

## 2022 National All-Star Academic Tournament

### Round 17 – Tossups

1. It's not cobalt, but this is the heaviest element present in a red solution that underwent a single precipitation in a former means of quantitatively analyzing potassium. A chloride of this element catalyzes C-H activation in the Shilov system. Long chains of atoms of this metal are present in a dark green compound called Magnus' green salt. Hydrogenations can be sped up using this element's dioxide, which is known as Adams' catalyst. The standard hydrogen electrode contains this metal's "black" form. In a common cancer drug, this metal is bonded to two ammonium ligands and two "cis"-oriented chlorine ligands. Like the element above it on the periodic table, palladium, this least reactive metal is often used in catalytic converters. Gold has atomic number one greater than, for 10 points, what expensive transition metal?

ANSWER: **platinum** [or **Pt**]

<Joseph Krol, Science - Chemistry>

2. The largest stadium ever built was used to host gymnastic competitions called Spartakiada (**SPAR-tuk-ee-AH-duh**) in what was then this country. The Manicka (**man-ITCH-kee**) counterculture grew long hair out of protest in this country, where the Lennon Wall was first decorated in 1980 after John Lennon's death. The fictitious murder of Martin Smid in this country sparked a non-violent revolution in which protestors jangled keys. Frank Zappa's song "Plastic People" inspired the name of a popular underground band in this country. Palach's (**PAH-lock's**) Week marked the anniversary of a student's self-immolation in this country. Those born during this country's 1970s baby boom are called Husak's (**hoo-SAHK's**) children, named for the First Secretary who presided over its "Normalization" period following a 1968 invasion. For 10 points, the Velvet Divorce split what country into two independent republics?

ANSWER: **Czechoslovakia** [or **Československo**; or **Česko-Slovensko**; do not accept "Czech Republic" or "Czechia"; do not accept "Slovakia"]

<Sean Farrell, History - Post-Classical European>

3. In 1973, botulism in a batch of this food led to a public burial in the "Great Michigan Funeral" of it. Former Texas Longhorns player Ike Sewell is often attributed with creating a type of this food unusually prepared with an iron skillet. A large amount of malt is included in a type of this food from the Quad Cities region. The bread crumb-heavy sfincione ("**sfin-CHOH-nay**") type of this food inspired a version of it native to Detroit originally made in auto part containers. According to legend, garlic was eliminated from one type of this food in order to resemble the national flag before it was delivered to a queen, who now names it. This food was introduced to New York by Gennaro Lombardi, an immigrant from Naples. The Margherita is a type of, for 10 points, what food whose "deep dish" in Chicago may have pepperoni as a topping?  
 ANSWER: **pizzas** [accept Chicago-style **pizzas**; or New York style **pizzas**; or Quad City **pizzas**; or Detroit style **pizzas**; or **pizza** margherita or Great Michigan **Pizza** Funeral; prompt on margherita before "margherita"]  
 <Joseph Krol, Geography>

4. Among the number of these events held by the Mouride Brotherhood is the Grand Magal of Touba. Concerning these events, Sufis cite a hadith that says the prophets are alive and praying to justify seeking *barakah* from the *athar* of *walis*. During the events, participants recite a prayer that begins "Peace be on the favorite of Allah," called the *Ziyarat Arba'een*. The twelfth and final month of the Islamic calendar is named for one of these events, whose requirement for participants to be in a state of *ihram* is fulfilled by wearing a seamless white garment. A type of this event called the *Umrah* is contrasted with a mandatory one that ends with Eid al-Adha, during which the "Stoning of the Devil" and a final *tawaf* about the Kaaba take place. For 10 points, the Hajj exemplifies what sort of religious journeys?  
 ANSWER: **pilgrimages** [or obvious equivalents such a being a **pilgrim** or **visiting holy** sites; accept **ziyarat** or **ziyarah** before mention; prompt on Arba'een, Umrah, or Hajj by asking "what general type of event does that exemplify?"]  
 <Clark Smith, Religion – Islam / Associated Traditions>

5. "Dithyrambic analysis" was pioneered by an author from this region who wrote a "Dark Age romance" about Porius in part to allegorize World War II. The Queen of the Wood appears to fallen soldiers from this region in a poem whose seventh and final section is set in Mametz. Lines are arranged by rhyme and alliteration in a poetic form from this region translated as "harmony," such as in a poem whose narrator "rode to sleep" as "owls were bearing the farm away" and who was "young and easy"; that poem ends, "I sang in my chains like the sea." A villanelle from this region asserts that "old age should burn and rave at close of day" and repeatedly tells the poet's father to "rage against the dying of the light." For 10 points, name this constituent country home to Dylan Thomas, whose myths were compiled in the Mabinogion.

ANSWER: **Wales** [prompt on the United Kingdom or U.K.; prompt on Great Britain; prompt on the British Isles]

<Sean Farrell, Literature - British>

6. In order to learn a new song, a shaman covers his body in red ochre before visiting this creature, which is often drawn with water lilies along its back. In a picture book by Dick Roughsey and Percy Trezise, this creature tells two brothers they can share its shelter and swallows them whole. When bitten by an ant, this creature vomits a pair of sisters it discovers by following the scent of menstrual blood. This creature is called Kanmare by the Pitapita, Wagyl by the Noongar, and Wollunqua by the Warumungu, but received its common name in a 1926 paper by Alfred Radcliffe-Brown. This creature tickles the bellies of frogs to create rivers. It created hills and valleys through its sinuous movement, but now lives inside billabongs. For 10 points, name this creature who formed the landscape during the Dreaming in Australian Aboriginal legend.

ANSWER: **Rainbow Serpent** [or **Rainbow Snake**; accept **Kanmare**, **Wagyl**, or **Wollunqua** before mention]

<Clark Smith, Mythology>

7. Before his work on a contemporaneous *female* author, Jay Leyda painstakingly assembled a day-by-day "log" of this author's life. Hershel Parker wrote a biography of this author, as did Lewis Mumford, who argued that this author elegized a contemporary in a "Monody" about having "loved him after loneness long." For much of his later life, this author worked on an epic poem about a pilgrimage to the Holy Land while working as a customs inspector. This author included the chapter "Loomings" in a novel dedicated to Nathaniel Hawthorne. After the failure of *Israel Potter* and *Pierre*, or *the Ambiguities*, this author abandoned the novel form. The sinking of the *Essex* inspired a scene in a novel by this author in which the protagonist clings onto the coffin of Queequeg during the sinking of the *Pequod*. For 10 points, name this author of *Moby-Dick*.

ANSWER: Herman **Melville** [The poem is *Clarel*.]

<Joseph Krol, Literature - American>

8. A man that Texans knew as Hi Jolly once used some of these animals to break up a German-American celebration of victory in the Franco-Prussian War. A regiment named for these animals commanded by the Maharaja Ganga Singh helped put down the Boxer Rebellion and was based out of Bikaner (**BEE-kah-neer**). In the French army, méhariste (**MAY-uh-reest**) units were centered on these animals. George H. Crosman proposed establishing an experimental "corps" named for these animals for use in the West that was approved by Secretary of War Jefferson Davis. A route mainly used by people travelling on these animals was supplanted by the construction of the Hejaz Railway. Four hundred troops using these animals partly under the command of Sherif Nasir defeated Ottoman forces at Aqaba (**AH-kah-bah**). For 10 points, name these animals used by Roman *dromedarii* (**droh-may-DAH-ree-ee**) cavalry in desert warfare.

ANSWER: **camels** [or dromedary **camels**; or Bactrian **camels**]

<Michael Bentley, History - Ancient, Commonwealth, Cross, and Misc.>

9. Renditions of this song open Nikki Yanofsky's self-titled album, close Clifford Brown and Max Roach's *Study in Brown*, and open Charles Mingus's *Pre-Bird*. This song, which uses the chords of "Exactly Like You," was performed with vocalist Betty Roché in the film *Reveille with Beverly*, using Joya Sherrill's lyrics. Most trumpeters duplicate this song's original Ray Nance solo. A draft of this C major standard was tossed for its similarity to Fletcher Henderson's style, but was saved by the bandleader's son Mercer. This song, written after a switch from ASCAP to BMI in order to replace "Sepia Panorama," was inspired by a set of instructions given to composer Billy Strayhorn for getting to the bandleader's house. For 10 points, name this signature of the Duke Ellington Orchestra about how "to get to Sugar Hill, way up in Harlem."

ANSWER: **"Take the 'A' Train"**

<Clark Smith, Other Auditory Arts>

10. Computing this operation is the most common scenario in which "leakage" is caused by window functions. By the Wiener–Khinchin ("WEE-ner-KIN-chin") theorem, the PSDF is the result of applying this operation to the autocorrelation function. Applying this operation to a function at 0 gives the DC bias. This operation, which preserves the L2 ("L-two") norm by Plancherel's ("plon-she-ELL's") theorem, essentially converts derivatives to imaginary multiplication. This operation applied to a Gaussian function gives another Gaussian function with the inverse of the original variance. A common convention gives this operation's kernel as " $e$  to the minus  $i k x$ ," making this operation a kind of "imaginary" equivalent of a similar operation named for Laplace ("luh-PLASS"). The time domain is converted to the frequency domain by, for 10 points, what transform named for a French mathematician?

ANSWER: **Fourier transform** [or **FT**; or **Fourier** transform after "transform" is read; prompt on **Fourier** until "transform" is read; do not accept or prompt on "Fourier series"]

<Joseph Krol, Science - Other>

11. This author influenced Proust with a story whose narrator goes on constant tangents as he narrates the title "Hour of my Life." One of this author's characters is invited to use Gillette as a model after he makes an image of Mary of Egypt appear to come to life. In that story, which this author classified as a "philosophical study," Nicolas Poussin (poo-SAHN) can only make out a single foot in Frenhofer's title *magnum opus*. Hermeneutic and symbolic codes are applied to this author's novella about the castrato Zambinella in Roland Barthes' study *S/Z*. This author of "The Unknown Masterpiece" and "Sarrasine" included recurring characters like the law student Pierre de Rastignac (ras-tin-YAK) and the criminal Vautrin (voh-TRAN) in a series intended as a more worldly counterpart to a Dante poem. For 10 points, name this French author of the *Human Comedy*.

ANSWER: Honoré de **Balzac** (BOLL-zack)  
<Joseph Krol, Literature - European>

12. In 1990, the son of a Greek-descended president of this country named Otto Lakas was detained for threatening to kill George H. W. Bush. The peace-seeking Contadora group was first convened in this country in 1983, the same year its military leader Rubén Paredes resigned. Guillermo Endara (gee-YAIR-moh end-AH-rah) was sworn in as this country's president at Fort Clayton despite Endara and his running mate recently being assaulted by Dignity Battalion soldiers. A "Maximum Leader" of this country died in a 1981 plane crash, precipitating the rise of a dictator who was subjected to musical psychological warfare during Operation Nifty Package. Ensuring the Torrijos (toh-REE-hos)-Carter Treaties was one motivation for a 1989 American invasion of this country to overthrow a Sandinista-allied dictator. For 10 points, name this Central American country once led by Manuel Noriega.

ANSWER: **Panama** [Republic of **Panama**; or República de **Panamá**]  
<Sean Farrell, History - World>

13. An essay by this thinker imagines "women who could have given themselves to us" after quoting Hermann Lotze's amazement at "the freedom from envy which the present displays toward the future." This thinker compares a philosophical "puppet" that "enlists the services of theology" to the chess-playing Mechanical Turk in one essay, which describes a figure who "sees one single catastrophe" where we "perceive a chain of events." This thinker invoked "Messianic time" to dismiss a form of "materialism" in an essay in which he illustrated a backward-facing "Angel" using Paul Klee's ("**clay's**") watercolor *Angelus Novus*. An essay by this thinker describes how lithography and photography have removed the "aura" of paintings. "Theses on the Philosophy of History" is by, for 10 points, what author of "The Work of Art in the Age of Mechanical Reproduction?"

ANSWER: Walter Bendix Schönflies **Benjamin** ("**BEN-yah-MEEN**")

<Joseph Krol, Philosophy>

14. This quantity corresponds to "zero dollars" using a unit named by Louis Slotin. A formula for this quantity, which incorporates a "fudge factor"  $f$  to account for geometric effects, was the first major application of Monte Carlo methods. This quantity can be reduced in the SSTAR ("S star") design using a beryllium reflector. This quantity is reached when the terms in the six-factor formula multiply to one. Accidentally exceeding this quantity led to multiple lethal "excursions" involving the "demon core." This quantity corresponds to a value of one for the effective neutron multiplication factor. Exceeding this quantity will lead to an exponential increase in the rate of fission. A bare sphere of uranium-235 has a value of 52 kilograms for this quantity. For 10 points, name this minimum mass of fuel required to sustain a nuclear chain reaction.

ANSWER: **critical mass** [or **critical** mass after "mass" is read; or super**critical mass**; prompt on criticality, asking "what specific quantity corresponds to that?"]

<Joseph Krol, Science - Physics>

15. After resolving to quit composing, the creator of this excerpt from a larger work threw the libretto on the table and soon found it open at this piece's incipit. In 2011, Riccardo Muti led the audience in an encore of this song after a speech denouncing arts budget cuts. Sadly, a legendary demand for an encore of this song despite an encore ban in Milan was really for "Immenso Jehova." Several commentators have read this song's line "Oh my homeland, so lovely and so lost" as reflecting its composer's nationalism. This anthem of Matteo Salvini's Lega Nord opens with lyrics by Temistocle Solera that ask "thoughts" to "fly on golden wings." Right after this song based on Psalm 137, Zaccaria proclaims God's impending destruction of Babylon. For 10 points, identify this chorus from Verdi's *Nabucco*, often named for the bondsmen who sing it.

ANSWER: "**Va, pensiero**, sull'ali dorate" [or "Chorus of the **Hebrew Slaves**"; or "**Fly, my thoughts** before "thoughts" are mentioned; or reasonable alternate translations mentioning that it a chorus sung by **enslaved Jews**]

<Clark Smith, Classical Music>



16. During the Revolutionary War, a member of this tribe, Nanyehi (nahn-YEH-hee), had a title meaning "beloved woman" and warned colonists of impending raids from her cousin Dragging Canoe. A member of this tribe who was accused of killing Dan Maples resisted capture for five years during "Ned Christie's War." The Second Battle of Cabin Creek included many members of this tribe, including the last Confederate general to surrender. That man from this tribe, Stand Watie (WAY-tee), avoided assassination despite signing, in 1835, the Treaty of New Echota (eh-CHOH-tah). That agreement was used to justify an event in which members of this tribe were primarily targeted following a gold rush in Georgia. For 10 points, name this tribe that endured forcible removal in the Trail of Tears and whose members included Sequoyah.

ANSWER: **Cherokee** [or **Aniyvwiya**; or **Tsalagi**]

<Billy Beyer, History - American>

17. A book written in this language analogizes the "autonomy and interdependence" of its subject matter to a plant stem cut transversely. In the 1800s, this language changed the spelling of imperfectly conjugated verbs due to reforming the "oi" ("O I") digraph. In informal variants of this language, the syllables of words are often swapped in a form of slang whose name comes from the word for "inverse." Hiatuses in this language can be represented in writing with the "aspirated h." The words for "language" and "speech" in this language are distinguished in a book written in this language titled *Course in General Linguistics*. In this language, the letter "s" is often omitted when the preceding vowel is written with a circumflex. Middle English adopted vocabulary from a Norman variant of, for 10 points, what Romance language spoken in Paris?

ANSWER: **French** [or **français**]

<Joseph Krol, Social Science>

18. An author from this country wrote and starred in a play about a man burying his activist brother, titled *Nothing but the Truth*. A play from this country was inspired by an incident in which a man sentenced to prison asked its author to return his coat to his wife. The protagonist of another play set in this country steals Robert's identity after finding him dead outside of Sky's bar. A former snake pit inspired the name of a group of playwrights in this country, including John Kani, called The Serpent Players. Two characters in a play from this country agree that Alexander Fleming is a "man of magnitude" and practice ballroom dancing. In that play from this country, the white Hally abuses his black servants Sam and Willie. For 10 points, name this setting of *Sizwe Banzi is Dead* and *"Master Harold"...and the boys*, the home country of Athol Fugard.

ANSWER: **South Africa** [Republic of **South Africa**; or **RSA**]

<Amogh Kulkarni, Literature - World and Misc.>

19. In a painting in this genre, a green-robed man avoids the embrace of a woman after being chased through seven different rooms. A dogal portrait praising a ruler as the "Conquerer of the World" was used to teach painters in this genre during a 1479 cultural embassy by Gentile Bellini. Alexander the Great is lowered into the ocean in a glass bathysphere in a painting in this genre, common scenes of which include circumcision festivals. The Herat School studied paintings in this genre by masters like Aqa Reza and Bihzad. The Topkapi Palace housed the first workshop for paintings in this genre for translations of the *Shanameh*. Assistants in *nakkashanes* avoided 3-D space in paintings in this genre by drawing contours called *tahrir*. For 10 points, name this Persian and Ottoman painting genre with small-scale human figures.

ANSWER: **miniature** painting [accept **miniatures**; accept **tawsir**; accept **nakish** before "nakkashanes," prompt afterwards]

<Ganon Evans, Painting and Sculpture>

20. A derivative of this compound that contains a thiol group at position 2 and a propyl group at position 6 is used to treat hyperthyroidism. Support for the extraterrestrial origin of this compound includes a carbon isotope ratio of 44.5% in the Murchison (MERCH-eh-son) meteorite. A deficiency of folate can cause the misincorporation of this diketone, which can be removed by the glycosylase SMUG1 ("smug-one"). Matthaei and Nirenberg discovered that a polymer of this compound can direct the creation of phenylalanine. Another analog of this compound that contains fluorine at position five is a chemotherapy agent. A pseudo-form of this compound is found in stem-loops of t-R-N-A. Methylating this compound gives thymine ("THIGH"-meen), and like thymine it forms two hydrogen bonds with adenine. For 10 points, name this nucleobase typically present in R-N-A, but not D-N-A.

ANSWER: **uracil** [or **U** or **Ura** or **uridine** or propylthi**uracil** or fluor**uracil** or 5-FU]

<Billy Beyer, Science - Biology>

21. In 2022, a joint exhibition of seven thousand neglected works by this artist between a Frolic Weymouth-founded museum and the Farnsworth included a tempera painting of a "Black Hunter." This artist's goal was to capture "death beyond the joy" in a painting of a cleaning-obsessed woman watching her husband leave a room carrying a rifle. A leaf blows through an open window illuminating a naked woman on a stool in this artist's painting *Lovers*. The painting *Maga's Daughter* depicts this artist's wife Betsy, who modeled in place of a woman with Charcot-Marie-Tooth disease. This artist created 247 portraits of a German immigrant from Chadd's Ford with long blonde braids named Helga Testorf. For 10 points, name this artist who showed his neighbor lying in a field at the Olson Farm in a pink dress in *Christina's World*.

ANSWER: Andrew **Wyeth** [reject Jamie Wyeth or N.C. Wyeth]

<Cormac Beirne, Painting and Sculpture>



## 2022 National All-Star Academic Tournament

### Round 17 – Bonuses

1. This methodology was popularized after Jack Welch announced \$350 million in savings due to it at General Electric. For 10 points each:

[10] Name this quality control technique introduced by Bill Smith at Motorola. Its name refers to its intention to keep the number of defects per million below 3.4.

ANSWER: **six sigma** methodology

[10] A key part of the six-sigma toolkit is this statistical technique developed by Ronald Fisher, which uses an F-distribution to analyze the differences between means across separate groups.

ANSWER: **ANOVA** [or **analysis of variance**]

[10] One of the first firms other than Motorola to use six-sigma techniques was this producer of a popular graphing calculator numbered "84." This technology manufacturing giant is based in Dallas in its namesake state.

ANSWER: **Texas Instruments** Incorporated [or **TI**]

<Joseph Krol, Science - Other>

2. This award's 2022 winner was inspired by the baobab (**BAU-bab**) tree to create an installation of twelve colorful towers for the Coachella Festival in 2019. For 10 points each:

[10] Name this prestigious international architecture prize established by an entrepreneur who also names a Frank Gehry-designed Pavilion in Chicago's Millennium Park.

ANSWER: **Pritzker** Architecture Prize [accept the **Pritzker** Pavillion]

[10] This designer of the Xylem Pavilion in Montana won the 2022 Pritzker Prize. His first building, a primary school that offers both ventilation and protection from the sun, is in his home village of Gando, Burkina Faso.

ANSWER: Diébédo (Francis) **Kéré (KAY-ray)**

[10] The first-ever Pritzker Prize was awarded to this architect. He designed PPG Place in Pittsburgh with John Burgee and built a residence in New Canaan (**KAY-nun**), Connecticut named for a certain material.

ANSWER: Philip (Cortelyou) **Johnson** [The personal residence is the Glass House]

<Billy Beyer, Other Visual Arts>

3. For 10 points each, answer the following about traditional Aboriginal agriculture.

[10] Aboriginals regularly burned down land using this farming strategy. Controlling the movement of indigenous animals and preventing wildfires are among the benefits for this form of farming.

ANSWER: **fire-stick** farming [or **cultural burning**; or **cool burning**; prompt on partial answers]

[10] Aquaculture of short-finned eels was prevalent at sites such Budj Bim (**BAHJ bim**), one of these locations in Southern Australia. The Toba Catastrophe Theory links a genetic bottleneck in humans to the global winter centered around the one of these locations in Sumatra.

ANSWER: **volcanoes** [prompt on mountains]

[10] In the 18th century, trepanging (**trep-ANG-ing**), or sea cucumber harvesting, was introduced to Aboriginals in Arnhem Land by these people. Evidence for these Sulawesi-based people's sea-faring stretches as far as Cape Town, where they lend their name to a suburb.

ANSWER: **Makassar** people

<Sean Farrell, History - Ancient, Commonwealth, Cross, and Misc.>

4. After descending to Japan, Ninigi's dismissal of the rock-like Iwanaga for one of these events causes humanity to have short lives like cherry blossoms, rather than like rocks.

For 10 points each:

[10] Name these types of events, the first of which Izanami and Izanagi were forced to repeat when Izanami spoke first after the two walked around the heavenly pillar.

ANSWER: **weddings** [or **marriages**]

[10] This kami's association with marriage is the reason visitors clap four times rather than twice when entering the Izumo Grand Shrine. That shrine was built after this kami forfeited his land to Amaterasu's grandson Ninigi.

ANSWER: **Okuninushi** [or **Onamuji** or **Onamochi**]

[10] The Hitorigami are a group of deities not created with a sibling-spouse, among which are this many kami of creation. The Japanese imperial regalia originated from this many sacred treasures that Ninigi brought to Earth with him.

ANSWER: **three**

<Sean Farrell, Mythology>

5. In France, Gérard de Nerval and Théophile Gautier (TAY-oh-feel go-tee-AY) exemplified this movement, which gave way to Parnassianism and Symbolism. For 10 points each:  
[10] Name this European literary movement of the early 1800s, which opposed rationalism. René de Chateaubriand's (sha-toh-bree-AHND) "vague des passions" characterizes its emphasis on individual emotional experience.

ANSWER: French **Romanticism** [or **Romantisme**; or word forms]

[10] This French sonnet with a Spanish title opens the sonnet sequence *The Chimeras* in Nerval's book *Les Filles du feu* (lay fee doo fuh). This sonnet's line "The Prince of Aquitaine, his tower in ruins" is quoted near the end of *The Waste Land*.

ANSWER: "El **Desdichado**"

[10] Théophile Gautier, who memorialized Nerval and his pet lobster in his *Portraits and Literary Souvenirs*, is credited with this maxim that art should not have any didactic or political purpose. French, Latin, or English is acceptable.

ANSWER: "**art for art's sake**" [or "**l'art pour l'art**"; or **ars gratia artis**]

<Clark Smith, Literature - European>

6. A half-note A precedes the statement of this motif in the first violin in the A minor second of two string quartets in the composer's Opus 51. For 10 points each:

[10] Name this musical cryptogram that names a collaborative sonata whose first movement is by Albert Dietrich. This three-note motif inspired a similar "gender-separatist" motto that opens an F major third symphony.

ANSWER: "**F-A-E**" [or "**F-A-E**" **Sonata**]

[10] The "F-A-E" Sonata was written by Dietrich, Robert Schumann, and this composer of *A German Requiem*, who replaced Berlioz in Hans von Bulow's list of the "three Bs."

ANSWER: Johannes **Brahms**

[10] "Frei aber Einsam," or "free but lonely," was the motto of this Hungarian dedicatee of the sonata. This violinist premiered Brahms's D major concerto and co-premiered a Brahms double concerto featuring an "A-E-F" motif with cellist Robert Hausmann.

ANSWER: Joseph **Joachim** [or **Joachim** Jozsef]

<Clark Smith, Classical Music>

7. This quantity is related to the refractive index by the confusingly-named Lorentz-Lorenz ("loh-RENTS-loh-RENTZ") equation. For 10 points each:

[10] Name this quantity that can be found using the Clausius-Mossotti ("CLOW-zee-us-moh-SOH-ti") relation. London dispersion forces scale with the product of two values of this quantity.

ANSWER: **polarizability** [or dipole **polarizability**; accept, but DO NOT REVEAL, electric **polarizability**; do not accept "polarization"]

[10] The induced dipole moment equals polarizability times this field, which is measured in volts per meter. This field times charge gives the Coulomb ("COOL-ome") force.

ANSWER: **electric** field [or **E**-field]

[10] The Lorentz-Lorenz equation and Clausius-Mossotti relation only vary in that the latter is written in terms of this quantity, the square of the refractive index. Electric susceptibility equals this "relative" value minus one.

ANSWER: relative **permittivity** [or **epsilon**]

<Joseph Krol, Science - Physics>

8. The protagonist of this play is kicked out of the IWW after proposing to blow up a steel factory. For 10 points each:

[10] Name this play, which ends with the protagonist being crushed to death by an escaped zoo animal. Mildred Douglas faints after seeing this play's brutish protagonist, Yank.

ANSWER: *The **Hairy Ape***

[10] *The Hairy Ape* was written by this American playwright, who depicted the dysfunctional Tyrone family in *Long Day's Journey Into Night*.

ANSWER: Eugene **O'Neill** [Eugene Gladstone **O'Neill**]

[10] The first four scenes of *The Hairy Ape* take place in one of these locations, where off-duty firemen chant, "Drink! Don't think!"

ANSWER: **ships** [or **boats**; or **cruise** ships; or firemen's **forecastles**; or descriptions mentioning rooms or places on a **ship**]

<Amogh Kulkarni, Literature - American>

9. The only one of Helena of Egypt's paintings recorded by Pliny the Elder is a contemporaneous depiction of this event. For 10 points each:

[10] Name this event also depicted in a fanciful "world landscape" commissioned by the Duke of Bavaria whose Latin inscription was likely composed by Johannes Aventinus.

ANSWER: The Battle of **Issus** [or *The Battle of Alexander at **Issus***]

[10] Helena's painting may be the model for the Alexander Mosaic in this city's House of the Faun. The garden of its House of Sallust and the Villa of the Mysteries are other excavated sites in this Roman city.

ANSWER: **Pompeii**

[10] Reliefs depicting the Battle of Issus appear on the long side of an originally polychrome object of this type from Sidon. An Etruscan example of these art objects is named for the reclining spouses that top it.

ANSWER: **sarcophagus** [or **sarcophagi**; or Alexander **Sarcophagus**; or **Sarcophagus** of the Spouses; prompt on such putative synonyms as **coffins**]

<Clark Smith, Painting and Sculpture>

10. Empress Hu of the Northern Wei commanded Song Yun to perform this task in the early 500s AD. For 10 points each:

[10] James Legge translated a "record" of certain "kingdoms" created by the author Faxian (FAHKS-yahn), who traveled to Pataliputra (PAH-tah-lee-poo-TRAH) in pursuit of what religious task?

ANSWER: **retrieving** original **Buddhist texts** [or descriptions of traveling **west** to **acquire Buddhist scriptures**; prompt on traveling **west** or **traveling to India**]

[10] Faxian described this kingdom as prosperous while it was under the rule of a king nicknamed "Vikramaditya" (VIK-ruh-MAH-dit-YUH). This northern Indian empire, often described as presiding over the Golden Age of India due to its patronage of the Nine Jewels of Sanskrit literature, fell after an invasion by the Hephthalites in the mid-6th century.

ANSWER: **Gupta** Empire

[10] Faxian wrote that this city's name means "severed head" because Buddha in his Chandaprabha (chun-druh-puh-BAH) form fed his own head to a lion here. This city, now in the Pakistani Punjab, is where Kautilya (koh-TIL-yeh) and Panini worked on classic Sanskrit texts.

ANSWER: **Taxila**

<Amogh Kulkarni, History - World>

11. Shortly before writing *The Monk*, Matthew Lewis wrote to his mother comparing himself to this novel's villain Montoni. For 10 points each:

[10] Name this novel by Ann Radcliffe, in which Emily St. Aubert is imprisoned in the title castle.

ANSWER: *The **Mysteries of Udolpho***

[10] Like *The Monk*, *The Mysteries of Udolpho* is a novel in this genre of *The Castle of Otranto*, which stereotypically features spooky castles and supernatural events.

ANSWER: **Gothic** novels

[10] Along with *The Mysteries of Udolpho*, the other major influence on *The Monk* was this author's three-volume novel *Things As They Are; or, the Adventures of Caleb Williams*. This author intended that novel as a popularization of his treatise *Political Justice*.

ANSWER: William **Godwin**

<Joseph Krol, Literature - British>

12. This thinker argued that objects of perception are ideas, part of his theory of "intelligible extension". For 10 points each:

[10] Name this thinker who wrote a *Treatise on Nature and Grace*. This thinker claimed that God acted through "general wills," and feuded with Antoine Arnauld in the 1680s.

ANSWER: Nicolas **Malebranche**

[10] The public largely supported Arnauld during the feud, despite his affiliation with this Catholic movement, declared heretical for denying free will in achieving grace. This movement was defended in the *Provincial Letters*.

ANSWER: **Jansenism** [accept word forms]

[10] During the formulary controversy, this friend of Arnauld attacked the Jesuits in his *Provincial Letters*. This philosopher's *Pensees* introduced his namesake theological "wager" regarding God's existence.

ANSWER: Blaise **Pascal**

<Amogh Kulkarni, Philosophy>

13. According to local legend, Miguel de Cervantes took inspiration for the character Dulcinea from time enslaved in this sea's port of Ulcinj (**oolt-SINK**). For 10 points each:

[10] Name this sea dominated by the Venetian Republic in the Middle Ages. Refugees such as the Uskoks populated this sea's Dalmatian Coast following the Ottoman conquest of Bosnia.

ANSWER: **Adriatic** Sea

[10] In addition to being hired as Habsburg soldiers, the Uskoks also worked in this profession from bases in Klis and Senj. Croatia's port of Omiš (**oh-MEESH**) is the namesake of small ships called "arrows" used by members of this profession.

ANSWER: **pirates** [or **buccaneers**; or **privateers**]

[10] For successfully holding Klis against Ottoman forces, the Uskoks' captain Petar Kružić (**KROAT-sitch**) was rewarded with a castle by this monarch in 1524. This King of Hungary died two years later fighting the Ottomans at the Battle of Mohács (**MOH-hatch**).

ANSWER: **Louis II** of Hungary [prompt on **Louis**]

<Sean Farrell, History - Post-Classical European>



14. Semi-empirical methods account for some, but not all, of the "correlations" between these particles in computational chemistry. For 10 points each:

[10] Name these particles. The Born-Oppenheimer approximation assumes that the motion of the nucleus can be separated from the motion of these negatively-charged particles.

ANSWER: **electrons**

[10] Hückel's ("**HER-ke'l's**") method was extended by this chemist to include sigma-electrons. This chemist used that semi-empirical model as theoretical support for a set of rules for pericyclic reactions, which they co-name with Robert Woodward.

ANSWER: Roald **Hoffmann** [accept Woodward-**Hoffmann** rules]

[10] John Pople, whose semi-empirical methods largely superseded Hückel's method, names a notation in which these things are written as, for instance, "6-31G" ("**six thirty-one G**"). Pople's "split-valence" types of these things are more flexible than "minimal" examples like "STO-nG" ("**S T O N G**").

ANSWER: **basis** sets [or **bases**; accept split-valence **basis** sets or minimal **basis** sets]  
<Joseph Krol, Science - Chemistry>

15. David Railton campaigned for the creation of one of these monuments in Westminster Abbey, which is the only part of the Abbey's floor on which it is forbidden to walk. For 10 points each:

[10] Name these monuments, one of which is located below Paris's Arc de Triomphe. A guard "walks the mat" in 21-second intervals at another of these monuments.

ANSWER: **tombs** of the **Unknown Soldier** [or **tomb** of the **Unknown Warrior**; accept clear equivalents for "tomb" like **grave** or **burial** site; prompt on **tombs** alone]

[10] A 24-hour guard watches over the Tomb of the Unknown Soldier located at this U.S. National Cemetery whose land was seized from Robert E. Lee. JFK's "eternal flame" faces D.C. from this Virginia cemetery.

ANSWER: **Arlington** National Cemetery

[10] This country's Tomb of the Unknown Soldier is located beneath its Arch 22, which commemorates a 1994 military coup and appears on its *dalasi* currency. This country's modern elections are counted using marbles as votes.

ANSWER: the **Gambia** [or Republic of the **Gambia**]

<Joseph Krol, Geography>

16. This concept's namesake "matrix" describes how it becomes normative without necessarily being constructed. For 10 points each:

[10] Name this sexuality. Queer theories challenge the normativity of this sexuality in society.

ANSWER: **hetero**sexuality [or **straight**; accept **cis****het**; accept word forms]

[10] This book introduced the concept of the "heterosexual matrix". This 1990 book's conception of performativity was expanded upon in the author's later work *Bodies That Matter*.

ANSWER: ***Gender Trouble*** (by Judith Butler)

[10] This theorist stated that lesbian erasure occurs due to the effects of "compulsory heterosexuality." In *Blood, Bread, and Poetry*, this theorist advocated for incorporating intersectionality into feminism, which may have been inspired by her relationship with Michelle Cliff.

ANSWER: Adrienne (Cecil) **Rich**

<Amogh Kulkarni, Social Science>

17. This protein was the first to be discovered in a class of mammalian proteins that dissipate the proton gradient in the mitochondrial membrane. For 10 points each:

[10] Name this protein found in brown adipose tissue, which may have evolved in mammals from a mutated dicarboxylate carrier.

ANSWER: **thermogenin** [or **UCP1** or **SLC25A7**]

[10] Thermogenin uncouples mitochondrial electron transport from the production of this molecule, which is often called the "energy currency" of the cell.

ANSWER: **ATP** [or **adenosine triphosphate**]

[10] The signaling cascade for the release of thermogenin involves this second messenger, which activates protein kinase A.

ANSWER: **cyclic AMP** [or **cAMP**; or 3',5'-**cyclic adenosine monophosphate**]

<Joseph Krol, Science - Biology>

18. These works make up the youngest textual layer of the Vedas. For 10 points each:

[10] Name these texts, which join the *Brahma Sutras* and *Bhagavad Gita* in the "three sources" of Vedanta philosophy. The four Mahavakyas, including "Tat tvam asi," (**tuht twam UH-see**) derive from these texts.

ANSWER: ***Upanishads*** [prompt on *Vedanta*]

[10] The Upanishads, Brahma Sutras, Maha Puranas, and Mahabharata are all attributed to this legendary sage, who narrated them while Ganesha wrote them down.

ANSWER: **Vyasa** [or **Vedavyasa**; or **Krishna Dvaipayana**]

[10] The *Muktika Upanishad* includes a canon of this many *Upanishads*, the number of Gopis of Vrindavan. While visiting a temple to find Celestial Master Zhang, Marshal Hong accidentally releases demons totaling this auspicious number.

ANSWER: **108** (the last sentence refers to the 108 Stars of Destiny from *Water Margin*)

<Clark Smith, Religion – Hinduism / Associated Traditions>

19. This man ran for president in 2004, but won only the Oklahoma primary. For 10 points each:

[10] Name this former U.S. General who was the Supreme Allied Commander Europe from 1997 to 2000. In the 2004 Democratic primaries, he opted to not take part in the Iowa caucus.

ANSWER: Wesley **Clark** [Wesley Kanne **Clark**]

[10] Clark tried to order NATO troops to confront Russian soldiers at an airport the day after the end of this war in 1999. NATO's involvement in this war was preceded by the failure of the Rambouillet (rom-boo-lay) Accords.

ANSWER: **Kosovo** War

[10] This man, who implemented the "50-state strategy" as DNC head from 2005 to 2009, ended his 2004 campaign shortly after a third-place finish in Iowa accompanied by a widely mocked "screaming" speech.

ANSWER: Howard **Dean** [Howard Brush **Dean** III]

<Fredrick Morlan, History - American>

20. *The Two Fair Cousins* exemplifies a Qing-era genre named for the romance between an attractive person with this occupation and an often crossdressing "beauty." For 10 points each:

[10] Name this occupation that provides an alternate title for *The Carnal Prayer Mat*. This profession titles a satirical Wu Jingzi novel about Du Shaoqing.

ANSWER: **scholars** [or **academics**; or **students**; or equivalents; or **shi**; accept **caizi**-jiaren or **scholar**-and-beauty fiction; prompt on **intellectuals**]

[10] Despite its critiques of the genre of "scholar-beauty" novels, this novel by Cao Xueqin adopts several of its tropes. Jia Baoyu romances his cousin Lin Daiyu in this novel titled for a room.

ANSWER: ***Dream of the Red Chamber*** [or *The **Story of the Stone***; or ***Red Chamber Dream***; or *A **Dream of Red Mansions***; or ***Hong lou meng***; or ***Shitou ji***]

[10] In the first chapter of *Dream of the Red Chamber*, words written on this material describes how truth becomes beauty, punning on the family names Jia and Zhen. In the novel, Xue Baochai's locket has an inscription that matches words written on this material.

ANSWER: **stone** [or **rock**; or **jade**; or **yu**; or **shi**]

<Clark Smith, Literature - World and Misc.>

21. The Wawelberg (**vaa-vel-BAIRG**) Group sparked a conflict in this region by blowing up seven rail bridges. For 10 points each:

[10] Name this region, the site of the Battle of Annaberg. An uprising in this region began after a 1921 plebiscite stipulated by the Treaty of Versailles.

ANSWER: **Silesia** [or Upper **Silesia**; or Lower **Silesia**]

[10] The Silesian Uprisings were a crisis for this German government. This interwar government, formed after the abdication of Kaiser Wilhelm II, included Paul von Hindenburg as president after 1925.

ANSWER: **Weimar** Republic [or **Weimar**er Republik; prompt on German Republic]

[10] The Second Silesian Uprising began after a newspaper misprinted the result of a 1920 battle in this city. Jürgen (**YURG-en**) Stroop suppressed an uprising in this city organized by the ZOB and ZZW.

ANSWER: **Warsaw** [or **Warszawa**]

<Amogh Kulkarni, History - Post-Classical European>