the quantity "negative *x* squared over 2." This function's integral from negative infinity to *x* gives the value of a "cumulative" analog at *x*. This function's integral over its entire domain equals 1, like its discrete analog, the probability mass function. For 10 points, name this function that gives the relative probability that a continuous random variable takes on a given value.
ANSWER: probability **density** function [or **PDF**; accept kernel **density** estimation; prompt on KDE; prompt on probability distribution before the last word of the phrase "standard normal distribution"]
<Ayush Parikh, Other Science>

18. **Karl Otfried Müller described how holders of this position could twice ignore the summons of another group, but were compelled to attend after three attempts. A treatise by Xenophon details a system where that group of other men would swear monthly oaths "on behalf of the state," while men in this position would swear "for himself." Double portions of dishes such as "black broth" were allotted to men in this position while they attended obligatory (*)** *syssitia* ("suh-SIT-tee-uh") banquets. Holders of this position served on a judicial council with 28 men over the age of sixty, who were elected based on how loud their supporters yelled. Two men from the Agiadai and Eurypontidai families jointly held this position, whose heirs apparent were uniquely exempt from the *agoge* training program. For 10 points, name these rulers of a Greek city-state known for its wartime prowess.
ANSWER: **king** of **Sparta** [accept **ruler** in place of "king"; accept **Lacedaemon** in place of "Sparta"; do not accept or prompt on "ephors"]
<Tracy Mirkin, Other History>

19. **At one battle, this ruler's deployment of flaming arrows and naphtha-bombs were recounted in the** *Carmen Miserabile* **of Rogerius. Legendarily, a military campaign led by this man ended in the magical submerging of the lakeside city of Kitezh, whose bells can still be heard today. On his uncle's order, this man travelled west with one of the** *orloks*, **or the four "dogs of war," to subjugate the Kipchaks. This ruler used the western migration of the Cumans as cause to attack Hungary, whose King (*)** Béla IV he defeated at the Battle of Mohi. The main successor to Jochi, this ruler established his capital of Sarai on the Volga in the 1240s. The destruction of Rostov, Tver, and Vladimir-Suzdal ushered in three centuries of Mongol supremacy that followed this man's conquest of the Kievan Rus'. For 10 points, name this grandson of Genghis, the founder of the Golden Horde.
ANSWER: **Batu** Khan [accept Tsar **Batu**]
<Tracy Mirkin, European History>

20. **Mark Morris portrayed both lead female roles of this opera in his landmark 1989 danced adaptation. The main character of this opera is introduced in a C-minor aria in 3/4 time that begins with her despondently singing "Ah!" three times. Two Act II choruses in this opera are sung only on the word "ho" as the chorus laughs along with two witches that conjure an "echo dance of the furies." A character in this opera wishes that her "wrongs create / no trouble in thy breast" in her last aria, sung to her maid (*)** Belinda. That G-minor aria features a chromatically descending ground bass and is sung after her lover is tricked by a sorceress into leaving her. John Blow's *Venus and Adonis* inspired this opera featuring "When I am laid in Earth," a title character's "Lament." For 10 points, name this Henry Purcell opera about a queen of Carthage and a Trojan prince.
ANSWER: ___*Dido and Aeneas*___
<Michael Yue, Other Arts>

21. **On performance charts for these devices, curves are plotted at various pitch angles with the advance ratio on the *x*-axis. Steady flow and a discontinuous pressure change are assumed when modeling these devices as uniform actuator disks. With turbojets and turbofans, a large class of jet engines is designed to drive a gearbox attached to one of these devices. Cavitation occurs in regions of low pressure along the tip and upstream surface of these devices when they move through (*)** water. These devices can be modeled as rotating airfoils. Blade element theory is a method of analyzing these devices. Archimedes is often credited as the inventor of one type of these devices that are modeled after his "screw" that lifted water for irrigation purposes. For 10 points, name these propulsion devices with spinning blades.
ANSWER: **propeller**s [accept screw **propeller**s; accept any type of **rotor**s; accept propeller **blade**s until "blade element theory" is read; prompt on wind <u>turbine</u>s by asking "what part of the larger wind turbine?"; prompt on <u>airfoil</u>s; prompt on <u>hydrofoil</u>s; prompt on actuator <u>disk</u>s until read; prompt on <u>turboprop</u>s; do not accept or prompt on "wings"]
<Jonathen Settle, Physics>

22. **In a story by this author, a POW too typhoid-ridden to stand up to be shot against a wall instead is shot while sitting in a puddle. In another story by this author, a man breaks up with his girlfriend Muriel while picnicking on a lakeshore after she asks "Isn't love any fun?" In another story by this author, a man drinks whiskey and talks about baseball and G. K. Chesterton with his pal Bill during a rainstorm. As a child, a character created by this author witnesses a Native American man cut his own throat just as his wife gives birth. Vignettes from (*)** World War I alternate with stories like "Indian Camp" and "The Three-Day Blow" in this author's first collection *In Our Time*. A novella by this author ends with an impotent man intoning "Isn't it pretty to think so?" to Lady Brett Ashley. For 10 points, what author created the recurring protagonist Nick Adams and also wrote *The Sun Also Rises*?
ANSWER: Ernest **Hemingway** (The story in the second clue is "The End of Something.")
<Taylor Harvey, American Literature>

Bonuses

1. In *What Is English?*, Lorcán Ó Treasaigh ("LOR-can oh TRAH-sig") writes about his experience growing up as a monolingual speaker of this language. For 10 points each:
[10e] Name this language. Efforts to revive the production of literature in this Celtic language were led by writers like Pádraic Ó Conaire ("POR-ick oh CON-air-uh") and Patrick Pearse.
ANSWER: **Irish** [or **Gaelic**; or **Gaeilge**]
[10m] This Irish author wrote about the experiences of a young woman immigrating to the United States in *Brooklyn* and fictionalized the life of Henry James in *The Master*.
ANSWER: Colm **Tóibín** ("CALL-um toh-BEAN")
[10h] In this woman's Booker-Prize-winning novel *Milkman*, an unnamed girl is stalked by an older paramilitary officer before he is killed by the British.
ANSWER: Anna **Burns**
<Margaret Tebbe, British Literature>

2. Kevin de Queiroz argued that this task should be done using a "unified species concept" that only requires showing that a given metapopulation lineage is evolving separately from others. For 10 points each:
[10h] Name this process of determining the boundaries between species in a clade.
ANSWER: species **delimitation** (See also "species problem.")
[10e] Species delimitation can be challenging under high rates of this process, in which offspring have parents that belong to different species. Mules display a kind of sterility that sometimes results from this process.
ANSWER: **hybrid**ization [prompt on introgression by asking "what process precedes introgression?"; prompt on admixture; prompt on gene flow]
[10m] Hybridization is most common when closely related species overlap in their range. That scenario can occur either during secondary contact, or when the species originate from this mode of speciation, which occurs in the absence of geographic barriers.
ANSWER: **sympatric** speciation
<Shan Kothari, Biology>

3. William H. Smith is best remembered for a hit 1844 play advocating for this cause, which was also the motivation of A. D. Ames's plays *Wrecked*, *Adrift!*, and *Lost!*. For 10 points each:
[10h] Name this cause that motivated the writing of the most famous novel of T. S. Arthur and its numerous stage adaptations, which are titled for "ten nights" in a certain location.
ANSWER: **temperance** [accept descriptive answers like the opposition to and the wish to ban **alcohol**]
[10m] William Dowton in William H. Smith's hit temperance play *The Drunkard* embodies this sort of stock character common in early American drama. Jonathan from Royal Tyler's *The Contrast* is an example of this unselfconscious, comedic stock character.
ANSWER: stage **yankee**
[10e] *The Drunkard* and dramatic adaptations of *Ten Nights in the Bar Room* were frequently performed at this showman's American Museum. This man established a traveling circus with James Bailey.
ANSWER: P. T. **Barnum** [or Phineas Taylor **Barnum**]
<Taylor Harvey, American Literature>

4. Until the Montreal Protocol phased out production of methyl chloroform, its atmospheric concentration was often used to indirectly estimate the concentration of this molecule. For 10 points each:
[10h] Name this highly unstable molecule that is directly responsible for most of the oxidizing capacity of Earth's lower atmosphere. Reaction with this molecule is the largest atmospheric sink of methane.
ANSWER: **hydroxyl radical** [or **OH radical**; or **HO radical**; or **·OH** ("dot-O-H"), **OH·**, **·HO**, or **HO·**]
[10e] Most of the hydroxyl radical in the atmosphere is produced by reactions between this compound and atomic oxygen produced by photolysis of ozone. This compound enters the atmosphere from the land surface by evapotranspiration.
ANSWER: **water** vapor [or **H2O**]
[10m] Concentrations of hydroxyl radical often decline sharply during this kind of event, which is caused by weakening of the Walker circulation.
ANSWER: **El Niño**–Southern Oscillation [or **ENSO**; or El Niño–**Southern Oscillation**]
<Shan Kothari, Other Science>

5. While staying in this city, Taqut al-Hamawi noted that it's rancid water had "none of the qualities of water except being liquid." For 10 points each:
[10h] Name this Moroccan city, the northern terminus of the trans-Saharan trade. Ibn Battuta departed from this city on his trip to Oulata.
ANSWER: **Sijilmasa**
[10e] By the time of Ibn Battuta's trip, Oualata was a Saharan caravan city owned by this Empire, whose rulers included Mansa Musa.
ANSWER: **Mali**
[10m] At the time, Sijilmasa was controlled by the Marinid Dynasty, who had come to power by overthrowing this empire. This empire was founded by the religious zealot Ibn Tumart.
ANSWER: **Almohad** Caliphate
<Emmett Laurie, World History>

6. Upon the arrival of this figure, serpents and poisonous plants will die, and "flocks afield / Shall of the monstrous lion have no fear." For 10 points each:
[10h] Identify this figure who will herald the end of the iron race and the beginning of the golden race. This figure has been theorized to represent things like neoteric poetry or hopes for the marriage of Mark Antony and Octavia.
ANSWER: the **child** from *Eclogue* 4 [accept **boy**, *puer*, or synonyms of **savior** in place of "child"; prompt on answers that don't mention the *Eclogues* by asking "from what set of poems?"]
[10e] The similarities between the savior child described in the fourth Eclogue and Jesus Christ led people such as Constantine the Great to view this poet of the *Eclogues* and the *Aeneid* as a pre-Christian prophet.
ANSWER: **Virgil** [or Publius **Vergilius** Maro]
[10m] The *Eclogues* are the first step on the "Virgilian progression," a career path towards epics that authors like Edmund Spencer tried to follow. This set of Virgil's agricultural poems comes second on the progression.
ANSWER: the *Georgics*
<Jordan Brownstein, World Literature>

7. This document recommended that Spain use the proceeds from the proposed sale to "remove her financial embarrassments." For 10 points each:
[10m] Name this 1854 document written by Pierre Soulé at a namesake city in Belgium. This unpopular document called for the annexation of Cuba by the United States by force, if necessary.
ANSWER: **Ostend** Manifesto
[10e] Pierre Soulé worked with fellow diplomats John Mason and this man to draft the Ostend Manifesto. This man went on to win the presidential election of 1856 and did nothing as the first states seceded from the Union.
ANSWER: James **Buchanan**
[10h] Another Southern expansionist plan proposed annexing this hypothetical region centered around Havana. The so-called "knights" of this region called for expanding the number of slave states by absorbing Mexico and the Caribbean.
ANSWER: **Golden Circle** [or **Circulo Dorado**; accept **KGC**; do not accept or prompt on "Golden" or "Circle"]
<Adam Robbins, American History>

8. A January 2020 paper in *Nature Chemistry* characterized a staggeringly large 22-square-nanometer ring molecule exhibiting this property. For 10 points each:
[10e] Name this property exhibited by that complex of 12 porphyrin rings, which is more commonly exhibited by cyclic and planar conjugated ring systems like benzene.
ANSWER: **aromaticity** [or word forms]
[10m] The 12-porphyrin ring complex exhibits aromaticity with 162 pi electrons, thus following this principle which states that aromatic compounds have 4n-plus-2 conjugated pi electrons.
ANSWER: **Hückel**'s rule
[10h] The 12-porphyrin ring molecule is characterized as one of these aromatics because its aromatic p-orbitals are oriented [emphasize] *in* the plane of the ring, unlike annulenes, whose p-orbitals are perpendicular to the ring plane.
ANSWER: **trannulenes**
<Sam Botterbusch, Chemistry>

9. Although the play itself was not well received, Molière based two scenes in *Scapin the Schemer* on this man's *The Pedant Imitated*. For 10 points each:
[10h] Name this author, whose "comical history" of the Moon includes a very early depiction of rocket-powered space flight and a discussion about the uselessness of God.
ANSWER: Cyrano de **Bergerac** [or **Cyrano** de Bergerac]
[10m] Edmund Rostand's fictionalized version of Cyrano de Bergerac punningly refers to both his courage and his helmet-plume with this French word. This is Cyrano's last word after he is hit on the head with a falling beam.
ANSWER: **panache**
[10e] De Bergerac was an early author in the libertine tradition, which reached its apex with this author. This French author wrote about four men locking themselves in a castle to torture a group of teenagers in *120 Days in Sodom*.
ANSWER: Marquis **de Sade**
<Margaret Tebbe, European Literature>

10. These equations are derived by balancing the momentum change of a parcel of fluid due to convective motion with forces on the parcel. For 10 points each:
[10e] Give these equations named for a French engineer and an Anglo-Irish scientist, which are just the conservation equations of fluid dynamics.
ANSWER: **Navier–Stokes** equations
[10h] In the most general form of the Navier–Stokes equation, density times this operation applied to the fluid velocity equals the sum of force terms. This operation connects the Eulerian ("oy-LAIR-ee-in") and Lagrangian viewpoints.
ANSWER: **material derivative** [or **advective derivative**; prompt on Lagrangian derivative; do not accept or prompt on "derivative"]
[10m] The stress deviator term in the general statement of the Navier–Stokes equations can be replaced by this quantity times the Laplacian of velocity. The kinematic form of this quantity is obtained by dividing its dynamic form by density.
ANSWER: **viscosity** [accept **kinematic viscosity** or **dynamic viscosity**]
<Jonathen Settle, Physics>

11. One work depicting this country ends with an *Allegro guerriero* ("gair-YAIR-oh") finale requiring the violin soloist to play many triple- and quadruple-stops. For 10 points each:
[10m] Name this country depicted in a fantasy by Max Bruch. The scherzo of another composer's symphony nicknamed for this country uses a distinctive rhythm known as its "snap."
ANSWER: **Scotland** [accept **Scotch** snap; prompt on United Kingdom or UK or Great Britain; do not accept or prompt on "England"]
[10e] This German composer wrote the "Scottish" and "Italian" symphonies. His incidental music to *A Midsummer Night's Dream* includes a well-known wedding march.
ANSWER: Felix **Mendelssohn** [or Jakob Ludwig Felix **Mendelssohn**-Bartholdy]
[10h] Max Bruch also wrote a rare concerto for these two instruments. Mozart's "Kegelstatt" Trio is written for piano and these two instruments, which are played by Stanley Drucker and Yuri Bashmet.
ANSWER: **clarinet** AND **viola**
<Michael Yue, Music>

12. Lightning birds known as the impundulu in the myths of this country only venture to earth when someone dies and can only be seen by women. For 10 points each:
[10e] Name this African country where the Zulu people revere Unkulunkulu ("oon-KOO-loon-KOO-loo"), who created humanity from reeds.
ANSWER: **South Africa**
[10h] Lightning features in other African myths, including this double-axe wielding Yoruban orisha who killed people with lightning bolts he created after throwing thunderstones.
ANSWER: **Shango**
[10m] Mwindo's rival Kasiyembe calls upon Nkuba to kill Mwindo with lightning bolts before Mwindo kills Kasiyembe in this manner. Demeter attempts to make Demophon immortal in this manner before his mother notices and is frightened.
ANSWER: lighting him on **fire** [or catching on **fire**; or **burn**ing to death; or equivalents]
<NourEddine Hijazi, Belief>

13. Answer the following about twins in college basketball. For 10 points each:
[10m] This is the surname of brothers Brook and Robin, who played together for two seasons at Stanford before being drafted only five spots apart in the 2008 NBA Draft.
ANSWER: **Lopez** [or **Brook Lopez**; or **Robin Lopez**]
[10e] Marcus and Markieff Morris played together at this Big 12 school, whose other players have included Joel Embiid and Andrew Wiggins. This school's teams are nicknamed the Jayhawks.
ANSWER: **Kansas** University
[10h] One of these twins hit consecutive game-winning 3-point field goals against Louisville, Michigan, and Wisconsin to send Kentucky to the 2014 National Championship game.
ANSWER: Aaron and Andrew **Harrison**
<Sarah Potts, Miscellaneous>

14. In agrarian economies, rainfall has been used as one of these variables that must obey the validity and exclusion conditions. For 10 points each:
[10m] Identify these variables that can help mitigate the endogeneity in a regressor by correlating the endogenous variable *X* with one these variables, indicated *Z*, in the first stage of a two-stage least squares regression.
ANSWER: **instrumental** variables [or **IV**; accept weak **instruments**; do not accept or prompt on "instrumented variables"]
[10e] Instrumental variables are often used to estimate the effect of this economic variable on wages, which can be measured in years of schooling or if a person has a high school diploma.
ANSWER: **education** [prompt on human capital]
[10h] This quasi-experimental design was first used by Campbell and Thistlethwaite to evaluate the causal impact of merit awards. This design method requires a clearly-defined cutoff point above which a treatment is assigned.
ANSWER: **regression discontinuity** design [prompt on partial answers]
<Harris Bunker, Social Science>

15. Answer the following about the endurance performance art of Tehching Hsieh ("tuh-ching sh'yeh"), for 10 points each.
[10m] An early action piece by Hsieh involved him injuring himself in this manner. A staged photograph by Yves Klein ("eev clan") depicts him doing this action "into the void" with a bicyclist in the background.
ANSWER: **jump**ing out of a building [or synonyms like **leap**ing]
[10e] Hsieh hired a notary to verify his *One Year Performance* involving one of these objects. In June 2019, the immigrant rights group RAICES performed pieces in these metal objects to protest conditions at detention camps.
ANSWER: **cage**s
[10h] Hsieh's best known piece was a sleep deprivation endurance piece titled for these objects. A performance art piece by Maarten Baas involving one of these objects took place at Amsterdam's Schiphol ("SKIP-awl") Airport.
ANSWER: **clock**s
<Aseem Keyal, Other Arts>

16. Answer the following about discussions of *akrasia*, or weakness of the will, in philosophy, for 10 points each.
[10e] In contrast to "level-splitting" views, Sophie Horowitz's "Epistemic Akrasia" argues that it can be rational to have this state without evidence. Knowledge is traditionally defined as a justified, true state of this type.
ANSWER: **belief**
[10m] Socrates claims that no one knowingly does the wrong thing, meaning that *akrasia* doesn't exist, in the dialogue titled for this philosopher. This sophist argued that "man is the measure of all things."
ANSWER: **Protagoras**
[10h] This Neo-Confucian opponent of Zhu Xi ("joo shee") made a similar argument denying the existence of weakness of will, his doctrine of the "unity of knowing and acting."
ANSWER: **Wang** Yangming [or **Wang** Shouren; or Master **Yangming**]
<Jordan Brownstein, Philosophy>

17. A contemporary artist with this surname suspended a whale skeleton in his pieces *Mobile Matrix* and *Dark Wave*, and put a square pond with water lilies at the center of his four-player *Ping Pond Table*. For 10 points each:
[10m] Give this surname also shared by a Mexican muralist whose sprawling mural cycle *The Epic of American Civilization* is exhibited in Dartmouth's Baker Memorial Library.
ANSWER: **Orozco** [accept José Clemente **Orozco** or Gabriel **Orozco**]
[10e] Gabriel Orozco patterned one of these objects with a checkerboard for his piece *Black Kites*. Damian Hirst created a diamond-studded one of these human objects, and a distorted one appears in Holbein's *The Ambassadors*.
ANSWER: **skull**s
[10h] A series by Orozco uses a pattern of circles divided into monochromatic halves and quarters to evoke these title objects. A conceptual art piece by Michael Craig-Martin presents a glass of water on a shelf as one of these objects.
ANSWER: **tree**s [accept *An **Oak Tree***; accept ***Samurai Tree***]
<Aseem Keyal, Painting>

18. Practitioners of this religion are obliged to repeat the Greatest Name, Alláh-u-Abhá, ninety-five times a day. For 10 points each:
[10e] Name this religion whose prophet Bahá'u'lláh wrote short, medium, and long obligatory prayers.
ANSWER: **Bahá'í**
[10h] Bahá'í prayers should be performed facing the Shrine of Bahá'u'lláh in this city. Bahá'u'lláh spent his last years imprisoned by the Ottoman Empire in this city's Mansion of Bahjí.
ANSWER: **Acre** [or **Akko**; or **Akka**]
[10m] Bahá'u'lláh confirmed the Báb's prescription of obligatory prayer in this text, the holiest book of the Bahá'í faith.
ANSWER: **Kitab-i-Aqdas** [or The **Most Holy Book**, or the **Book of Laws**]
<Nitin Rao, Belief>

19. This ruler united the Iceni against Roman rule in the first century AD. For 10 points each:
[10e] Name this warrior queen who sought to expel the Romans from Britannia. Her army devastated the cities of Camulodunum, Londinium, and Verulamium and forced general Gauis Paulinus to retreat westward.
ANSWER: **Boudica** [or **Boadicea** ("bo-dih-SEE-uh"); or **Buddug**]
[10m] After catching up to Paulinus's army, Boudica was crushed by the Romans in this battle. This battle is named for a Roman road linking Londinium to Viroconium.
ANSWER: Battle of **Watling Street**
[10h] This tribe, which had lost its capital of Camulodunum to the Romans, joined in Boudica's Revolt. Geoffrey of Monmouth claimed their name derived from "New Troy" to connect them with Brutus.
ANSWER: **Trinovantes** [or **Trinobantes**]
<Adam Robbins, Other History>

20. In a scene from *Casablanca*, Laszlo asks the band to play La Marseillaise to drown out the Nazis singing this song. For 10 points each:
[10h] Name this song composed during an 1840 political crisis over the French border by Max Schneckenburger. This song asks Germans "who wants to be the guardian of the river?" in its first stanza.
ANSWER: "Die **Wacht am Rhein**" [or "The **Watch on the Rhine**"]
[10m] This prime minister sparked the Rhine Crisis by declaring the river was the "natural eastern border" of France. As the first president of the Third Republic, he ordered Patrice MacMahon to crush the Paris Commune.
ANSWER: Adolpe **Thiers** ("tee-AIR")
[10e] The Rhine Crisis accompanied France's humiliation during the Oriental Crisis, during which it supported Muhammad Ali's indepedent rule of this country against the Ottoman Empire.
ANSWER: Eyalet of **Egypt**
<Nitin Rao, European History>

21. Answer the following about American poets praised in Harold Bloom's final book *Take Arms Against a Sea of Troubles*. For 10 points each:
[10e] Bloom calls this author's poem *The Waste Land* an "inverted pastoral elegy" for his friend Jean Verdenal, who died during the Gallipoli campaign.
ANSWER: T. S. **Eliot** [accept Thomas Stearns **Eliot**]
[10h] In the introduction to *Take Arms*, Bloom claims that he's never been able to get this author's poem "Mnemosyne" out of his head. This member of the Harvard Pessimists, who died of a brain tumor at age 30, wrote about a cuckoo singing "not yet" to the spring in the poem "Song."
ANSWER: Trumbull **Stickney** [accept Joseph Trumbull **Stickney**]
[10m] The book calls Jay Wright the best living poet since the 2017 death of this New York School poet who wrote the collections *Some Trees* and *The Tennis Court Oath*.
ANSWER: John **Ashbery** [accept John Lawerence **Ashbery**]
<Taylor Harvey, American Literature>