Round 21 Finals 2 - Tossups

1. A 2023 paper by Auten and Splinter argues that this phenomenon's apparent shift in the US since 1960 is explained in part by declining marriage rates. That paper disputes an analysis of this phenomenon based on data from the Panama Papers by Gabriel Zucman. David Autor argues that computerization accelerated this phenomenon because skill-biased technological change has increased the education premium. A reason for an increase in this phenomenon is summarized as **(*)** "*r* is greater than *g*" and was popularized in the book *Capital in the 21st Century* by Thomas Piketty. This phenomenon is higher in countries with a value closer to one for the Gini coefficient. For 10 points, name this phenomenon of uneven distribution of economic resources.
ANSWER: income **inequality** [or wealth **inequality**; or economic **inequality**; accept economic or wealth or income **disparity**; accept economic or wealth or income **gap**; accept answers that indicate **inequality** increasing or the **gap** getting wider]
<Michael Bentley, Social Science - Economics> ~28554~ <Editor: Vincent Du>

2. The narrator of this novel frequently attaches colors to memories, such as red to a couple's first meeting since the death of a pilot. A character in this novel smears his skin with charcoal to imitate Jesse Owens. The narrator of this novel returns a manuscript to the main character after her death and explains that they are **(*)** "haunted by humans." In this novel, the story *The Standover Man* is painted over the pages of a copy of *Mein Kampf* which was given as a birthday present. The protagonist of this novel is sent as a girl to live with Rosa and Hans Huberman, who also secretly shelter the Jewish Max Vanderburg. For 10 points, Death narrates what novel by Markus Zusak about Liesel Meminger, who steals written works?
ANSWER: The ***Book Thief**
<Lalit Maharjan, Literature - British - Other> ~28703~ <Editor: Jim Fan>

3. Legal pronouncements up to this emperor's reign were recorded in the *Codex Gregorianus*, which was expanded upon by Hermogenian, a prominent jurist in this emperor's court. The Edict of Serdica responded to a proclamation issued by this emperor on the festival of *Terminalia* which resulted in a massacre in Nicomedia. This emperor brokered the First Peace of Nisibis with the help of Galerius, his successor. Saints Domnius and **(*)** Sebastian were martyred during the reign of this emperor, who ordered the Great Persecution. This emperor, who attempted to curb inflation with his Edict on Maximum Prices, retired to a lavish palace in Dalmatia to grow cabbages. For 10 points, name this Roman emperor who established the Tetrarchy.
ANSWER: **Diocletian** [or **Diocles**; prompt on Jovius]
<Lalit Maharjan, History - European - Classical> ~28165~ <Editor: Hari Parameswaran>

4. Each year, structures made of this material and decorated with colored lights are constructed for a carnival in Saranac Lake, New York. A man builds a structure out of this material without a fourth wall in a pioneering work of docufiction by Robert J. Flaherty. Structures made from a type of this material called *pukaangajuq* ("poo-kong-aye-yuk") would often be settled by lighting a *qulliq* ("KUH-lick") oil lamp. An F. Scott Fitzgerald short story was inspired by one of the (*) "palaces" built from this material each year in St. Paul. Bricks of this material are laid in an ascending circular fashion in structures that might also have beds made from caribou fur. For 10 points, name this material whose bricks are used to construct igloos.
ANSWER: **snow** [or **ice**; prompt on water] (Flaherty's film is *Nanook of the North*.)
<Michael Bentley, Geography - World> ~28118~ <Editor: Michael Bentley>

5. In a city in this country, expensive churches have been built by entrepreneurial "boss Christians" who promote a managerial style based on Biblical values. Self-governance, self-support, and self-propagation underlie this country's Protestant Three-Self churches, which stand opposed to its underground "house churches." Organ trafficking allegations have been leveled against this country by a religious movement that uses the image of a (*) leaping woman to advertise its dance troupe. Mosques and desert shrines have been destroyed in this country's northwest, where camps seek to "reeducate" a Muslim minority. For 10 points, what officially atheist country has suppressed the Falun Gong and its Uyghur ("WEE-gur") minority?
ANSWER: **China** [or **Zhōngguó**; or **People's Republic of China**; or **PRC**; reject the "Republic of China" or "ROC"] (The first line city is Wenzhou. The dance troupe is Shen Yun.)
<Kevin Thomas, RMP - East Asian Religion> ~28749~ <Editor: Kevin Thomas>

6. Pauline Viardot ("vee-ar-DOH") sang this role in Hector Berlioz's 1859 version of one opera. In that French version, this character states, "I have lost," instead of asking in the original Italian, "What will I do without?," or "Che farò senza ("kay fah-ROH sen-TZAH")?" In another opera, the personification of Hope abandons this character, who sings "Possente spirto." This man's [emphasize] *lover* titles the earliest surviving opera, by (*) Jacopo Peri. This is the first title role of a reform opera containing the "Dance of the Blessed Spirits" by Christoph Gluck ("glook"). An Infernal Galop features in a parody of that opera by Jacques Offenbach titled for this man "in the Underworld." For 10 points, name this title character of a 1607 Monteverdi opera, the husband of Eurydice.
ANSWER: **Orpheus** [or **Orfeo** or **Orphée**; accept L'**Orfeo**; accept *Orphée aux enfers* or *Orpheus in the Underworld*; prompt on *Orfeo ed Euridice* or *Orphée et Eurydice*] (The second line refers to the aria "J'ai perdu mon Eurydice," or in the Italian, "Che farò senza Euridice?")
<Ivvone Zhou, Fine Arts - Opera> ~28737~ <Editor: Ivvone Zhou>

7. These molecules are industrially fermented by *Corynebacterium glutamicum*. The herbicide Roundup blocks the synthesis of these molecules via the shikimate ("SHICK-uh-mate") pathway. Tryptone is added to LB to feed bacteria these molecules. Biosynthesis of one of these molecules is impaired in the *Salmonella* used for the Ames test and in the yeast auxotroph "His ("hiss") minus." Simulating a primordial atmosphere and (*) lightning produced five of these molecules abiotically in the Urey-Miller experiment. The central carbon of these molecules is bonded to a -COOH ("C O O H") group, an -NH$_2$ ("N H two") group, and an R group. Humans synthesize half the canonical set of these molecules, but the other ten are essential. For 10 points, name these building blocks of proteins.
ANSWER: **amino acid**s [or **AA**s; accept canonical **amino acid**s or essential **amino acid**s; prompt on residues; prompt on acids; prompt on peptides or proteins until "Ames" is read and reject afterwards]
<Adam Silverman, Science - Biology> ~28212~ <Editor: Adam Silverman>

8. Use of these objects can be characterized by "attitudes" like upper, middle, and lower, according to *The Book of Five Rings*. The "Demon of the Western Provinces" is depicted holding one of these objects in a statue on Ganryujima. One of these objects was legendarily lost forever after Taira no Tokiko jumped into the ocean in the *Tale of the Heike*. **(*)** *Kensei* referred to people skilled in using these objects, including Miyamoto Musashi. Smaller types of these objects known as *wakizashi* were taken by Toyotomi Hideyoshi during a "hunt." The Japanese Imperial Regalia is made up of a mirror, jewel, and one of these objects called *Kusanagi*. For 10 points, *katana* are examples of what weapons wielded by samurai?
ANSWER: **sword**s [accept **_ken_** until "*Kensei*" is read; accept **_katana_** until read; prompt on **weapon**s] (The second clue refers to Sasaki Kojiro, who dueled Miyamoto Musashi on Ganryujima.)
<Hari Parameswaran, History - World - Asian> ~25831~ <Editor: Hari Parameswaran>

9. This character sings a song about a giant flea while in Auerbach's wine cellar. The actor and Nazi cooperator Hendrik Höfgen portrays this character in a Klaus Mann novel. This character calls rats to chew away the sign on a door and helps a man duel Valentine. This character defines himself as one that "would always wish evil, and always works the good." This character urges a man to (*) sign a contract in blood. This character meets a play's protagonist and his assistant Wagner while disguised as a black poodle. This character brings a man to Walpurgis Night, helps him seduce Margaret, and lets him summon Helen of Troy. For 10 points, name this demon from a Goethe ("GUR-tuh") play, who convinces Faust to sell his soul.
ANSWER: **Mephistopheles** [or **_Mephisto_**; reject "the devil" or "Satan" or "Lucifer"]
<Jaimie Carlson, Literature - European - Drama> ~28697~ <Editor: Jaimie Carlson>

10. Chromatofocusing slowly changes this quantity in the stationary phase to fractionate proteins. The distribution of oxidation state versus this quantity is plotted on a metal's speciation diagram. Tertiary amines only dissolve if this quantity is low enough for the nitrogen to be tetravalent. Colloids are least stable when this quantity equals the isoelectric point, so the surface (*) charge is zero. This quantity determines if redox half-reactions should be balanced using cat·ions or an·ions. This quantity and the equilibrium constant dictate how much "HA" dissociates in the Henderson–Hasselbalch equation. For 10 points, name this measure of a solution's proton concentration on a logarithmic scale between zero and fourteen.
ANSWER: **pH** [or **power of hydrogen**; accept **hydrogen concentration** or **hydronium concentration** or **proton concentration** or **H+ concentration** or **H3O+ concentration**; reject "acidity" or "pKa" or "Ka"]
<Adam Silverman, Science - Chemistry> ~27523~ <Editor: Adam Silverman>

11. This work's composer said its fifth movement was his favorite, as it "not only brings physical decay but also a vision of fulfillment." Trombones introduce the B minor melody in that movement of this work, which features a ticking theme. At his last Young People's Concert, Leonard Bernstein improvised an "unpredictable" extra movement of this work. The Hallé Orchestra commissioned Colin Matthews to write a new movement of this piece partly titled "the (*) Renewer." This work opens with *col legno* ("LEN-yo") strings playing an ominous ostinato in 5/4 ("five-four"). One movement in this work was adapted into the hymn "I Vow to Thee, My Country" and is subtitled "The Bringer of Jollity." For 10 points, name this suite by Gustav Holst inspired by astrology.
ANSWER: *The **Planets*** [prompt on "**Saturn**, the Bringer of Old Age" or "**Mars**, the Bringer of War" or "**Jupiter**, the Bringer of Jollity"]
<Ivvone Zhou, Fine Arts - Music - 1900 to 1970> ~28070~ <Editor: Ivvone Zhou>

12. The SLDN, which was founded to oppose this policy, called for an investigation as to whether this policy led to the murder of Barry Winchell. Following legislation passed in 2010, Robert Gates led efforts to end this policy, which was also challenged that year in a court case brought by the Log Cabin Republicans. At least 73 DLI (*) linguists specializing in Middle Eastern languages were fired due to this policy. This policy was implemented after Colin Powell argued to Bill Clinton that a more expansive policy would hurt "unit cohesion." In 2023, the DOD announced it would vacate discharges due to this policy. For 10 points, name this policy that barred openly gay people from serving in the US military.
ANSWER: **Don't Ask, Don't Tell** [or **DADT**]
<Michael Bentley, History - American - 1945+> ~28748~ <Editor: Arjun Nageswaran>

13. The conditions for high values of this quantity are created via synergistic combination of sulfuric acid, nitric acid, and ammonia via a mechanism discovered by a team at CERN ("SIRN") in 2022. Opposite extremes of this quantity distinguish groups A and B in the Köppen classification. Laser-equipped drones fire electric charges to increase this quantity in the (*) United Arab Emirates. This quantity is typically increased via addition of silver iodide to provide nucleation sites in a type of "seeding." Pluviometers measure this quantity that increases ahead of a warm front due to the condensation of rising water vapor. For 10 points, name this quantity that measures the amount of liquid precipitation.
ANSWER: amount of **rain**fall [accept clear equivalents, like inches of **rain**fall; prompt on descriptions of cloud cover or amount of clouds by asking "what quantity increases with cloud cover?"; prompt on amount of precipitation by asking "what type of precipitation?"; prompt on relative humidity by asking "what quantity increases with humidity?"]
<Abhinav Rachakonda, Science - Earth> ~28011~ <Editor: David Bass>

14. A character destroys several of these objects after claiming to be a "hired assassin" and calling his mother an "ugly - babbling old – witch!" These objects sit on an "old-fashioned what-not" overshadowed by a photo of a doughboy and behind a transparent curtain that serves as the fourth wall. The narrator insists the world resembles the colorful fragments of these objects, lit by lightning, while his sister (*) blows out candles. A broken one of these objects is given to the "gentleman caller" Jim O'Connor as a souvenir when he reveals that he has a fiancée just after kissing Laura. For 10 points, name these fragile objects that title a play about the Wingfield family by Tennessee Williams.
ANSWER: the glass **menagerie** [or **glass animal** figures; or glass **animal figurines** or **glass figurines**; prompt on glass; prompt on animals; prompt on horses or unicorns; prompt on figurines by asking "made of what?"]
<Adam Silverman, Literature - American - Drama> ~27752~ <Editor: Chandler West>

15. A giant steel funnel by this artist, often compared to a vagina, was installed in the gardens of Versailles and is titled *Dirty Corner*. Ford named a color trim after the shade of red this artist used for the blood in his kinetic sculpture *Shooting Into the Corner*. A large stainless steel installation by this artist is titled *Sky Mirror*. This artist has been criticized for his (*) exclusive rights to the extremely unreflective color Vantablack. New York's Jenga Tower contains a smaller version of this artist's best-known work, a polished stainless steel sculpture which appears to float above Millennium Park. For 10 points, name this artist behind Chicago's *Cloud Gate*, also known as "the bean."
ANSWER: Anish **Kapoor** [or Sir Anish Mikhail **Kapoor**]
<Michael Bentley, Fine Arts - Sculpture> ~27428~ <Editor: Chandler West>

16. Elizabeth II was almost tricked into giving a speech opposing this cause by a DJ at CKOI ("C-K-O-I"). A politician who opposed this cause was heckled out of a stadium for showing his so-called "Elliott" side to the audience. Successfully carrying out this cause was made more difficult by the passage of the Clarity Act in 2000. The Cree population heavily rejected this cause in a (*) 1995 referendum. A group that advocated for this cause kidnapped James Cross, sparking the October Crisis. A speech advocating this cause at Expo 67 by Charles De Gaulle prompted Lester Pearson to respond that his countrymen "do not need to be liberated." For 10 points, name this cause that advocates the separation of a French-speaking province from Canada.

ANSWER: **Quebec sovereignty** [accept reasonable equivalents like **Quebec independence**, or **Quebec separatism**; prompt on independence from Canada or Quebec nationalism or increased sovereignty for French Canadians]

<Anthony Troullier, History - Cross, Historiography, and Miscellaneous> ~28189~ <Editor: Michael Bentley>

17. Schopenhauer rejected this idea on the basis that it reduces to self-interested egoism. Section III of one work argues that this idea is the law of a will that is positively free, a definition taken up by Christine Korsgaard in *The Sources of Normativity*. This idea is presented via four equivalent formulas, like the formula of humanity and the formula of autonomy. Benjamin Constant's objection to this idea argues it would compel one to tell a (*) murderer the location of his victim. This deontological principle states that one should only act according to maxims that can be willed to be universal law. The *Groundwork of the Metaphysic of Morals* introduced, for 10 points, what central principle of Immanuel Kant's ethics?

ANSWER: **categorical imperative** [or **kategorischer imperativ**; prompt on imperative]

<Vincent Du, RMP - Philosophy> ~28404~ <Editor: Vincent Du>

18. Prior to this city's founding, a king declared war on a people who used his daughter's skin as a priest's skirt. A 16th century CE pictographic map depicts the journey towards this city from a northern "place of herons" once settled by a people who emerged from seven caves. Copil's heart marked this city's location, directions to which were whispered by a hummingbird idol carried by priests. A god born from a ball of (*) feathers informed migrants where to perform this city's 1325 CE founding. A god of war told one people to build this city where a snake-devouring eagle perched on a cactus. For 10 points, Nahuatl refugees settled what city on a swampy island in Lake Texcoco, the future Aztec capital?

ANSWER: **Tenochtitlan** [accept **Mexico City**] (The northern "place of herons" is the Aztec homeland of Aztlan; the map is the Siguenza map.)

<Lalit Maharjan, RMP - World Mythology> ~28619~ <Editor: Kevin Thomas>

19. These devices mimic interferometers in Aaronson and Arkhipov's boson-sampling problem. These devices can perform an analog of simulated annealing via slow evolution of the Hamiltonian that makes them "adiabatic." Andrew Steane developed a scheme that avoids constraints imposed on these devices by the no-cloning theorem. Components of these devices are represented as points on Bloch spheres, in which a reflection over a diagonal axis is induced by a Hadamard gate. (*) EPR pairs can enable information transfer in these devices. These devices have achieved "supremacy" while operating at near-zero temperatures via entanglement. For 10 points, name these computers that store information in superposition with qubits.

ANSWER: **quantum computer**s [accept **quantum** after "computers" is read; accept adiabatic **quantum comput**ing; prompt on qubits by asking "what devices are composed of qubits?"; prompt on computers] (Steane codes enable quantum error correction.)

<Kevin Wang, Science - Physics> ~15650~ <Editor: David Bass>

20. In a story by this author, a character in the midst of translating a work by José Norberto Allende begins imagining seeing a woman's hands move. In a novel by this author, two men build a bridge between their windows as a way to deliver yerba and nails. The narrator in one of this author's stories repeatedly visits the Jardin des plantes ("zhar-DAN duh PLAHNT") to see the title animals. Michel takes and (*) enlarges a photograph of what he believes to be an illicit liaison between a woman and a boy in this author's story "Blow-Up." The Serpent Club tries to piece together a novel by Morelli that could be read out of order in a metafictional novel by this author. For 10 points, name this Argentinian author of *Hopscotch*.

ANSWER: Julio **Cortázar** [or Julio Florencio **Cortázar**] (The unnamed story is "Axolotl.")
<Alyssa Jorgensen, Literature - World and Miscellaneous> ~21059~ <Editor: Jim Fan>

21. A historian from this family published a controversial book arguing that Marranos were targeted by the Spanish Inquisition for racial, rather than religious, reasons. A commando from this family was part of a cross-dressing military team that assassinated Kamal Adwan during Operation Spring of Youth. A Pennsylvania-educated politician from this family controversially addressed Congress without (*) Barack Obama's knowledge. Operation Thunderbolt was renamed for a commando from this family who was the sole casualty of a hostage rescue at Entebbe airfield. Shimon Peres was succeeded by that politician from this family who leads the Likud party. For 10 points, name this family of Israeli prime minister Benjamin ("BEN-ya-meen").

ANSWER: **Netanyahu** [accept **Mileikowsky**]
<Jeffrey Liu, History - World - Middle Eastern> ~28132~ <Editor: Hari Parameswaran>

Round 21 Finals 2 - Bonuses

1. Kp, the equilibrium constant for a gas phase reaction, is calculated using these values instead of molarities. For 10 points each:
[10m] Name this measure of the concentration of a gas in a mixture. It is proportional, but not equal, to mole fraction.
ANSWER: **partial pressure** [prompt on pressure; prompt on P; prompt on P-sub-i]
[10e] The ratio between Kp and Kc is an integer power of this unit of molar energy. According to the ideal gas law, "PV equals n" times this term, usually abbreviated to two letters.
ANSWER: **RT** [or **R times T**; or the ideal **gas constant times temperature**; accept **kT** or the **Boltzmann constant times temperature**]
[10h] For non-ideal vapors, the partial pressures in Kp are also multiplied by this quantity. This quantity symbolized phi is the ratio between the pressures of an ideal gas and real gas that have the same chemical potential.
ANSWER: **fugacity coefficient** [reject "fugacity"; reject "activity coefficient"]
<Adam Silverman, Science - Chemistry> ~23168~ <Editor: Adam Silverman>

2. The jazz-fusion band Apollo Stars was assembled onboard the ships of this music producer's Sea Org. For 10 points each:
[10h] Name this person who inspired Philip Seymour Hoffman's character in Paul Thomas Anderson's film *The Master*.
ANSWER: L. Ron **Hubbard** [or Lafayette Ronald **Hubbard**]
[10m] Hubbard's album *The Road to Freedom* featured songs by this Scientologist and actor. This man's career was revived with *Pulp Fiction* before being damaged again when he starred as Teri in a 2000 adaptation of Hubbard's novel *Battlefield Earth*.
ANSWER: John **Travolta** [or John Joseph **Travolta**]
[10e] Dianetics sessions feature in "We Stand Tall," a work of this type starring Scientologist David Miscavige made in 1990. The cable channel MTV was originally devoted to airing these works.
ANSWER: **music video** [prompt on video]
<Ganon Evans, Other - Other Academic and General Knowledge> ~22214~ <Editor: Michael Bentley>

3. Leopold Godowsky wrote a passacaglia based on this symphony for the 100th anniversary of its composer's death. For 10 points each:
[10e] Name this B minor symphony by Franz Schubert that is nicknamed for the fact that he only completed two movements of it.
ANSWER: **Unfinished** Symphony [or Franz Schubert's Symphony No. **8**; or *Unvollendete*]
[10m] This composer died before writing the fourth movement of his ninth symphony. This Austrian organist's fourth symphony is nicknamed "Romantic."
ANSWER: Anton **Bruckner** [or Josef Anton **Bruckner**]
[10h] The only completed movement of an unfinished symphony by this composer became his *Symphonic Rhapsody*. This composer depicted choleric, phlegmatic, melancholic, and sanguine personalities in a symphony nicknamed "The Four Temperaments."
ANSWER: Carl **Nielsen** [Carl August **Nielsen**]
<Forrest Weintraub, Fine Arts - Music - Romantic> ~23334~ <Editor: Ivvone Zhou>

4. Tahmasp I was the dedicatee of an illuminated manuscript of this text that contains miniatures of Rostam taking a nap while his horse fights a lion. For 10 points each:
[10m] Ferdowsi wrote what "Book of Kings" that recounts the reigns of Sassanid kings like Shapur?
ANSWER: _**Shahnameh**_ [or _**Shahnama**_]
[10e] In a miniature from Tahmasp I's Shahnameh, Isfandiyar slays this type of creature, also slain by Saint George in European folklore.
ANSWER: **dragon**s
[10h] This despotic "dragon king" is chained within Mount Damavand in another miniature. Ahriman kisses the shoulders of this king, spawning two brain-eating snakes.
ANSWER: **Azhi Dahāk**a [or **Zahhāk** or **Zahāk** or **Dahāg** or **Bēvar Asp**]
<Joseph Krol, RMP - World Mythology> ~23219~ <Editor: Kevin Thomas>

5. In this novel, a character simultaneously drowns and baptizes his cousin Bishop, who has Down Syndrome. For 10 points each:
[10h] Name this novel in which the evangelical Mason Tarwater kidnaps his nephew Francis and requests a proper Christian burial so he can be resurrected on Judgement Day.
ANSWER: _The **Violent Bear It Away**_
[10e] _The Violent Bear It Away_ is one of two novels by this Southern Gothic author of "A Good Man is Hard to Find."
ANSWER: Flannery **O'Connor**
[10m] Tanner has a stroke in the story "Judgement Day," the final entry in this O'Connor collection. In this collection's title story, Julian's mother is assaulted after trying to give a penny to a young Black boy.
ANSWER: _**Everything That Rises Must Converge**_
<Chandler West, Literature - American - Long Fiction> ~23908~ <Editor: Chandler West>

6. Since 1858, the French government has owned Longwood House on this island. For 10 points each:
[10m] Name this island where one resident may have been poisoned by arsenic wallpaper in 1821.
ANSWER: **Saint Helena** (The arsenic poisoning clue is referring to Napoleon.)
[10e] kaCetshwayo ("kah-set-SHWAH-yo"), an heir to the kingdom of this people, was exiled to Saint Helena in 1889 after being convicted of treason. This South African people's other leaders included Shaka.
ANSWER: **Zulu** [or **amaZulu**]
[10h] After being released from a POW camp on Saint Helena, Boer War general Piet Cronjé ("KRON-yeh") spent time as a "circus general" in a sideshow in this American location. Some of the first baby incubators were installed at this location, also home to Luna Park.
ANSWER: **Coney Island** [prompt on New York City or Brooklyn]
<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~22618~ <Editor: Michael Bentley>

7. The Laplace transform of a dynamical system's response to this type of signal is its transfer function. For 10 points each:
[10m] Name this type of signal that shares its name with a quantity that equals the time integral of force and the change in momentum.
ANSWER: **impulse** [prompt on _J_; reject "impulse response"]
[10h] The output of a linear time-invariant system equals this operation on the input and its impulse response. This operation's namesake theorem generalizes the fact that applying it in the time domain is equivalent to multiplication in the frequency domain.
ANSWER: **convolution** [accept word forms, like **convolv**ing]
[10e] The impulse response is the system's response to an input of a "function" named for this Greek letter that generally denotes change.
ANSWER: **delta** [or **delta** function; or Dirac **delta**; accept lowercase **delta** or uppercase **delta**]
<Benjamin Chapman, Science - Engineering and Miscellaneous> ~22157~ <Editor: David Bass>

8. This movement's manifesto was written by Hugo Ball, who wore a shaman suit to perform his sound poem "Karawane" ("KAH-rah-WAH-nay"). For 10 points each:
[10e] Name this post-World War I anti-art movement, whose name may be derived from Richard Huelsenbeck's random choice of a French term for "hobby-horse." Members of this movement included Marcel Duchamp.
ANSWER: **Dada** [accept **Dada**ism or **Dada**ists; accept the **_Dada_** _Manifesto_]
[10h] Huelsenbeck and this Dadaist pioneered performances at which multiple people simultaneously read poems in different languages. This Romanian played an Eyebrow in his play _The Gas Heart_.
ANSWER: Tristan **Tzara** [or Samuel **Rosenstock** or S. **Samyro**]
[10m] A Tzara play is named for a "Handkerchief of" these objects, which make the sound "gluglamen gloglada" in a Ball poem. In a play, a chorus of these objects appears at the Thinkery.
ANSWER: **cloud**s [accept "Labada's Song to the **Cloud**s" or _The **Cloud**s_ or **_Nephelai_**; accept _Handkerchief of **Clouds**_ or _Mouchoir de **Nuages**_]
<Ganon Evans, Literature - European - Poetry> ~22975~ <Editor: Jaimie Carlson>

9. Gauchos hired to work on Argentinian _estancias_ would use bolas to prevent these animals from fleeing. For 10 points each:
[10e] The introduction of barbed wire eliminated the need for gauchos to help herd what animals for use in food?
ANSWER: **cattle** [or **cow**s, **bull**ocks, **calf**, **calves**, or **oxen**; accept **bovine**s or **bovid**s; prompt on livestock]
[10h] Argentina's beef industry greatly benefited from a 1933 treaty signed by Walter Runciman and this president. Before becoming president, this general carried out the Conquest of the Desert.
ANSWER: Julio **Roca** [or Alejo Julio Argentino **Roca** Paz]
[10m] This indigenous people of Patagonia resisted the Conquest of the Desert. Lautaro once led these inhabitants of Araucanía, who also used bolas during malón cattle raids against the Spanish.
ANSWER: **Mapuche** [prompt on Mapudungun]
<Hari Parameswaran, History - World - Latin American> ~23711~ <Editor: Hari Parameswaran>

10. Answer the following about the Italian Renaissance's craze for grottos, for 10 points each.
[10e] Visitors to Cosimo I's Villa di Castello explored a grotto dedicated to alchemy before viewing this artist's paintings like the *Birth of Venus* and *Primavera* in the house.
ANSWER: Sandro **Botticelli** [or Alessandro di Mariano di Vanni **Filipepi**]
[10m] Study of Lake Arno's fossil shoreline inspired the grotto in the background of this Leonardo da Vinci painting of Mary and Uriel watching over an infant Jesus and John the Baptist.
ANSWER: *Virgin of the Rocks* [or the *Madonna of the Rocks*; accept the Louvre *Virgin of the Rocks* or London *Virgin of the Rocks*; accept *Vergine delle rocce*]
[10h] The sponge-like Buontalenti Grotto appears next to the entrance of a corridor named for this artist, who designed it and the rest of the Uffizi Gallery. This artist was the first to use the term "rinascita," which was later translated as "Renaissance."
ANSWER: Giorgio **Vasari**
<Ganon Evans, Fine Arts - Painting - European to 1600> ~23359~ <Editor: Chandler West>

11. Defying cell biology dogma, CFTR bypasses this organelle entirely and is secreted directly from the ER to the membrane. For 10 points each:
[10e] Name this astoundingly poorly understood organelle that performs nebulous tasks like protein sorting and packaging.
ANSWER: **Golgi** apparatus [or **Golgi** complex; or **Golgi** body]
[10h] A common theory holds that proteins ride along with the cisternae as they undergo this progression from the *cis*- to *trans*-Golgi. This general term also names the pro-mitotic complex of cyclin B and CDK1.
ANSWER: **maturation** [or **maturing**; or cisternal **progression-maturation**; or **maturation** promoting factor; prompt on MPF]
[10m] Cisternal maturation would require proteins to spend a fixed time inside the Golgi, but they don't, according to FRAP ("frap") experiments using this reporter protein derived from *Aequorea victoria*.
ANSWER: **green fluorescent protein** [or **GFP**; accept **yellow fluorescent protein** or **YFP**]
<Adam Silverman, Science - Biology> ~23759~ <Editor: Adam Silverman>

12. The original text of this collection is lost in the sinking of the Titanic at the end of Amin Maalouf's novel *Samarkand*. For 10 points each:
[10e] Name this collection of quatrains by Omar Khayyam, one of which opens "The Moving finger writes, and having writ, / Moves on."
ANSWER: The *Rubaiyat* [or The *Rubaiyat* of Omar Khayyam]
[10m] In Edward Fitzgerald's translation, this specific object is paired in a Khayyam quatrain with a "Book of Verses," "a Loaf of Bread" and "Thou."
ANSWER: a **Jug of Wine** [prompt on partial answer; accept a **gourd of wine**; accept a **flask of wine**]
[10h] Initially not known for his poetry, Khayyam and the Rubaiyat were promoted and popularized by this group. A member of this group described the sonnet as "a moment's monument" in the sequence *The House of Life*.
ANSWER: **Pre-Raphaelite** Brotherhood [accept **PRB**] (*The House of Life* is by Dante Gabriel Rossetti.)
<Ganon Evans, Literature - World and Miscellaneous> ~23846~ <Editor: Jim Fan>

13. Hanseatic ships returning from Iceland sold a prized variety of these animals which made their way to Arabia. For 10 points each:
[10e] Name these birds, which medieval kings used in a sport where they would hunt other animals.
ANSWER: **falcon**s [or **hawk**s; or **buzzard**s; accept specific types of birds of prey like **haggard**s or **gyrfalcon**s; accept **falconry**; prompt on <u>bird</u>s of prey]
[10m] This group gifted gyrfalcons to kings and popes after training them in Marienburg Castle. Vytautas the Great defeated this group at the 1410 Battle of Grunwald.
ANSWER: **Teutonic Knights** [or Knights of the **Teutonic Order**]
[10h] Gyrfalcons were associated with kings in a manual on hunting, fishing, and falconry named after this town. Historians often mark the start of the Wars of the Roses to a 1455 Yorkist victory in this town, where Henry VI was released after a second battle.
ANSWER: **St. Albans** [or **St. Alban**; accept *Book of **St. Albans***]
<Hari Parameswaran, History - European - Middle Ages> ~23369~ <Editor: Hari Parameswaran>

14. Migrants are described as a "huddled/camouflage" moving past this place's "scummed cliffs" in a Daljit Nagra poem. For 10 points each:
[10e] Name this place. Nagra's poem's epigraph "so various, so beautiful, so new" comes from a Matthew Arnold poem set on a "beach" at this place.
ANSWER: **Dover** [accept "**Dover** Beach" or "Look We Have Coming to **Dover**!"]
[10h] The title of Nagra's poem alludes to this poet's collection *Look! We Have Come Through!*. This author described a man pausing in the shade of a tree after seeing the poem's title "Snake" in a trough.
ANSWER: D. H. **Lawrence** [or David Herbert **Lawrence**]
[10m] Nagra's poem describes the "moon's / spotlight, banking on the miracle of sun" instead of using this adjective, which in Arnold's poem, describes a "plain…where ignorant armies clash by night."
ANSWER: **darkling** [accept the **darkling** plain]
<Ganon Evans, Literature - British - Poetry> ~23827~ <Editor: Jim Fan>

15. Fueled by *ressentiment*, the lower classes used this word to describe the aristocracy during the "slave revolt in morality." For 10 points each:
[10m] Name this second title concept of a book subtitled "Prelude to a Philosophy of the Future," whose sequel traces this concept's origin to Judeo-Christian morals.
ANSWER: **evil** [or **böse**; prompt on *Beyond Good and Evil*; prompt on *Jenseits von Gut und Böse*]
[10e] This philosopher contrasted bad and evil in *The Genealogy of Morals*. He also wrote *Beyond Good and Evil* and *Also Sprach Zarathustra.*
ANSWER: Friedrich **Nietzsche**
[10h] *Beyond Good and Evil* criticizes the dogmatic value placed on this concept, asking the reader to recognize its opposite "as a condition of life." The book opens by asking, "Suppose [this concept] is a woman—what then?"
ANSWER: **truth** [accept un**truth**]
<Forrest Weintraub, RMP - Philosophy> ~22946~ <Editor: Vincent Du>

16. The Aharonov–Bohm, or AB, effect shows the physicality of these functions. For 10 points each:
[10h] Name these two functions that are combined into a four-vector denoted "A-super-alpha." The negative gradient and curl of these functions respectively give the E- and B-fields. You can give the word shared by their names.
ANSWER: electromagnetic **potential**s [or electromagnetic four-**potential**; accept electric scalar **potential** or magnetic vector **potential**]
[10m] The AB effect was first observed with these devices that generate uniform magnetic fields described by the equation, "B equals mu-nought $N I$ over L."
ANSWER: **solenoid**s [prompt on electromagnets or coils or wires]
[10e] Solenoid-shaped Dirac strings, which connect these objects, may carry out the AB effect. Gauss's law for magnetism forbids these objects that feature only a "north" or "south" end.
ANSWER: magnetic **monopole**s [or Dirac **monopole**s]
<David Bass, Science - Physics> ~23785~ <Editor: David Bass>

17. The Mohawk, Onondaga, Oneida, Cayuga, and Seneca banded together to form this confederacy. For 10 points each:
[10e] Name this Native American confederacy that was founded by Dekanawida, Hiawatha, and Jigonhsasee, known by the endonym Haudenosaunee.
ANSWER: **Iroquois** Confederacy [or **Iroquois** League]
[10h] It is debated whether this founding oral constitution of the Haudenosaunee recorded on wampum belts influenced the US Constitution.
ANSWER: **Great Law of Peace**
[10m] The name of the Haudenosaunee refers to how they lived in these dwellings, which also lend their name to an indigenous religious movement started by Handsome Lake.
ANSWER: **longhouse**s [accept the **Longhouse** Religion]
<Abhinav Rachakonda, History - American - Pre-1865> ~23072~ <Editor: Arjun Nageswaran>

18. The cover of Pink Floyd's album *Animals* depicts an Art Deco one of these facilities constructed in the "brick-cathedral" style. For 10 points each:
[10h] Name these industrial facilities, one of which was designed by J. Theo Halliday and Giles Gilbert Scott. In 1995, Herzog & de Meuron won a contest to redevelop one of these facilities in Bankside.
ANSWER: **power station**s [or **power plant**s; accept Bankside **Power Station** or Battersea **Power Station**]
[10m] Herzog & de Meuron converted the Bankside Power Station into this British art museum, where installations such as Ai Weiwei's *Sunflower Seeds* were displayed in its Turbine Hall.
ANSWER: **Tate Modern** [prompt on Tate alone]
[10e] Along with Norman Foster, this architect designed apartment buildings for the 2012 redevelopment of the Battersea Power Station. This Canadian architect designed the Walt Disney Concert Hall.
ANSWER: Frank **Gehry** [or Frank Owen **Gehry**]
<Steven Yuan, Fine Arts - Architecture> ~22527~ <Editor: Chandler West>

19. A *New York Times* investigation found that the CIA purchased this software for the government of Djibouti. For 10 points each:
[10h] Name this spyware software developed by Israel's NSO Group. It's not Galileo, but this software was likely used to hack Jeff Bezos's iPhone in 2020.
ANSWER: **Pegasus**
[10m] Opposition parties in this country alleged that Pegasus was used by its Law and Justice Party during a 2019 election. In 2023, Donald Tusk defeated the PiS to become Prime Minister of this country.
ANSWER: **Poland** [or Republic of **Poland**; or **Polska**]
[10e] The *Times* investigation found that this man's administration was the biggest purchaser of Pegasus, ostensibly to fight drug cartels. This Mexican president will be succeeded by Claudia Sheinbaum.
ANSWER: Andrés Manuel **López Obrador** [or **AMLO**; prompt on López or Obrador]
<Michael Bentley, Current Events - World> ~22877~ <Editor: Michael Bentley>

20. Thai Buddhists wrap ribbons or hang dresses from these objects as an offering to Nang Ta-khian. For 10 points each:
[10e] Name these plants. Tartar myths represent their *axis mundi* connecting the heavens and the earth as these plants' "world" variety.
ANSWER: **tree**s [accept the world **tree**; accept hopea odorata **tree**s; prompt on plants]
[10m] Tapa Ngalong practitioners hang from trees to meditate in this island's folk religion of Kejawen. Borobudur, the world's largest Buddhist temple, is located on this island.
ANSWER: **Java** [or **Jawa**]
[10h] The Apsaras and Gandharvas of Hindu myth perform this activity from trees. The Buddha taught that the Pure Land is created through this action which "softens people's hearts."
ANSWER: **music** [accept word forms such as being a **musician** or making **music**; accept **singing** or **playing an instrument**; prompt on art or making art]
<Ganon Evans, RMP - East Asian Religion> ~23874~ <Editor: Kevin Thomas>

21. The MATLAB function "waterplot" creates these plots. For 10 points each:
[10h] Name these plots that show the graph of a chirp signals' namesake function. These colorful plots visualize signals with horizontal and vertical axes representing time and frequency domains, respectively.
ANSWER: **spectrogram**s [prompt on waterfall plots or waterfall displays; reject "spectrograph"]
[10e] Color in a spectrogram represents this quantity, which is proportional to the square root of intensity. This quantity for a sound wave determines its volume.
ANSWER: **amplitude** [prompt on A]
[10m] Spectrograms are typically created with the "short-time" variant of this operation. This operation decomposes a signal over time into its constituent frequencies, which can then be plotted in a periodogram.
ANSWER: **Fourier transform** [accept short-time **Fourier transform**; prompt on Fourier; prompt on transform]
<Lalit Maharjan, Science - Physics> ~28233~ <Editor: David Bass>