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Collaboration vIa Network (MRNA VACCINE)**

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**Packet 9: "Erik this is stupid stuff / This tossup isn't good enough / Your idea quality, it is high / Your execution comes up dry / My comments yes they may be rude / They don't reflect your aptitude / I see your talent, see your brain / So go, display it in the main! / Make the tossup! Make it flow! / Our set's great, you help make it so!"**

1. **Wealth from this commodity allowed the Czech city of Kutná Hora to compete with Prague for importance by supplying material for *groschen*. It's not a food, but this was the main commodity whose decline in production led to a 15th-century "Great Famine." Material used to process this commodity produced by indigenous labor in Huancavelica replaced European sources at Almadén. During the height of the Spanish Empire, this was the main commodity shipped west from (\*) Acapulco to exchange for Chinese silk and porcelain on the Manila Galleons. This was the less valuable of two commodities whose extraction at Potosí for *specie* would lead to massive inflation in the Spanish Empire. For 10 points, name this commodity that was used to make the "piece of eight," or the Spanish dollar.**

ANSWER: **silver** [prompt on bullion, prompt on mercury by asking "what other commodity was it used to process?"]

<Erik Christensen, Other History>

2. **Michael Woodford proposed that these institutions could use "timelessly optimal" precommitment to increase credibility in their signalling channels. So-called "unconventional" methods used by these institutions include NIRPs and collateral adjustments. In many forecasting models, these institutions are assumed to not take discretionary action and instead follow the (\*) Taylor Rule. One of these in the US started announcing its likely future actions in the early 2000s; those announcements are called "forward guidance." These institutions can raise funds through seigniorage ["SEEN-your-idje"]. One of these in the United States includes an Open Market Committee and maintains a "dual mandate" of controlling both inflation and unemployment. For 10 points, name this kind of institution which in the United States is called the Federal Reserve.**

ANSWER: **central banks** [or **reserve banks** or **monetary authorities**; accept **Federal Reserve** or "**Fed**" before mentioned; prompt on government bank, national bank, state bank, bank]

<Sam Bailey, Social Science>

3. In this play, a woman is wooed as “My Ruth, my Rachel, Esther, Bathsheba” by a man who observes women “going mad” by dancing without a full moon. A character in this play chants the phrase “take warning my masters / we’ll scotch you in the end” while dancing around a figurine. A character who bribed a foreman to route a railroad around his village in this play performs with a wrestler in its last section. During a performance within this play, four girls act as the wheels of a car, but stop when the (\*) “Lost Traveler” vomits. In this play, a character proposes creating stamps with a woman’s photograph from a magazine. In this play, a schoolteacher refuses to pay the bride-price for a woman who later marries the Bale of Ilujinle. Lakunle and Baroka vye for the love of Sidi in, for 10 points, what play by Wole Soyinka?

ANSWER: *The Lion and the Jewel*

<Ganon Evans, World Literature>

4. A saint from this non-Italian city embarked on a pilgrimage as a prostitute, but encountered the monk Zosimas and blessed churches along the Jordan River. The shoemaker Anianus was the first member of a church based in this city which split from the Tewahedo Church. Origen and Gregory the Miracle Worker studied at a Catechetical [“cat-a-KET-ical”] School for priests in this city. According to one story, a saint from this city converted fifty philosophers in religious debate, declined a marriage to (\*) Maxentius and destroyed a breaking wheel. In 1968, Pope Paul VI returned relics to this city which were smuggled out in pork barrels to avoid Muslim porters; those relics include a bone from the body of St. Mark. Tawadros II is a pope based in, for 10 points, what home city of St. Catherine and seat of the Egyptian Coptic Church?

ANSWER: Alexandria [or Eskendereyya; or Rakoti] (The unnamed saint in the first clue is Mary of Egypt.)

<Ganon Evans, Religion>

5. One method invented by this scientist was applied to all four-geometries to generate a single three-geometry in the Hartle-Hawking no-boundary proposal. When using a method developed by this scientist, it is common to replace  $t$  with negative  $i$  times  $t$  to to move from a Lorentzian to a Euclidean manifold. A technique invented by this scientist calculates a complex infinite sum in which two terms cancel if their (\*) actions differ by  $\pi$  times  $\hbar$ . That technique, which calculates a probability amplitude by summing over all possible trajectories, is this scientist’s path integral formulation of quantum mechanics. Another construct developed by this scientist uses helices to show gluons and depicts antiparticles moving backwards in time. For 10 points, name this physicist, who used wavy lines to represent photons on namesake diagrams.

ANSWER: Richard Phillips Feynman

<Beni Keown, Physics>

6. According to Pliny, Apelles created a version of this scene which used Alexander the Great's mistress Campaspe as a model. A later artist based the central figure of his version of this scene on the model on the far left side of his earlier painting *The Nymphaeum*. Several *putti* carry a large striped sash in the upper half of another version of this scene. In depictions of this scene by William-Adolphe Bouguereau ["boh-jeh-row"] and François Boucher ["boo-shay"], men blow (\*) conch shells. In another depiction of this scene, the Hora of Spring holds out a cloak to cover the central nude figure, who is covering her right breast. Depictions of this scene often place its central figure atop an oversized scallop shell. For 10 points, name this mythological scene depicting a nude goddess, perhaps most famously painted by Sandro Botticelli.

ANSWER: The Birth of Venus [or Venus Anadyomene; or Triumph of Venus; really accept any answer mentioning Venus; accept Aphrodite in place of Venus]

<Chandler West, Painting/Sculpture>

7. A Supreme Court case centered around members of this group established the government's right to regulate the actions of children and upheld a pair of Massachusetts child labor laws. In addition to being ruled against in *Prince v. Massachusetts*, the expulsion of members of this group by the Minersville School District was upheld in a 1940 case. The *Barnette* decision overturned *Gobitis* and confirmed a practice promoted by this group's leader Joseph (\*) Rutherford. This religious group grew out of Charles Taze Russell's Bible Student movement. This group produces the illustrated magazines *Awake!* and *The Watchtower*. For 10 points, identify this Christian religious group known for refusing blood transfusions and door-to-door preaching.

ANSWER: Jehovah's Witnesses [prompt on JW; prompt on Christians or Protestants by asking "of what denomination?"]

<Chandler West, American History>

8. Some species of these plants consist exclusively of asexually-reproducing gametophyte ["guh-ME-toe-fite"] colonies. The canopies of tropical rainforests are dominated by epiphytic species of these plants. After several mass extinctions, the fossil record shows a characteristic "spike" of these plants, which in modern times is seen following volcanic eruptions. These plants' gametophyte stage is a heart-shaped photosynthetic structure called the prothallus. The late Cretaceous saw these plants' (\*) "great radiation." Though previously considered a separate division, the horsetails were recently found to belong to this group of plants, which also includes exceptionally tall "tree" varieties. These plants' leaves have clusters of reproductive structures on their undersides. For 10 points, name these seedless vascular plants that release spores from their fronds and include fiddleheads.

ANSWER: ferns [or Polypodiopsida; or Polypodiophyta; or Pteridopsida; or Pteridophyta; or Monilophyta]

<Gerhardt Hinkle, Biology>

9. A character with this profession feels the urge to curse and argue against the immortality of the soul in a chapter titled for being "In a Maze." A character breaks off her marriage to a man with this profession who tells a crowd around his deathbed to "Tremble also at each other!" A child confuses a character of this profession with "the Black Man" when that character comes to attend a meeting by a brook. Elizabeth breaks off an engagement with a character with this profession that refuses to take off the (\*) title object, with which he is buried. A character with this profession holds a vigil on a scaffold under a meteor where he clasps hands with his daughter, Pearl. For 10 points, name this occupation of the black veil-wearing Mr. Hooper, as well as Arthur Dimmesdale in *The Scarlet Letter*.

ANSWER: minister [or reverend; or priest; or clergyman; or "The Minister's Black Veil"]

<Henry Atkins, American Literature>

10. A 2014 stage production starring Maxine Peake replaced this character with a balled-up sweater. A popular theory cites the doggerel-performer Richard Tarlton as the model for this character, who has controversially been played by the Polish composer André Tchaikowsky. Ken Dodd silently cameoed as this character for a flashback in a 1996 film, over which Kenneth (\*) Branagh states “now get you to my lady's chamber and tell her, let her paint an inch thick.” A 2008 production starring David Tennant honored a dead composer's wish to appear as this character. This character is asked “Where be your gibes? Your gambols? Your songs?” after being unearthed by a gravedigger. For 10 points, name this “fellow of infinite jest” who appears in *Hamlet* as a skull.

ANSWER: Yorick [accept answers mentioning Yorick's skull; prompt on answers like “the skull from Hamlet”]  
<Conor Thompson, Other>

11. The last movement of a piece by this composer features repeated left hand A-E dyads in every bar. In a piece by this composer, on multiple occasions the singer sings a repeated flat 9 over a dominant seventh chord, which is higher in each successive instance. That work by this composer, which was arranged as a “grand caprice” for solo violin by Heinrich Ernst, opens with repeated eighth note (\*) triplet G octaves to portray a galloping horse and uses separate vocal ranges for the narrator, a boy, his father, and the title creature. This composer included pieces depicting a hurdy-gurdy player and a linden tree in a set of 24 songs about a wanderer. For 10 points, name this Austrian composer of lieder such as “Der Erlkönig” and the song cycles *Die schöne Müllerin* [“dee SHUR-nuh MULL-uh-rin”] and *Winterreise* [“VIN-ter-rye-zuh”].

ANSWER: Franz (Peter) Schubert  
<Gerhardt Hinkle, Classical Music>

12. On the advice of the doctor Bauduin, a large “Imperial Gift” park was built in this city to host several National Industrial Exhibitions. Because this city's firemen often doubled as chimneymakers, one of its “Three Great Fires” may have been due to arson instead of a priest burning a cursed dress. This center of the “five highways” network was surrounded by fifty three post stations as part of the “Eastern Sea Route.” This city's (\*) “Imperial University” began as an Astronomy School to teach “Dutch learning.” The Charter Oath formally moved a leader's residence to this city, which was renamed shortly before the Boshin War's defeat of the last shōgun. For 10 points, name this city that became the political center of the Meiji Restoration, which was formerly called Edo.

ANSWER: Tokyo, Japan [or Edo before mentioned]  
<Erik Christensen, World History>

13. After leaving a hospital, a hussar notices this character “sat [on] his horse poorly and unsteadily.” After noticing a different person lying on a battlefield, this character remarks “There's a fine death” and appears as a “small, insignificant man” compared to the “lofty, infinite sky.” After not encountering this character and instead protecting an Armenian woman, a prisoner enjoys a salty jacket potato while being imprisoned by this character. A Freemason discovers this character's name sums to (\*) 666 in Hebrew numerical values. This character is decried as “the Antichrist” at Anna Pavlovna's party by his would-be assassin, Pierre Bezukhov. For 10 points, name this character, whose 1812 Invasion of Russia is the backdrop of Leo Tolstoy's novel *War and Peace*.

ANSWER: Napoleon Bonaparte [or Napoleon I; do NOT accept or prompt on “Napoleon III” or “Louis-Napoleon”]  
<Ganon Evans, European Literature>

14. Linux APIs that primarily handle this type of data include ALSA [“ALL-suh”] and JACK. *Unlike the discrete cosine transform, the modified discrete cosine transform is typically applied to this type of data. This type of data may be represented by using pulse-code modulation, in which the quality of the representation is indicated by the bit depth. For this type of data, 44,100 is often the sampling rate required by the Nyquist limit. Compression algorithms that are optimized for this type of data include lossy (\*) Ogg Vorbis and lossless FLAC. Spectrograms are most commonly used to analyze this type of data by showing the change over time of the frequency spectrum, which is computed by using a Fourier transform. This type of data is usually bandlimited to between 20 and 20000 hertz. For 10 points, name this type of data that may be stored as a WAV or an MP3.*

ANSWER: audio [or sound; or music; or voice; or other clear equivalents; do not accept or prompt on "MIDI"]  
<Gerhardt Hinkle, Other Science>

15. In this book, the author argues that the sentence “Excalibur has a sharp blade” makes sense even if it is broken into pieces. The short second part of this book, which has been published separately as *Philosophy of Psychology* in a new translation, is split into fourteen short sections and was added by editors Rush Rhees and Elizabeth Anscombe. This book begins with a criticism of a quote from the (\*) Confessions of St. Augustine that claims “individual words in language name objects.” This book criticizes its author’s earlier “picture theory of meaning” and imagines people labeled A and B identifying blocks and slabs in a language game. For 10 points, name this posthumous book by Ludwig Wittgenstein that reverses many positions taken in his *Tractatus*.

ANSWER: Philosophical Investigations [or Philosophische Untersuchungen]  
<Erik Christensen, Philosophy>

16. A 1944 exhibition titled *The Imagery of [this activity]* featured objects used for this activity created by Max Ernst. This activity is depicted in another work with violin scroll, flask, and pyramid-shaped objects made from brass, silver and gold. In the René Clair film *Entr’acte*, Man Ray engages in this activity with another artist who spent the later part of his career engaging in this activity after the creation of a work subtitled (\*) *The Large Glass*. A group of objects used for this activity include one discovered in Ager, Catalonia, as well as one discovered in the Hebrides on the island of Lewis made from walrus ivory. Marcel Duchamp became a master in, for 10 points, what game, which was depicted by Man Ray in the queen’s gambit declined position?

ANSWER: chess [or phrases like “playing chess”]  
<Aidan Fein, Other Fine Arts>

17. A bonding pair from this molecule forms a three-center two-electron bond with iron in a complex also containing two d-p-p-e ligands, an example of a non-agostic sigma complex. When this molecule forms a transition metal complex, its vibrational frequency decreases to 2800 wavenumber. In anaerobic conditions, iron undergoes a form of corrosion that releases this molecule. Methane and this gas are released during serpentinization. The unusual heat capacity of this molecule is due to its (\*) two spin isomers, called ortho and para. Palladium stores up to 900 times its volume of this molecule. Three equivalents of this molecule react with one equivalent of N<sub>2</sub> under high pressure and temperature in the Haber process. For 10 points, name this molecule that reacts with oxygen to form water.

ANSWER: molecular hydrogen [or hydrogen gas; or dihydrogen; or H<sub>2</sub>]  
<Gerhardt Hinkle, Chemistry>

18. This adjective is the first word in a type of literary analysis used by its formulator in *Renaissance Self-Fashioning* and alternately termed a “cultural poetics.” A foundational book in a school of literary criticism named for this adjective begins with an analysis of John Donne’s “The Canonization.” Shakespeare scholar Stephen Greenblatt applied this adjective to a type of “historicism.” *The Well-Wrought Urn* and *The Intentional Fallacy* were foundational texts in a (\*) 1950s school of formalist criticism named for this adjective, which advocated the close reading of self-contained texts. Ezra Pound loosely adapted a Confucian proverb into the slogan “make it [this adjective].” For 10 points, “brave” and what adjective describe the world in a dystopian novel by Aldous Huxley?

ANSWER: new [or *Brave New World*; or new criticism; or new historicism; or *Make it New*]  
<Henry Atkins, British Literature>

19. In order to become one of these people, a man takes his seven sons into battle so their blood can soak into a specific object. One member of this profession wanders into a room wallpapered in human skin, where he finds nine heads in a circle, three owls, and a snake. At the end of one epic, a member of this profession declares “Do not seek to know what is not to be known.” One member of this profession escapes a camp with Nana Triban after learning that a man can only be killed by a white rooster’s spur; he calms the anger of (\*) Soumaro Kante by playing his balafon. That man, Balla Fasseke, declares “the lion has walked” while writing the “Hymn to the Bow” in the *Epic of Sundiata*. The Ghanian epic “Gassire’s Lute” describes the first of these people. For 10 points, name these West African singers, storytellers and historians.

ANSWER: griots [or djeli; prompt on bard or storyteller or singer or musician or lute player]  
<Jaimie Carlson, Mythology>

20. This good was uniquely sold by units of weight equal to 1/568 ounce called asen. Early varieties of this good were often given names beginning with “admiral.” The market for this good was dubbed the “wind trade” since the good itself rarely changed hands. The most valuable forms of this good, including Viceroy and Semper Augustus, were made by a “breaking virus” that causes colorful streaks. The earliest widespread use of modern (\*) futures contracts was for this good. The trade of this good was the earliest example of a “National Delusion” in Charles Mackay’s book *Extraordinary Popular Delusions and the Madness of Crowds*. In the 1630s, this good’s price grew to absurd heights in guilders and suddenly collapsed in one of the earliest speculative bubbles. For 10 points, the Dutch underwent a “mania” for what flower?

ANSWER: tulips [or tulip bulbs; before mentioned, prompt on flowers; prompt on flower bulbs]  
<Gerhardt Hinkle, European History>

1. Answer some questions about modeling non-ideal gasses, for 10 points each:

[10e] This equation, named for a Dutch scientist, adds coefficients a and b to the ideal gas law to account for intermolecular forces and nonzero volume of gas particles, respectively.

ANSWER: **van der Waals** equation

[10m] For an ideal gas, the ratio between this quantity and pressure is equal to 1. This quantity gives the tendency of a fluid to escape its phase.

ANSWER: **fugacity**

[10h] This quantity equals the fugacity of a pure substance divided by its fugacity at saturation pressure. This quantity makes calculations of fugacity coefficients easier given a table of coefficients at saturated vapor pressure.

ANSWER: **Poynting** correction factor

<Eric Mukherjee, Chemistry>

2. Answer some questions about foods that can provoke passionate debate online between people from different countries, for 10 points each:

[10m] Intense online arguments often involving Nigerians and Ghanians can happen over this rice dish named for a West African empire. Ghanaians often use basmati rice for this dish usually made with tomato and chili peppers.

ANSWER: **Jollof** rice

[10e] Arguments over which country makes the best kind of this food, a ball typically made of deep fried chickpea in most countries, are compounded by Middle Eastern politics. In Egypt, this dish is instead made with fava beans.

ANSWER: **falafel** [or **taameya**]

[10h] In response to a McDonalds ad campaign, people from this country have accused its smaller neighbor of trying to appropriate nasi lemak, or “rich rice,” often considered its national dish.

ANSWER: **Malaysia**

<Erik Christensen, Other>

3. This man’s exposure to mercury fumes as a hatmaker may have influenced his decision to castrate himself with a pair of scissors upon being accosted by prostitutes. For 10 points each:

[10h] Name this man who defied Edward Doherty’s orders and shot a fugitive in a burning tobacco barn because it was “God’s orders.”

ANSWER: Boston **Corbett** [or Thomas **Corbett**]

[10e] Corbett became known as “Lincoln’s Avenger” after killing this actor-turned-assassin who shot the President at Ford’s Theater in 1865.

ANSWER: John Wilkes **Booth**

[10m] Corbett nearly died of dysentery after being brought to this location by the raiders of “The Gray Ghost.” The only Confederate convicted of war crimes was this location’s Swiss commander Henry Wirz.

ANSWER: **Andersonville** [or **Camp Sumter**]

<Beni Keown, American History>

4. In a book, this thinker described how the standing of hotelkeepers and their socially superior maids flipped when hosting a meal for middle-class tourists. For 10 points each:

[10m] Name this thinker, who studied how people put on different “masks” while performing roles in everyday society in *The Presentation of Self in Everyday Life*.

ANSWER: Erving **Goffman**

[10e] Goffman popularized the term “total institutions” in a book named for these places. In the Rosenhan experiment, participants voluntarily checked into these places by faking an illness but had a hard time checking out.

ANSWER: mental **asylums** [or **psychiatric hospitals** or **psych wards** or more old-fashioned terms like **mad house** or **insane asylums**]

[10h] In *The Presentation of Self in Everyday Life*, Goffman uses this term to describe places like the home, where one steps out of character and acts like themselves. Restaurant servers may vent about bad customers in this kind of area.

ANSWER: **backstage**

<Erik Christensen, Social Science>

5. *Description acceptable*. These speeches popularized the phrase “O tempora! O mores!,” which Charles Duke Yonge translated as “shame on this age and on its lost principles.” For 10 points each:

[10h] Name these speeches, first delivered to the Senate in the Temple of Jupiter Stator. The first of these speeches begins by asking “how long will you continue abusing our patience?”

ANSWER: The **Catiline Orations** [accept answers indicating Cicero’s speeches against **Catiline** or Lucius Sergius **Catilina**]

[10e] Cicero’s orations against Catiline became a classic of this field, which he taught in *De Inventione*. Medieval students of the trivium studied this art of persuasion along with grammar and logic.

ANSWER: **rhetoric**

[10m] The study of Cicero’s rhetoric boomed in the Renaissance after this author rediscovered his letters and speeches. Books 1 and 2 of this author’s *Africa* retell Cicero’s *Dream of Scipio*.

ANSWER: **Petrarch** [or Francesco **Petrarca**]

<Henry Atkins, European Literature>

6. Answer the following about the adventures of Chinese pirate lords, for 10 points each:

[10h] The largest pirate fleet ever was this woman’s 80,000-man strong Red Flag Fleet around the seas around Guangdong [“gwong dung”]. This woman’s step son Cheung Po outlined pirates rules which included prohibitions on sexual assault.

ANSWER: **Ching** Shih [or **Zheng** Yi Sao; or **Shi** Yang; or **Shi** Xianggu]

[10e] The pirate Koxinga [“koh-SIN-gah”] established the Kingdom of Tungning on this island after seizing Fort Zeelandia with a musketeer guard of freed African slaves. This island was previously known as Formosa.

ANSWER: **Taiwan**

[10m] This dynasty’s Pham Quang Anh [“fam gwang on”] scouted the Paracel and Spratly Islands for pirate hideouts. The last king of this dynasty founded by Gia Long [“zah long”] was the King of Tonkin under French protection and was named Bao Dai.

ANSWER: **Nguyen** (“win”) Dynasty

<Vikshar Athreya, World History>



7. This function is equal to the inverse of the Jacobi amplitude. For 10 points each:

[10h] Name this function equal to the integral from zero to two pi of d-theta over the quantity square root of one minus k-squared sin-squared theta.

ANSWER: complete **elliptic integral of the first kind** [prompt on elliptic integral]

[10e] The complete elliptic integral of the first kind solves the differential equation governing these systems. This type of simple harmonic oscillator consists of a weight at the end of a string that swings back and forth.

ANSWER: **pendulum**

[10m] If a pendulum is suspended from the cusp of this shape, the path the weight traces is also of this shape. A ball sliding frictionlessly down one of these curves reaches the bottom in the same time regardless of starting position.

ANSWER: **cycloid** [prompt on tautochrone by asking “what shape solves the tautochrone problem?”]

<Eric Mukherjee, Physics>

8. A poem claims that there will “be no highlights” of this event “on the eleven o’clock news” and that “NBC will not be able to predict the winner” of it. For 10 points each:

[10m] Identify this event which, according to a spoken-word poem, “you will not be able to stay home” during, because it “will not be televised.”

ANSWER: the **revolution** [or “The **Revolution** Will Not Be Televised”]

[10h] Gil Scott-Heron, the author of “The Revolution Will Not Be Televised,” mentioned this author in his poem “Comment #1,” stating “Leave [this person] and Brother Malcolm alone.” This author’s own essays written in prison were eventually published as the collection *Soul on Ice*.

ANSWER: Eldridge **Cleaver** [or Leroy Eldridge **Cleaver**; or Brother **Cleaver**]

[10e] Ye’s [“yay”] song “Who Will Survive in America” samples Heron’s “Comment #1,” which mentions “youngsters” who dig this man and Paul Revere as the “good guys.” This man led an 1831 slave revolt in Virginia.

ANSWER: Nat **Turner**

<Andrew Hanna, American Literature>

9. Luis Torres and Michelle Marder Kamhi collected this critic’s art opinions in the book *What Art Is*, in which her “esthetic theory” claims photography and anything with the “schizoid tendencies” of John Cage isn’t art. For 10 points each:

[10h] Name this critic who imagined an art school dubbed “romantic realism” in her treatise *The Romantic Manifesto*. Tamara de Lempicka’s *Self-Portrait in a Green Bugatti* serves as the cover for one of this author’s books.

ANSWER: Ayn **Rand** [or Alice **O’Connor**; or Alisa **Rosenbaum**]

[10e] Rand claimed that if a painting belongs to this movement, “one can be reasonably certain that the work in question is not art.” This movement depicted mass media images like the *Campbell’s Soup Cans* of Andy Warhol.

ANSWER: **Pop** Art

[10m] Another “spurious postmodernist” hated by Rand was this artist who collaborated with Charlotte Moorman to create a playable cello made of TV’s. This Korean founder of video art created a map of the United States using screens he dubbed the *Electronic Superhighway*.

ANSWER: Nam June **Paik** [or **Paik** Nam June]

<Ganon Evans, Painting/Sculpture>

10. After staging fights between two of his generals to get rid of them, a king hanged himself and became this god. For 10 points each:

[10m] Name this Yoruba deity, who is represented by a double-headed ax. This husband of the wind goddess Oya is often syncretized with Saint Jerome or Saint Barbara.

ANSWER: **Shango**

[10e] The thunder god Shango is worshiped as an orisha in Yoruba religion, but has also been incorporated into this syncretic Haitian religion which venerates loas like Papa Legba and Baron Samedi.

ANSWER: **voodoo** [accept Haitian **Vodou, Vaudou, Vodoun, Vaudoux, or Vodun**]

[10h] Shango's second wife, Oshun, convinced his first wife, Oba, to put this object in Shango's food to make him love her. Oba turned into a river when this did not work.

ANSWER: Oba's **ear**

<Jaimie Carlson, Mythology>

11. Answer the following about remote sensing and the usage of aerial technology in archaeology, for 10 points each:

[10m] In 2016, drone imagery revealed a massive ceremonial platform as part of this site near the modern town of Wadi Musa. Bedouin lore claims that Aretas IV's riches were held in the rock-cut Treasury building at this site.

ANSWER: **Petra**

[10h] Modern satellite imagery confirms a network of eight houses as part of this site in the Orkney Islands that was revealed when an 1850 storm blew off its grass cover. This "Scottish Pompeii" is the best preserved Neolithic site in Western Europe.

ANSWER: **Skara Brae**

[10e] While flying, Paul Kosok realized that what he believed were irrigation canals in a desert were actually animal-shaped lines, named for this civilization of southern Perú.

ANSWER: **Nazca**

<Ganon Evans, Other History>

12. When a character in this novel suspects she is pregnant, her mother's ghost returns to tell her that she and her child are cursed. For 10 points each:

[10m] Name this novel about the love between Tita de la Garza and Pedro. This Laura Esquivel novel is divided into twelve sections which each begin with a recipe.

ANSWER: **Like Water for Chocolate** [or **Como agua para chocolate**]

[10h] The title character of this novel runs a successful cooking school and eventually has to debate between her love of the ghost Vadinho and the still-living Teodoro.

ANSWER: **Dona Flor and Her Two Husbands** [or **Dona Flor e Seus Dois Maridos**] (by Jorge Amado)

[10e] In *Like Water for Chocolate*, Tita cares for Rosaura's daughter Esperanza, who shares a name with the Chicana protagonist of this Sandra Cisneros novel set in Chicago.

ANSWER: **The House on Mango Street**

<Chandler West, World Literature>

13. The Mellin transform of the negative exponential function gives the gamma function, which extends this operation to the complex numbers. For 10 points each:

[10e] Name this operation, denoted with an exclamation mark, that gives the product of all positive integers less than or equal to a given integer.

ANSWER: **factorial**

[10m] The gamma function is well-defined over all of the complex numbers except for the non-positive integers, where it exhibits these features. These features for a function  $f$  admit asymptotes and are zeroes of one-over- $f$ .

ANSWER: **poles** [or isolated **singularities**]

[10h] Because its poles are at isolated points, the gamma function has this property over the complex plane. All functions with this property can be expressed as the ratio of two holomorphic functions.

ANSWER: **meromorphic** [or **meromorphic** functions]

<David Bass, Other Science>

14. These musical features are the vertices shared by multiple cubes in the Cube Dance and are the centers of Weitzmann regions or "waterbugs" since the main objects of study of neo-Riemannian theory derive from them. For 10 points each:

[10h] Name these objects, the subject of Carl Friedrich Weitzmann's first treatise. Liszt cited that treatise as inspiring his heavy use of them in his *Faust Symphony*.

ANSWER: **augmented triads** [or **augmented chords**; do NOT accept or prompt on "augmented seventh chords," or "aug7," or "augmented major seventh chords," or "augM7," or "(French/Italian/German) augmented sixth chords"]

[10e] Debussy's music often has augmented triads because of his heavy use of a scale comprised only of this interval, which contains only augmented triads. This interval is composed of two semitones.

ANSWER: **whole tone** [or **major second**, accept **whole tone** scale]

[10m] This composer used augmented triads as the main harmonic language in *Nacht*, including an augmented tonic chord. He quoted Bach's chorale "Es ist genug," which opens with an ascending whole tone run, in his Violin Concerto.

ANSWER: Alban Maria Johannes **Berg**

<Gerhardt Hinkle, Classical Music>

15. A chapel in this country, whose hanger-inspired style scandalized the clergy and delayed its use by a decade, is made of four concrete parabola-shaped vaults flanked by walls decorated with blue mosaics. For 10 points each:

[10h] Name this country, whose capital contains a cathedral built around sixteen concrete columns in a hyperbola shape spanned by windows.

ANSWER: **Brazil** [or Federative Republic of **Brazil**; or República Federativa do **Brasil**]

[10m] The Church of Saint Francis of Assisi in Belo Horizonte and the Pritzker-winning Cathedral of Brasília was designed by this architect, who also designed the National Congress of Brazil and Supreme Federal Court in Brasília.

ANSWER: Oscar **Niemeyer** [or Oscar Ribeiro de Almeida **Niemeyer** Soares Filho]

[10e] Niemeyer also designed a building for one of these businesses called the Brasilia Palace. The Pritzker Prize is named for the founder of the Hyatt chain of these businesses.

ANSWER: **hotels**

<Erik Christensen, Other Fine Arts>

16. To trick Allied bombers, a decoy site of this company's massive steel works was built; at the real site, French prisoners of war and citizens from occupied nations were forced to work. For 10 points each:

[10h] Name this company, which produced massive pieces of artillery like Big Bertha and the Paris Guns. During World War II this company built the biggest pieces of artillery in history, the Schwerer Gustav and the Dora.

ANSWER: **Krupp**

[10e] The Krupp steel works in Essen were occupied by France and Belgium in 1923 due to a crisis involving the "hyper" form of this phenomenon, caused by the strain of paying reparations mandated by the Treaty of Versailles.

ANSWER: **inflation** [or hyper**inflation**, prompt on answer involving price increases and ask for the economic term]

[10m] The Ruhr valley was easy to occupy because it was demilitarized in accordance with Versailles and these other treaties signed in Switzerland. These treaties produced a period of good relations often called its "spirit."

ANSWER: **Locarno** Treaties

<Erik Christensen, European History>

17. Name some things about medications associated with birth defects, for 10 points each:

[10m] The STEPS program is used to monitor users of this medication, which is now used for multiple myeloma or itching. This sedative causes limb malformations in fetuses because it can switch enantiomers.

ANSWER: **thalidomide**

[10e] The primary medication used to treat this disorder, lithium, causes Ebstein's anomaly. In this psychiatric disorder, patients cycle between depressive and manic phases.

ANSWER: **bipolar** disorder

[10h] This medication, which was used to prevent miscarriage, was taken off the market in 1971. Its namesake "daughters" who were exposed to it in the womb, have increased risk of clear cell adenocarcinoma of the vagina.

ANSWER: **DES** [or **diethylstilbestrol**]

<Eric Mukherjee, Biology>

18. In a book named for this thinker, Jacques Derrida argued that their ideas are still haunting Western society long after his death. For 10 points each:

[10m] Name this thinker, whose interpretation of history is combined with psycho-analysis in Deleuze and Guattari's *Anti-Oedipus*. When discussing Hegel, this thinker coined the phrase "first as tragedy, then as farce."

ANSWER: Karl **Marx**

[10e] The title of *Specters of Marx* is inspired by the phrase "there is a specter haunting Europe" in this text. This text, published as a pamphlet in 1848, ends with the declaration "workers of the world, unite."

ANSWER: *The **Communist Manifesto*** [or the ***Manifesto of the Communist Party*** or ***Manifest der Kommunistischen Partei***]

[10h] This thinker's *Ghosts of My Life* uses the memory loss of the protagonist of *Memento* as an example of Derrida's "hauntology." This author of *Capitalist Realism* used a pseudonym to blog critical theory about music, film, and literature.

ANSWER: Mark **Fisher** [or **k-punk**]

<Erik Christensen, Philosophy>

19. The speaker of a poem sees this animal “frail, gaunt, and small” when leaning “upon a coppice gate.” For 10 points each:

[10m] Name this title animal whose song expresses “some blessed Hope, whereof he knew/ and I was unaware.” It is described with the same unusual adjective used for a plain in “Dover Beach.”

ANSWER: the darkling **thrush** (The poem is by Thomas Hardy.)

[10h] In “Pleasure’s Past,” this poet describes a thrush in the Northamptonshire dialect as a “speckt throstle.” This poet narrated a starving, four day escape from a mental asylum in “Journey Out of Essex.”

ANSWER: John **Clare**

[10e] This poet’s “The Tables Turned” exclaims “how blithe the throstle sings!” This Romantic poet of “Tintern Abbey” collaborated with Coleridge on *Lyrical Ballads*.

ANSWER: William **Wordsworth**

<Henry Atkins, British Literature>

20. Muslims must enter a state of *Ihram* before entering this city. For 10 points each:

[10e] Name this city where the Kaaba is located, the holiest city in Islam. The *miqat* represents a boundary before this city, past which all Muslims must be in a state of *Ihram*.

ANSWER: **Mecca** [or **Makkah**]

[10m] Muslims can travel to Mecca while on the Hajj or on this lesser pilgrimage. Unlike the Hajj, this pilgrimage can be undertaken during any time of year, and is not compulsory.

ANSWER: **Umrah**

[10h] Before entering Mecca for Hajj or Umrah, Muslims usually recite this prayer. This prayer, which indicates sole supplication to Allah, is used to enter a state of purity before pilgrimage.

ANSWER: at-**Talbiyah**

<Vikshar Athreya, Religion>