

PACE NSC 2022 - Round 11 - Tossups

1. Some participants in this conflict rejected repatriation offers from the Indian Custodial Force for a "third way" in Brazil. More soldiers died from frostbite than bullet wounds during the deadly Second Phase Offensive in this war. 14,000 refugees were evacuated on the *Meredith Victory* following a battle in this war that was the subject of a 2021 film that grossed 900 million dollars. The term (\*) "brainwashing" was first applied to American POWs from this conflict. Joseph C. McConnell was the top ace in this war's "MiG Alley." The "Chosin Few" survived a battle in this war where UN forces conducted an amphibious invasion at Inchon. For 10 points, name this conflict from the Cold War in which communist troops briefly took control of Seoul.

ANSWER: Korean War [or 6/25 War; or Fatherland Liberation War] (The film was *The Battle at Lake Changjin*.)

<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~22658~

2. The author of this collection allegedly published it because it would have been an injustice to keep the "finest writing since Shakespeare" unpublished. A poem in this collection implores, "let thy mouth / be heir to those who are now exanimate. / Gather the north flowers to complete the south." The narrator of a poem in this collection feels its central emotion "freely, as men strive for Right" and "to the (\*) depth and breadth and height / My soul can reach." The line "I thought once how Theocritus had sung / of the sweet years" opens this collection, whose other opening lines include "Yes, call me by my pet-name!" and "How do I love thee? Let me count the ways." It consists of 44 poems addressed to the author's future husband Robert. For 10 points, name this set of 14-line poems by Elizabeth Barrett Browning.

ANSWER: Sonnets from the Portuguese

<Joseph Krol, Literature - British - Poetry> ~23973~

3. The statement "an artist has to be a little extra" ends Jason Farago's "Close Read" of this painting, an analysis that points out there is no chair on which the title figure is sitting. Elena Bajardi commissioned this painting, which depicts a figure with a pearl diadem in her curly hair. Two unfinished legs are visible in the bottom-right hand corner of this painting, behind a man unfurling a scroll who is likely Saint (\*) Jerome. This was the last significant painting by the artist of *Self-Portrait in a Convex Mirror*. An exceptionally large Christ child almost falls off the lap of the title figure in this painting. For 10 points, name this Mannerist masterpiece by Parmigianino titled for the unusual proportions of Jesus's mother.

ANSWER: Madonna of the Long Neck [or Madonna with the Long Neck; or Madonna dal collo lungo; accept Madonna and Long Child with Angels and St. Jerome]

<Michael Bentley, Fine Arts - Painting - European> ~22881~

4. A nondimensionalized version of this quantity is the input of a reduced Laguerre ("luh-GAIR") polynomial in the wavefunction for the hydrogen atom. One of these quantities equals the reduced Planck constant over the product of electron mass, the speed of light, and the fine structure constant. The potential varies with the square of this quantity for the 3D harmonic oscillator. One of these quantities for the hydrogen atom is written (\*) "a sub 0" and is named for Niels Bohr. The Schrödinger equation for the hydrogen atom uses the fact that the Coulomb potential varies with one over this quantity. For 10 points, the spherically-symmetric hydrogen atom can be conveniently described using what coordinate, a quantity measured in picometers?

ANSWER: radius [or distance or length; accept Bohr radius or radius of the hydrogen atom; accept word forms like radial; accept r or rho; accept a<sub>0</sub> (a sub 0) before mentioned; do not accept or prompt on "displacement"]

<Joseph Krol, Science - Physics> ~23032~

**5. Katherine Routledge was the first person to comprehensively catalogue a type of artifact found on this island. Artifacts from this island were the subject of a restoration effort led by William Mulloy in the 1950s. Andre Breton was fascinated by the pose of a wooden sculpture found on this island called *kavakava*. The *HMS Topaze* stole artifacts from a cult center on this island that were created using (\*) volcanic rock from a quarry at Rano Raraku. In 2019, Norway's Kon-Tiki Museum announced plans to repatriate artifacts taken from this island by Thor Heyerdahl. Platforms called *ahu* were used to display statues on this island that resemble human heads. For 10 points, *moai* were created by the Rapa Nui of what Pacific island?**

ANSWER: Easter Island [or Isla de Pascua; accept Rapa Nui before mentioned]

<Michael Bentley, History - World - Miscellaneous> ~23926~

**6. In 2021, Judge Yvonne Gonzalez Rogers agreed with a company in this industry that another company's anti-steering policies violated California competition law. A gender discrimination suit filed against a company in this industry alleges that executive Alex Afrasiabi had a "Cosby Suite" for engaging in sexual misconduct. In 2021, the Chinese government forced this industry to enforce a (\*) 3-hour-per-week limit on minors, and the WHO added a diagnosis for people addicted to its products. A company in this industry headed by Tim Sweeney sued Apple over app store fees. Chip shortages have affected availability of hardware in this industry such as the Series X ("ex"). For 10 points, name this industry of Activision Blizzard, the makers of *Starcraft*.**

ANSWER: video game industry [or gaming industry; or computer gaming industry; accept answers like game development or game industry or game publishing; prompt on technology industry or computer industry or entertainment industry or publishing industry] (The lawsuit in the leadin was *Epic Games v. Apple*.)

<Michael Bentley, Current Events - U.S.> ~22883~

**7. Near its end, the *Theogony* claims that this woman became an ancestor of the Etruscans through her children Latinus and Agrius. This woman sacrifices a pig to purify the Argonauts of the murder of Apsyrtus. In the *Metamorphoses*, Glaucus spurns the love of this woman, who punishes Scylla to get revenge. A hero threatens this woman with a (\*) sword, forcing her to swear an oath by the names of the gods, after overcoming her with the help of the herb moly. This daughter of Helios resides on the island of Aiaia, where she tells a visiting hero how to visit the Underworld. For 10 points, name this sorceress who transforms many of Odysseus's men into pigs.**

ANSWER: Circe [or Kirke]

<Matthew Bollinger, RMP - Greco-Roman Mythology> ~23989~

**8. A flashback in this story references the "potato-faced" Tristan Tzara, as well as "Julian," a thinly-disguised portrait of F. Scott Fitzgerald. This story's protagonist beats the owner of the *Madlener-haus* at gambling before a train of Austrian officers is bombed. This story is titled for an object described as "wide as all the world." A "dried and frozen carcass of a leopard" foreshadows the protagonist's fate at the beginning of this story, which ends with a (\*) hyena whining. After failing to apply iodine to his leg injury, this story's protagonist is taken care of by his wife Helen as he dies from gangrene. Harry dreams of a rescue plane bringing him to the summit of an African mountain in, for 10 points, what short story by Ernest Hemingway?**

ANSWER: "The Snows of Kilimanjaro"

<Michael Bentley, Literature - American> ~23111~

9. All reactions meet at invariant points according to one of Schreinemaker's rules for producing these constructs in a topologically consistent manner. The bottom-left-most region on these constructs are conventionally labeled alpha. A tie line on these constructs is used to apply the lever rule to calculate mass fractions, such as the percentage of austenite. The slope of lines on these constructs is given as  $P/L$  over  $T$ -squared  $R$  in the (\*) Clausius-Clapeyron equation describing coexistence curves. One of these constructs for water has a line with an unusual negative slope, which explains why ice floats. The triple point is found on, for 10 points, what constructs that show the temperatures and pressures where substances are solids, liquids, and gasses?

ANSWER: phase diagrams

<Benjamin Chapman, Science - Chemistry> ~23646~

10. The *Frye* test required that a class of people in this role had views that "have gained general acceptance"; that test has been superseded by the *Daubert* standard that mandates peer review. Collateral contradictions do not meet the standard for impeaching people in this role. An "adverse privilege" in the *Trammel* standard prohibits spouses from being compelled to serve in this role. The "fallibility" of people in this role in retaining information is explored in a book by psychologist (\*) Elizabeth Loftus. People in this role are usually not allowed to discuss things that they have overheard, since that is considered hearsay. For 10 points, name these people who might be cross-examined or offer expert testimony at trials.

ANSWER: witnesses [accept expert witnesses or eyewitnesses; accept answers like giving testimony at a trial before the end; prompt on scientists or researchers by asking "what other role are they serving?"; prompt on experts before mentioned]

<Michael Bentley, Social Science - Other> ~23487~

11. The most important of this ruler's "ministeriales" was Kuno I. An alliance against this man was established by the Oath of Pontida. A legend involving a fig and a donkey stem from the supposed humiliation of this man's wife, Imperatrix Beatrice of Burgundy. This ruler conquered the newly-founded city of Lubeck during a campaign that deposed Henry the Lion. The first of the (\*) Ghibellines were supporters of this man. This ruler's incursions into Italy prompted Pope Alexander III to found the Lombard League. This man's 1190 death prevented him from participating in the Siege of Acre. For 10 points, name this Holy Roman Emperor who drowned on his way to the Third Crusade and whose epithet refers to his red beard.

ANSWER: Frederick I [or Frederick Barbarossa; or Friedrich I; or Federico I; prompt on Frederick or Barbarossa]

<Michael Bentley, History - European - Middle Ages> ~23486~

12. Gifty develops an attachment to one of these animals that is addicted to Ensure in Yaa Gyasi's novel *Transcendent Kingdom*. In a short story titled for one of these animals, the protagonist doesn't realize that his coworkers at Donnegan's Plastic Box Company are making fun of him. At a press conference about one of these animals, both Millat and Magid Iqbal are mistaken for assassins. Marcus Chalfen works on a "Future" version of one of these animals in (\*) Zadie Smith's novel *White Teeth*. In a novel titled for one of these creatures, Professor Nemur selects Charlie Gordon to undergo an operation that raises his IQ to 185. For 10 points, the title character in Daniel Keyes' *Flowers for Algernon* is what type of common lab animal?

ANSWER: a mouse [or mice; accept Future Mouse; do not accept or prompt on "rat"]

<Michael Bentley, Literature - World and Miscellaneous> ~22932~

**13. An all-black inflatable boat with 258 faceless figures was commissioned by an artist born in this country after visiting refugee camps. 1,001 people from this country were recruited to walk around Kassel for *Fairytale* at Documenta 12 by an artist who also painted a Coca-Cola logo on an ancient object. That same artist photographed himself (\*) giving the finger to a public portrait of a leader of this country and made the documentary *Little Girl's Cheeks* about the "bean curd" buildings that collapsed in a 2008 earthquake. Artisans from this country were hired to paint 100 million porcelain sunflower seeds for a show at the Tate Modern. For 10 points, name this country where the Bird's Nest Stadium was designed for the 2008 Olympics by Ai Weiwei.**

ANSWER: China [or People's Republic of China or PRC]

<Elaijah Lapay, Fine Arts - Miscellaneous> ~21092~

**14. *Description acceptable.* The cosine of a fractional rotation has this property if and only if all factors of the denominator are Fermat primes or two. Points with this property form a field which is closed under basic arithmetic operations and square root. Pierre Wantzel proved several problems have solutions which do *not* have this property, like finding the roots of (\*) cubics. In a tour-de-force, a 19-year-old Gauss showed that the regular 17-gon has this property. This property is not held by transcendental numbers, which means that it is not possible to square the circle. For 10 points, describe this property of geometric objects which can be created in the style of Euclid by using only basic tools for tracing arcs and lines.**

ANSWER: constructible [or constructing; or constructed; accept constructible polygons, points, numbers, or angles; accept answers indicating that they can be drawn with compass and straightedge; prompt on answers indicating they can be drawn on paper with "how would you do so?"]

<Kevin Wang, Science - Math> ~24169~

**15. In a recent translation by Edward L. Greenstein, this character asks, "For what did knees have to receive me? For what were the breasts that I sucked?" before being told to "bind up your loins like a man." In Eugene Peterson's best-selling *The Message*, this Biblical character declares, "I'll never do that again, I promise!" after hearing a long monologue originating from a storm. This man is visited by the young man Elihu and three (\*) "comforters" who argue that he has sinned. This man is asked whether he can control the ancient monsters Behemoth and Leviathan. This man's misfortunes are set in motion by Satan, who believes that he will end up cursing God. For 10 points, name this man in the Old Testament whose piety is put to the test by God.**

ANSWER: Job [or Iyov]

<Michael Bentley, RMP - Hebrew Bible> ~22652~

**16. A Toyota Tundra was used to haul one of this program's relics to Exposition Park, where it is now housed in a pavilion named after Samuel Oschin. This program inspired Diane Vaughan to coin the term "normalization of deviance." John Chakeres spent six years capturing this program with a heat-resistant Hasselblad camera for a photobook. A speech authored by Peggy Noonan stated that participants in this program had (\*) "slipped the surly bonds of Earth" following an incident investigated by the Rogers Commission. The temporary suspension of this program in 2003 led another project to become completely dependent on the Russian company Roscosmos. For 10 points, the *Challenger* was part of what NASA project to develop reusable space vehicles?**

ANSWER: Space Shuttle [or Space Transportation System; or STS; prompt on US space flight or NASA; anti-prompt on Challenger Disaster or Columbia Disaster by asking "What larger NASA program was it a part of?"; anti-prompt on Endeavor by asking "What larger NASA program was it a part of?"]

<Michael Bentley, History - American - 1945+> ~22645~

17. Simon Stephens's "socially distanced" live adaptation of this novel ends at its scene in which three women bathe in the rain. After one character in this novel finds flames being emitted by decomposing bodies in a basement, that character goes to a church whose paintings are covered with cloth along with her affectionate dog. In this novel's opening, a "false Samaritan" helps a man who has stopped at a (\*) traffic light in order to steal his car. An accountant in this novel dies when his ward is set ablaze. In this novel, the "girl with dark glasses" is placed in quarantine with the "doctor's wife," the only character not to be affected by the "white evil." For 10 points, the title condition afflicts many Portuguese people in what José Saramago novel?

ANSWER: Blindness [or Ensaio sobre a cegueira or Essay on Blindness]

<Michael Bentley, Literature - European - Long Fiction> ~23114~

18. This composer wrote a motet for Venanzio Rauzzini which ends with a frequently excerpted F major *Alleluia*. In an aria by this composer, a triad unexpectedly ends on a B instead of an A as the soprano sings, "Hört, hört, hört." This composer of "Exsultate, Jubilate" wrote a choral work for his close friend Anton Stoll, "Ave Verum Corpus," on a visit to his vacationing wife (\*) Constanze. This composer requires a coloratura soprano to hit a difficult passage of multiple high F6 notes in his aria "Die Hölle Rache." That aria is sung in an opera by this composer to browbeat Pamina into assassinating Sarastro. For 10 points, name this composer who created the Queen of the Night in his opera *The Magic Flute*.

ANSWER: Wolfgang Amadeus Mozart

<Jonathan Magin, Fine Arts - Music - Classical> ~23760~

19. These events are the most common and concerning complication of cyst·i·cer·c·osis, caused by consumption of eggs of the tapeworm *Taenia solium*. A 3 hertz spike-and-wave is associated with one type of these events. These events, which are followed by a post·ictal state, are made less frequent using carba·ma·ze·pine. The "tonic-clonic" and "absence" kinds of these events were formerly known as (\*) *grand mal* and *petit mal*. A phantom smell may precede one of these events in the temporal lobe. These events reduce in intensity when the corpus callosum is severed because they are localized to only one hemisphere. Unusual electrical activity in the brain causes convulsions during, for 10 points, what events frequently experienced in epilepsy?

ANSWER: epileptic seizures [accept epileptic fit; prompt on spasms or convulsions with "which are a part of what kind of event?"]

<Benjamin Chapman, Science - Biology> ~23846~

20. This philosopher remarked that it is not "contrary to reason" to prefer the "destruction of the whole world" to the scratching of one's finger. According to this philosopher, virtues are either "natural" or "artificial," depending on their relationship to social rules. Because this philosopher questioned whether normative statements can ever be derived from purely descriptive ones, he is the namesake of a (\*) "guillotine" also known as the is-ought problem. This philosopher's moral sentimentalism is captured by his claim that "reason is, and ought only to be, the slave of the passions" in *A Treatise of Human Nature*. *An Enquiry Concerning Human Understanding* is by, for 10 points, what Scottish philosopher?

ANSWER: David Hume

<Anson Berns, RMP - Philosophy> ~23128~

**21. *Specific answer required.* This scenario was realized by Mark G. Raizen's ("RAY-zen's") group by shining lasers at helium atoms. This scenario, which has the same ultimate effect as the Ranque-Hilsch ("rank hilsh") vortex tube, can be explained by noting that a certain quantity must change by " $k \times \log 2$ ", according to Landauer's (LAND-ow-ur's) principle. Leo Szilard ("LAY-oh SIL-ard") explained that this scenario, which is similar to the (\*) Brownian ratchet, would require energy to store information in order to separate fast and slow gas particles. In this thought experiment, a door is opened and closed to apparently reduce a system's entropy. For 10 points, name this thought experiment about a creature that seemingly violates the second law of thermodynamics, named for a Scottish physicist.**

ANSWER: **Maxwell's demon** [accept **Brownian ratchet** before mention; prompt on violating the second law of thermodynamics or similar answers, asking "what specific named scenario is being described?"]

<Michael Bentley, Science - Physics> ~21838~

## PACE NSC 2022 - Round 11 - Bonuses

1. In *Medieval Empires and the Culture of Competition*, Samuel England argues that literary representations of this man depicted a "defused threat." For 10 points each:

[10] Name this man. The title character of *Nathan the Wise* tells a story about three rings to this historical leader after he asks which of three religions is true.

ANSWER: **Saladin** [or Sultan **Saladin**]

[10] That ring story from *Nathan the Wise* is usually called one of these works. These didactic stories have human protagonists, like one told by Jesus about the Good Samaritan.

ANSWER: **parables**

[10] A version of the Parable of the Ring is also told by Filomena in this book, whose characters include "patient Griselda."

ANSWER: *The **Decameron*** [or ***Decameron***; or *Il **Decamerone***]

<Michael Bentley, Literature - European - Drama> ~17959~

2. These items had an ax or *securis* in the middle that represented what could happen to people who did not obey the law. For 10 points each:

[10] Name these bundles of sticks that symbolized the imperium of Roman magistrates.

ANSWER: **fascēs**

[10] The holders of this office were alone in having their axes stay attached to the fascēs while within the city of Rome. The holders of this office usually appointed a *magister equitum* and were accompanied by 24 lictors, twice the number of a consul.

ANSWER: **dictator**

[10] In contrast, a tribune did not possess imperium. Tribunes were the main check on this aristocratic Roman legislative body, the sole body capable of appointing a dictator.

ANSWER: Roman **senate** [or **Senatus** Romanus]

<Michael Bentley, History - European - Classical> ~19125~

3. Petzval field curvature gives rise to one of the five types of this optical phenomena named for Philipp Ludwig von Seidel ("SIGH-dull"). For 10 points each:

[10] Name these optical phenomena that lead to the formation of an imperfect image, and include "chromatic" and "spherical" types.

ANSWER: optical **aberrations** [accept chromatic **aberrations** or spherical **aberrations**]

[10] Schmidt corrector plates reduce spherical aberration in these devices. Due to spherical aberration, a 1993 mission had to replace the flawed mirror in one of these devices named for Hubble.

ANSWER: space **telescopes** [accept Hubble Space **Telescope**]

[10] The ACF telescope design aims to reduce this other optical aberration, in which things far from the optical axis appear distorted and "smeared out" along a line.

ANSWER: **coma** [or **comatic** aberration]

<Joseph Krol, Science - Physics> ~18148~

4. In the 18th century, a simplified version of this play popularized by David Garrick rendered it as an allegory for British resistance to foreign invaders. For 10 points each:

[10] Name this late Shakespeare play titled for the father of Imogen. It received a new final act in a "Refinished" version by George Bernard Shaw.

ANSWER: Cymbeline [or *The Tragedie of Cymbeline*; or Cymbeline, *King of Britain*]

[10] The conflict between Shaw and Shakespeare is fictionalized in *The Frogs*, a musical with music and lyrics by this composer of *Into the Woods* and *Sweeney Todd*.

ANSWER: Stephen Sondheim [or Stephen Joshua Sondheim]

[10] This organization commissioned a performance of *Cymbeline Refinished* in 1951, the same year in which its long-running *The Archers* began. This organization is funded by a license fee.

ANSWER: BBC [or British Broadcasting Corporation]

<Michael Bentley, Other - Other Academic and General Knowledge> ~17894~

5. This process almost always involves reciting the Triple Refuge and the Five Precepts. For 10 points each:

[10] Name this process that B. R. Ambedkar led thousands of dalits in performing in order to escape the caste system of Hinduism.

ANSWER: converting to Buddhism [accept anything involving adopting Buddhism as your religion or becoming a disciple of the Buddha; prompt on converting or conversion by asking "to what religion?"]

[10] When converting to Buddhism, it is best to recite the Triple Refuge in the presence of a member of this community. This Sanskrit word refers to the entire community of monks and nuns in Buddhism.

ANSWER: sangha

[10] Lay Buddhists who have committed to the Triple Refuge will often support the *sangha* through this action, thus gaining merit and good karma. Buddhist monks will often line up on streets holding bowls so they can be on the (emphasize) *receiving end* of this action.

ANSWER: donation [or giving to charity; or almsgiving; accept answers like donating food]

<Michael Bentley, RMP - Buddhism> ~18876~

6. This man took the photograph *Boyd Fortin, Thirteen Year Old Rattlesnake Skinner* as part of his *In the American West* series. For 10 points each:

[10] Name this fashion photographer who may be best-known for his photo *Dovima with the Elephants*.

ANSWER: Richard Avedon

[10] The monogram of this fashion house was prominently displayed on the camera cases used by Avedon. From 1997 to 2014, Marc Jacobs was creative director at this French fashion house known for its handbags.

ANSWER: Louis Vuitton [or Louis Vuitton Malletier; prompt on LVMH or LV]

[10] An Avedon photo used for one of these works depicts Jeff Lynne and six other men displaying their belly buttons. Andy Warhol created an image of a banana for a work of this type for The Velvet Underground & Nico.

ANSWER: album cover [or record cover; or CD cover; or cover art; prompt on cover]

<Michael Bentley, Fine Arts - Photography> ~18959~



7. Nicholas Upsall had to bribe a jailor to visit two members of this denomination, Mary Fisher and Ann Austin. For 10 points each:

[10] Name this denomination of the Boston Martyrs, who were viciously persecuted by the Puritans. William Penn was of this Christian denomination.

ANSWER: Quakers [or Religious Society of Friends]

[10] Prior to preaching in Boston, Fisher and Austin had traveled to this island colony, to which they were exiled after serving five weeks in a Boston jail. The "Goose Creek Men" emigrated from this colony to seek opportunities in the Carolinas.

ANSWER: Barbados

[10] This man's ban on Quaker worship was denounced in the Flushing Remonstrance. He served as the last governor-general of New Netherland.

ANSWER: Peter Stuyvesant

<Hari Parameswaran, History - American - Pre-1865> ~18261~

8. A rat named Magawa discovered over 70 unexploded landmines in this country. For 10 points each:

[10] Name this country where former child soldier Aki Ra has led de-mining campaigns. A *Hollywood Reporter* article detailed how Angelina Jolie "Battled Snakes and Land Mines" to depict this country in *First They Killed My Father*.

ANSWER: Cambodia [or Kampuchea; or Kingdom of Cambodia]

[10] *World Atlas* estimates that there are 10 million unexploded ordinances in this African country, a legacy of its civil war. This is the most populous Lusophone country in Africa.

ANSWER: Angola [or Republic of Angola]

[10] The NGO Roots of Peace specializes in clearing mines and replacing them with vines to make this alcoholic drink, whose Cabernet Sauvignon variety is grown in Bordeaux.

ANSWER: wine [accept red wine]

<Michael Bentley, Geography - World> ~18571~

9. When a bridge was damaged, a character in this story offered his attendants to act as human pillars "to propitiate the gods." For 10 points each:

[10] Name this story in which a painter's daughter and monkey burn in a carriage while the painter creates the title nightmarish work.

ANSWER: "Hell Screen" [or "Jigokuhen"]

[10] Like much of Ryūnosuke ("yoo-nose-kay") Akutagawa's early work, "Hell Screen" is set during this period, during which Sei Shōnagon ("say SHONE-ah-gon") wrote *The Pillow Book*.

ANSWER: Heian ("hey-AN") period

[10] Sei Shōnagon was the main rival of Lady Murasaki Shikibu, the author of this Heian-period novel about the title Japanese prince.

ANSWER: *The Tale of* Genji [or Genji Monogatari]

<Joseph Krol, Literature - World and Miscellaneous> ~18778~

10. Early calculations using the Hartree-Fock method employed Slater's expression for the exchange energy, which includes the integral over radius of this quantity to the four-thirds power. For 10 points each:

[10] Name this quantity that, by the first Hohenberg-Kohn theorem, uniquely determines the external potential of many-electron systems.

ANSWER: **electron density** [prompt on density or rho]

[10] Density functional theory is used to determine the electronic structure of molecules in this state. In quantum mechanics, this state is the lowest energy state of a system.

ANSWER: **ground state**

[10] Kohn-Sham density functional theory approximates many-electron systems with many independent electrons, each described by one of these functions. These functions are the wave functions describing the spatial distribution of electrons in molecules.

ANSWER: molecular **orbitals** [do not accept or prompt on "atomic orbitals"]

<Jonathen Settle, Science - Chemistry> ~19208~

11. Elizabeth Hickox was able to make some of these objects with up to 800 stitches per square inch. For 10 points each:

[10] Name these objects that Washoe women often coated with piñon pine pitch to make them watertight. These objects are often woven from various types of plant material.

ANSWER: **baskets**

[10] This state is home to the Marion Steinbach Indian Basket Museum. A Navajo weaving blanket is on display at the de Young Museum in this state.

ANSWER: **California**

[10] Eyehole stitches are characteristic of the baskets made in the Pacific Northwest. These other works of Northwest Coast art are typically made from tall cedar trees, might depict crest animals such as eagles, and are often placed in front of houses.

ANSWER: **totem poles**

<Michael Bentley, Fine Arts - World Art> ~18832~

12. Arnold Schwarzenegger introduced a rebroadcast of this series that aired in 1990. For 10 points each:

[10] Identify this PBS series that responded to John Galbraith's earlier *The Age of Uncertainty* program. It advocated for free market principles in episodes such as "The Power of the Market."

ANSWER: **Free to Choose**

[10] In *Free to Choose*, Milton and Rose Friedman argue that a decline in this macroeconomic variable was a significant cause of the Great Depression. This variable is commonly divided into M1, M2 and M3.

ANSWER: **money supply** [or **money stock**; prompt on money]

[10] The sixth episode of *Free to Choose* examines "What's Wrong with" these institutions. Diane Ravitch's *Slaying Goliath* chronicles the campaign against vouchers for privatized examples of these institutions.

ANSWER: public **schools** [accept charter **schools**]

<Michael Bentley, Social Science - Economics> ~17898~

13. "Los Pollitos Dicen" is a famous Spanish-language song in this genre. For 10 points each:

[10] Name this musical genre. French and German composers wrote versions of these songs called "berceuse" and "wiegenlied."

ANSWER: **lullaby** [or **cradle** song]

[10] This German composer's *Wiegenlied* became "Rockabye Baby," the most famous modern lullaby. He also wrote the *German Requiem* and the *Academic Festival Overture*.

ANSWER: Johannes **Brahms**

[10] Felix Mendelssohn included a "Wiegenlied" in the sixth book of this collection. Its eight books include three "Venetian Boat Songs" and a frequently-performed "Spring Song."

ANSWER: **Songs Without Words** [or **Lieder ohne Worte**]

<Jonathan Magin, Fine Arts - Music - Romantic> ~18974~

14. Starting in 1493, King Joao II of Portugal ordered these islands to be settled with Jewish children taken from their parents. For 10 points each:

[10] Identify these islands off the coast of West Africa that include Santiago, a hub for the slave trade. A country of this name has a capital at Praia.

ANSWER: **Cape Verde** Islands [or **Cabo Verde**; or Republic of **Cabo Verde**]

[10] A prime industry of Cape Verde was the harvesting of lichen orchil to make one of these products. Another archipelago, the Azores, was a major producer of woad, one of these products.

ANSWER: **dyes** [accept purple **dyes**; accept **pigments**; prompt on **colors**]

[10] A line 100 leagues to the west of the Cape Verde Islands was used to divide the New World between Spain and Portugal according to the terms of this 1494 treaty.

ANSWER: Treaty of **Tordesillas** ("tor-day-SEE-yahs") [or Tratado de **Tordesilhas** or Tratado de **Tordesillas**]

<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~18183~

15. This author expressed his skepticism of Christianity in his book *Evidence for the Resurrection of Jesus Christ* and his novel *Fair Haven*. For 10 points each:

[10] Name this author who wrote, "All animals, except man, know that the principal business of life is to enjoy it" in his novel about four generations of the Pontifex family.

ANSWER: Samuel **Butler**

[10] The moral development of several members of the Pontifex family in Butler's *The Way of All Flesh* makes the book an example of this coming-of-age genre, whose name derives from a German word meaning "education."

ANSWER: **Bildungsroman**

[10] Butler's *Fair Haven* is sometimes included in a genre of fiction named for this Thomas More book ostensibly about an ideal society.

ANSWER: **Utopia** [or *Libellus vere aureus, nec minus salutaris quam festivus, de optimo rei publicae statu deque nova insula Utopia*; accept **Utopian** fiction]

<Michael Bentley, Literature - British - Long Fiction> ~18919~

16. The queens of these animals release queen mandibular pheromones to attract mates. For 10 points each:

[10] Name these animals that perform waggle dances to signal the direction of food sources.

ANSWER: **honey bees** [prompt on **bees**]

[10] In the honey bee waggle dance, the head stays mostly still, while the thorax and this third section shakes more violently.

ANSWER: **abdomen**

[10] This ethologist earned the 1973 Nobel Prize in Medicine along with Nikolaas Tinbergen and Konrad Lorenz for his work in determining the meaning of the waggle dance.

ANSWER: Karl von **Frisch**

<Victor Prieto, Science - Biology> ~19061~

17. American newspapers spread the story that this man's wife Carlotta was driven mad by smoking too much cannabis. For 10 points each:

[10] Identify this member of the Hapsburg family who was captured despite a heroic effort by his general Felix Salm-Salm. This man was executed alongside Tomás Mejía Camacho and Miguel Miramón in 1867.

ANSWER: **Maximilian** I [or Ferdinand **Maximilian** Josef Maria von Habsburg-Lothringen; or Fernando **Maximiliano** José María de Habsburgo-Lorena]

[10] The French troops that installed Maximilian had earlier faced a setback at the Battle of Puebla, a battle celebrated in Mexico and the US on this date each year.

ANSWER: **Cinco de Mayo** [accept **Fifth of May** or **May 5**]

[10] Prior to French intervention, Mexico had been engulfed in this bloody civil war partially caused by Catholic opposition to the Constitution of 1857.

ANSWER: **Reform** War [or La **Reforma**; or Guerra de **Reforma**; or War of the **Reform**; or **Three Years'** War]

<Michael Bentley, History - World - Latin American> ~18788~

18. These places were often sacred in Celtic societies, especially on holidays such as Beltane. For 10 points each:

[10] Name these often-sacred locations. In Norse mythology, the Norns live around one of these objects under the roots of Yggdrasil (**Vig-DROSS-eel**).

ANSWER: **wells** [prompt on **springs**]

[10] Finn MacCool fatefully burns himself while cooking one of these animals that fed on hazelnuts in the Well of Wisdom. In Greek mythology, Triton has the lower body of an animal from this general class.

ANSWER: **fish** [accept **salmon**]

[10] The placement of elaborate flower arrangements around wells was a common way to celebrate this Celtic goddess. Many of this goddess's attributes were transferred to a saint of the same name from Kildare.

ANSWER: **Brigid** [or **Brigit**; or **Brig**; accept **Brigid** of Kildare]

<Michael Bentley, RMP - World Mythology> ~18762~

19. This rock's namesake "-osity" describes its ability to be split into plates. For 10 points each:

[10] Name this rock which can be formed from mudstones with coarser grains than slate. The directional pressure that produces this rock is common in orogenic belts.

ANSWER: **schist** [accept **schistosity**]

[10] Schist is produced by the regional form of this process, which transforms sedimentary and igneous rocks.

ANSWER: **metamorphism** [or **metamorphosis**; accept **metamorphic** rocks or regional **metamorphism**]

[10] Different grades of schist are named for this property, which is imparted by minerals like chlorite and glaucophane. Metamorphism of oceanic basalt in cratons of Proterozoic age forms belts named for having this property.

ANSWER: **color** [accept **blueschist**, **greenschist**, **whiteschist**, or **greenstone** belts]

<Kevin Wang, Science - Earth> ~18806~

20. A dialect poem by this author proclaims Brer Rabbit to be the cutest of all creatures. For 10 points each:  
[10] Identify this author who imagined God thinking, "I'm lonely--I'll make me a world" in his poem "The Creation," part of his collection *God's Trombones*.

ANSWER: James Weldon **Johnson**

[10] The speaker of Johnson's "O Black and Unknown Bards" asks "At the creation, ever heard a theme / Nobler than [this spiritual]?" This spiritual shares its title with a William Faulkner collection featuring "The Bear."

ANSWER: "**Go Down, Moses**"

[10] A Johnson poem often called the Black National Anthem opens, "Lift every voice and [perform this action] / Till earth and heaven ring".

ANSWER: **sing** [accept "Lift Every Voice and **Sing**"; accept word forms like **singing**]

<Michael Bentley, Literature - American> ~13901~

21. An archaeological site named Gonur [this word] was home to the Bactria-Margiana culture. For 10 points each:

[10] Give this Turkish word, which refers to an earthen mound and is similar to the Arabic word *tel*. A Turkish site named for this sort of feature contains megaliths that predate Stonehenge by over 6,000 years.

ANSWER: **tepe** [accept Göbekli **Tepe**]

[10] This *tel* in Israel is where, according to the Bible, the battle at Armageddon will occur. Thutmose III clashed with a Canaanite army at a battle named for this site.

ANSWER: Tel **Megiddo**

[10] Burial mounds known as *kurgan* name a hypothesis that this language family's precursor spread from a steppe culture. This language family includes English and Sanskrit.

ANSWER: **Indo-European** languages [or **IE**; accept Proto-**Indo-European** or **PIE**]

<Hari Parameswaran, History - World - Middle Eastern> ~19069~