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Packet 4: "def the 4th best mrna vaccine i've experienced"

1. **A form of reverse-phase H·P·L·C is used to determine a concentration described by this adjective for substances like Septonex. Polymers have both an upper and lower variant of a solution temperature described by this adjective.** *Below* **a concentration described by this adjective, poloxamers exist as individual monomers in solution. The Krafft temperature is the temperature at which solubility of a (*)** surfactant equals a concentration described by this first adjective. Carbon dioxide that has exceeded a temperature and pressure described by this adjective is used as a solvent for decaffeination. For 10 points, name this adjective, which can precede "micelle ["my-sell"] concentration" or describe a point on a phase diagram where liquid and gaseous phases merge.
ANSWER: **critical**
<Andrew Hanna, Chemistry>

2. **This author used his own poem about "Olympian bards who sung / Divine ideas below" to begin an essay defining genius as "the activity which repairs the decay of things." He's not Walt Whitman or Thomas Carlyle, but this author's essays on Shakespeare, Goethe, and five other "great men" were credited by F. O. Matthiessen with sparking a literary "renaissance." Another essay by this author of** (*) *Representative Men* discusses becoming "a transparent eye-ball" in order to obtain solitude. This author wrote an essay which describes "foolish consistency" as "the hobgoblin of little minds" and proclaims "Whoso would be a man must be a nonconformist." For 10 points, name this Transcendentalist author of "Nature" and "Self-Reliance."
ANSWER: Ralph Waldo **Emerson** (The first sentence refers to the essay "The Poet.")
<Will Alston, American Literature>

3. **This thinker used the phrase "to let not insult pass unavenged" to argue one's actions are not made on impulse and always aim towards a goal. This thinker believed that sex outside of marriage was contemptible because during sex one "makes himself into a thing" and treats other people as objects. This thinker criticizes ethical inclinations by analyzing the different motivations for a (*)** shopkeeper to charge fair prices. In response to criticism, this thinker argued that it is not ethical to lie to a potential murderer about where their victim is. In one book, this thinker imagined the Kingdom of Ends, where rational people treat each other as the end and not the means to an end. For 10 points, name this German thinker whose *Groundwork of the Metaphysics of Morals* explains the categorical imperative.
ANSWER: Immanuel **Kant**
<Erik Christensen, Philosophy>

4. **One book recalls how, upon initiation to this group, members pour dung and urine over clothing that they wear until it rots. In an incident detailed in the Lynch Report, members of this organization travelled to Monterey during Labor Day Weekend to raise funds for the transport of a deceased former member, but ended up raping two teenage girls. The Rolling Stones hired this group to provide security at a concert during which (*)** Meredith Hunter was killed. This group, many members of which identify as "one-percenters," was profiled in a book subtitled for a "strange and terrible saga," and written by Hunter S. Thompson. For 10 points, name this American motorcycle gang with a religiously inspired name.
ANSWER: **Hell's Angels** [prompt on motorcycle gang, or motorcyclists, or bikers, or biker gang]
<Andrew Hanna, Other>

5. **During the decline of this organization, its name became associated with the satirical phrase "perished under corruption." Though he won a court case regarding this organization seizing his property, Isaac Le Maire largely failed in his attempts to sabotage it. After winning a brief conflict on Lontor, this organization enslaved and deported hundreds of residents of the (*)** Banda Islands. The first European settlement on the Cape of Storms was built to service ships owned by this organization. A settlement built by this organization would grow into the city of Batavia, the center of its massive operation in the trade of spices like cloves and nutmeg. For 10 points, name this massive corporation, the first publicly traded company, which colonized Indonesia.
ANSWER: **Dutch East India Company** [or the **VOC**; or the **United East India Company**; or **V**ereenigde **O**ostindische **C**ompagnie] (In Dutch, "perished under corruption" is 'vergaan onder corruptie,' which spells VOC.)
<Erik Christensen, Other History>

6. **For the renovation of an art gallery, this architect designed a spiral staircase that protrudes outside the building and a 200-meter canopy built with glass and laminated wood. This architect created sections of curved white plaster for the Vitra Design Museum and blended brick with steel for the Weisman Art Museum in Minneapolis. A heavily criticized building designed by this architect features red, black and white (*)** sections inspired by a smashed guitar that leave room for a monorail to pass. A building by this architect features seemingly random curved walls made of titanium and glass. For 10 points, name this Canadian-American architect of the Museum of Pop Culture in Seattle and the Guggenheim Museum in Bilbao, Spain.
ANSWER: Frank **Gehry**
<Erik Christensen, Other Fine Arts>

7. **When this process occurs at an extreme rate near areas of tectonic uplift, it can create "tectonic aneurysms." Woodruff and Siddoway's equation for modeling this process simply states that its rate is a function of the variables I, K, C, L and V. A flexible approach to reducing this process is the use of articulated concrete blocks with steel cables, an alternative to the use of rip-rap and gabions. Along with many different quality issues, this process is intensified in heavily (*)** paved urban areas because of the shorter lag time of runoff. To address the role of this process in desertification, the Chinese government and the African Union have planted millions of trees. It can be prevented by terraced farming. For 10 points, name this process often caused by glaciers, wind, or water which transports soil or rock from riverbeds.
ANSWER: **erosion** [prompt on anything discussing soil loss, accept **transport** until read, accept types of **erosion** like glacial, wind, or water; do NOT accept or prompt on "weathering"]
<Erik Christensen, Other Science>

8. **This country banned alcohol-containing ice cream after its Little India Riots, which involved its community of Tamil workers. It's not Nepal, but this country's Housing and Development Board built a series of low-cost housing units to clear out slums with the help of its Gurkha Contingent police force. Though not a major participant in the crisis, the MacDonald House bombing took place in this modern-day country during the** *Konfrontasi.* **After the 1964 Prophet (*)** Mohammad Birthday riots erupted in this country, it was expelled from a union led by a different country's leader, Tunku Abdul Rahman. This country's large Hakka Chinese community includes members of its People's Action Party such as its first president Lee Kuan Yew. For 10 points, name this small Southeast Asian island country separated by the Strait of Johor from Malaysia.
ANSWER: Republic of **Singapore** [or **Xīnjiāpō** Gònghéguó; or **Sin-ka-pho** Kiōng-hô-kok; or **Sān'gabō** Guhng'wòhgwok; or **Sîn-kâ-phô** Khiung-fò-koet; or **Sĭng-gă-pŏ** Gêṵng-huò-guók; or Republik **Singapura**; or **Ciṅkappūr** Kuṭiyaracu; or **Xīngzhōu**; or **Seng-chiu**; or **Xīngguó**; or **Seng-kok**; or **Shīchéngub**; or **Sai-siâ**; or **Sernghakborey**; or Cộng hòa **Xin Ga Po**; or **Tân Gia Ba** Cộng hòa quốc; or **Tân Gia Pha**; or **Singgaporeu**]
<Vikshar Athreya, World History>

9. **Two men from this country and Clara Martinez-Toledano coined the terms "Brahmin left" and "merchant right" to describe new political alliances in western democracies. Abhijit Banerjee, Sendhil Mullainathan and an economist originally from this country founded the Poverty Action Lab in order to conduct randomized control trials. A law named for a thinker originally from here states that the excess (*)** demand for all goods in an economy must sum to zero. Opponents of stimulus spending often invoke the "parable of the broken window," which was written by a man from here. Another economist from this country organized the World Inequality Database with Emmanuel Saez and argued growing inequality is in some sense inevitable in *Capital in the Twenty-First Century*. For 10 points, name this country home to Thomas Piketty.
ANSWER: **France**
<Sam Bailey, Social Science>

10. **The actor who played this character in an original production mispronounced the word for calm and thus said what translates to "After the storm I see a weasel," which was mocked by comedians and ruined his career. In that play named for this character, a god claims the earth was overpopulated, so a daughter of Zeus was used to kill people by starting a war. That play sees this character and his friend (*)** Pylades attempt to escape persecution, as does the play *Iphigenia in Tauris*. In a preceding play not by Euripides, this character is summoned by his sister to avenge the death of their father by killing his mother Clytemnestra and her lover, Aegisthus. For 10 points, name this son of Agamemnon, who is the namesake of a trilogy of Greek tragedies by Aeschylus.
ANSWER: **Orestes** [or the *__Oresteia__*]
<Rebecca Thomas, European Literature>

11. **An artist with this surname was inspired by a statue in the Luxembourg Gardens to create a series of paintings depicting Bacchus. Cathy Curtis's book** *A Generous Vision* **describes an artist with this surname's creation of a series of paintings inspired by Paleolithic cave paintings. An artist with this surname is called** *An American Master* **in the subtitle of a Mark Stevens and Annalyn Swan biography and created the lumpy bronze sculpture** *Clamdigger*. **An artist with this surname exhibited a series of abstract black-and-white paintings at the Charles Egan gallery. Robert (*)** Rauschenberg created an artwork by erasing a drawing by an artist with this surname who painted the colorful Woman series. For 10 points, give this surname of the Dutch-American Abstract Expressionist artist Willem.
ANSWER: **de Kooning** [or Willem **de Kooning**; or Elaine **de Kooning**; accept Elaine **Fried** UNTIL "*An American Master*" is read and PROMPT afterwards]
<Chandler West, Painting/Sculpture>

12. **While staying at one of these locations, the Russian explorer Georg von Langsdorff described measles-infected dancers being forced to perform. Luis Jayme was shot with 18 arrows during a revolt at one of these locations settled on the Kumeyaay village of Cosoy. "Neophytes" were taught by "gente de razón" at these locations, where Luiseños ["loo-ee-SEN-yos"] and Juaneños ["whah-NE-yos"] suffered a 90% mortality rate. A style named for these locations originated from their habits of creating freestanding (*)** adobe buildings with tile roofs. To withstand Apache attacks, the Alamo transitioned from being one of these places to being a fort. Junípero Serra ["hoo-NEE-pay-roh SAIR-ah"] named the first of twenty-one of these locations in California for San Diego de Alcalá. For 10 points, name these Spanish religious settlements.
ANSWER: **mission**s [or **misione**s; prompt on fort; prompt on monasteries]
<Ganon Evans, American History>

13. **A model used to derive a formula for this quantity can be derived by replacing a cube with an octant of a sphere with a similar occupancy for easier integration. Since this quantity is unusually exponential for superconductors, the transition to the superconducting phase causes this quantity to sharply increase. This quantity was modeled by considering a solid as a collection of independent three-dimensional quantum harmonic oscillators with the same frequency by (*)** Einstein. The Debye ["duh-BYE"] model recapitulates the Dulong-Petit law for this quantity. The adiabatic index is the ratio of the values of this quantity at constant pressure and constant volume. Its value for water is by definition one calorie per gram per kelvin. For 10 points, name this quantity that denotes the change in energy caused by a change in temperature.
ANSWER: **heat capacity** [or **thermal capacity**; or **specific heat** capacity; do NOT accept or prompt on just "heat"]
<Gerhardt Hinkle, Physics>

14. **Cormac sees five of these animals that live in the yard of a fairy house. In ancient times, Scottish people sacrificed humans to a goddess who was a hybrid of a human and one of these animals and was later interpreted as a class of beings called ceasg ["SEEZG"]. After taking several forms, Tuan mac Cairill is eaten in the form of this animal. A god disguised as one of these creatures is caught due to the pattern of ashes he leaves in a fireplace. One figure lives as one of these animals for a year in a cave; that is (*)** Fintan mac Bóchra. One of these animals gains its most notable trait by eating nine hazelnuts that fall into a well. While cooking one of these animals, a man burns his thumb and then sucks on it. For 10 points, Fionn mac Cumhaill eats what kind of fish "of knowledge?"
ANSWER: **salmon** [or **bradán**; or **bratán**; or **lax**; or **grilse**; prompt on fish before mentioned]
<Gerhardt Hinkle, Mythology>

15. **In a novel written in this country, an old woman enters an old-age home that contains the gate to the underworld. A character living in this country randomly opens a book of Elizabethan plays to the last page of** *Doctor Faustus*. **An author who mostly lived in this country wrote** *The Hearing Trumpet*. **A man in this country pays for a bus fare with bloody coins taken from the hat of a dead body, near where a horse stands branded with the number (*)** seven. A character in this country learns morse code in a barn from Coral Fellows. A British consul living in this country sips strychnine to combat his alcoholism. In a novel set in this country, "the lieutenant" uses the confession of a dying man in a cave to capture the "whiskey priest." For 10 points, name this country, the setting of *Under the Volcano* and *The Power and the Glory*.
ANSWER: **Mexico** [or United **Mexican** States; or Estados Unidos **Mexicanos**]
<Andrew Hanna, British Literature>

16. **Incompetence of this structure can be treated using a cerclage** ["sir-klaazh"]**. Infection of this structure and the surrounding ones is suggested by this structure's namesake "motion tenderness," which is also called the chandelier sign. One procedure that samples cells in this structure can be used to detect LSIL** ["ELL-sill"] **and HSIL** ["H-sill"]**. Pre-cancerous cells in this structure turn white upon application of vinegar, which is commonly done during a (*)** colposcopy ["coal-POSS-co-pii"]. HeLa ["hee-luh"] cells were harvested from a patient with cancer of this organ, which is most often caused by high-risk variants of the human papilloma virus. This structure dilates to 10 centimeters during labor. For 10 points, name this structure sampled during pap smears, the canal connecting the vagina and uterus.
ANSWER: uterine **cervix**
<Eric Mukherjee, Biology>

17. **Gillian Moore's 2019 book centering on this work discusses how Edgard Varèse's**
Amériques ["ah-may-REEK"] **was influenced by its style. Part of this work uses a fast ostinato consisting of the notes** [*read slowly*] **D-flat, B-flat, E-flat, B-flat. In this work, a chord made of an E-flat dominant seventh chord over an F-flat major chord is repeatedly played with continuously shifting accents during a section titled for the (*)** "Augurs" of a certain time period. This work's opening solo was based on a Lithuanian folk song and is in the extreme high register of a bassoon. Initial negative reactions to this work's dissonant music and inelegant choreography by Vaslav Nijinsky sparked a riot at its premiere in Paris. For 10 points, name this Igor Stravinsky ballet about a pagan sacrifice.
ANSWER: The ***Rite of Spring*** [or Le ***Sacre du printemps***; or ***Vesna svyashchennaya***]
<Gerhardt Hinkle, Classical Music>

18. **Norwegian historian Ole Benedictow, the author of a *Complete History* of this event, links it to new advances in larger and faster ships. In response to this event, the Ordinance of Laborers limited the rights of English workers. In *A Distant Mirror*, Barbara Tuchman claimed that this event might be the "unrecognized beginning of modern man" because of the disruption to social order it created. During this event, many Jews fled to (*)** Casimir the Great's Poland after pogroms like the Strasbourg massacre fuelled by the blame placed on Jewish people. Religious movements blaming immorality for this event spread the practice of flagellation outside of Italy. This event likely spread from the Crimea through Europe due to fleas and rats. For 10 points, name this pandemic caused by *Yersinia pestis* that ravaged Europe during the 14th century.
ANSWER: the **Black Death** [or the **bubonic plague**; or the *Yersinia **pestis*** epidemic until read]
<Erik Christensen, European History>

19. **The protagonist of this novel attends a piano performance by the elderly Berthe Trépat and walks her home in the rain. This novel's protagonist builds a makeshift bridge to connect the window of his apartment with his best friend's. In this novel, conversations about jazz, art, and literature are often interrupted by the crying of the baby Rocamadour. This novel's protagonist is arrested for indecent behavior along with the homeless woman Emmanuéle. After returning to his home country, this novel's protagonist works in a circus and then a mental institution with (*)** Talita and the Traveller. This novel's protagonist is part of the Serpent Club along with his love interest, La Maga. This novel contains a "table of instructions" which suggests two different reading orders. For 10 points, name this novel about Horacio Oliviera by Julio Cortázar.
ANSWER: ***Hopscotch*** [or ***Rayuela***]
<Chandler West, World Literature>

20. **Though not Hercules, one version of the Alexander Romance features an episode in which Alexander the Great sacrifices animals at a temple to this figure. One text describes this deity as having two right hands. The "exalted gharaniq" were three daughters of this deity, which included the goddess of fate Manat. A shrine dedicated to this deity was previously dedicated to a god with a golden hand, in front of which arrows were thrown for divination. At the end of** *The Conference of the Birds***, the (*)** Simurgh is identified both with the reader and with this figure. This figure is described as self-subsisting and never sleeping in a passage titled for their throne. This figure, whose uniqueness comprises the doctrine of *tawhid*, has ninety-nine "beautiful names," including "the Most Gracious" and "the Most Merciful," which are both used in the *basmalah*. For 10 points, name this deity worshiped in Islam.
ANSWER: **God** [or **Allah**]
<Gerhardt Hinkle, Religion>

1. In a book about the *Illusion of* this condition, Jean Baudrillard describes how "there are no longer any dustbins for disposing of old ideologies, old regimes, old values." For 10 points each:
[10h] Name this condition, which Alexandre Kojève believed had been achieved after the French Revolution and the reign of Napoleon. Another thinker postponed the achievement of this condition in the 2018 book *Identity*.
ANSWER: the **end of history**
[10m] This author of *Identity* argued that history had ended because of the ascendancy of liberal democracy in the 1990s. This thinker also wrote *The Origins of Political Order*.
ANSWER: Francis **Fukuyama**
[10e] In *The End of History*, Fukuyama argues history was over because this long period of covert conflict had ended in 1991, with capitalism victorious over the rival system of socialism.
ANSWER: **Cold War**
<Erik Christensen, Philosophy>

2. Kyot, a possibly fictitious poet of this language, is the putative source of
Wolfram von Eschenbach's ["VOHL-fram von ESH-en-bahck's"] *Parzival*. For 10 points each:
[10m] Name this language used by 12th century troubadours like Bertran de Born to sing about chivalry.
ANSWER: **Occitan** [or **langue d'oc**; or Old **Provençal**]
[10h] Occitan troubadours influenced *Minnesängers* ["MIN-uh-zeng-ers"] like
Walther von der Vogelweide ["VAL-ter von der VOGUE-el-VIGH-duh"], who wrote a poem about a rendezvous under one of these plants. A leaf from one of these plants falls on Siegfried's back while he bathes in dragon's blood.
ANSWER: a **linden** tree [or a **lime** tree; prompt on tree]
[10e] Both the troubadours and the Minnesängers emphasized the "courtly" form of this concept as a chivalric ideal. Associations between this concept and medieval literature give the word "romance" its modern sense.
ANSWER: **love** [or courtly **love**]
<Henry Atkins, European Literature>

3. Mitochondrial superoxide dismutase uses this element as a cofactor, while another enzyme transitions between states S-sub-zero through S-sub-4 as atoms of this element are successively oxidized in the Kok cycle. For 10 points each:
[10m] Name this element, four atoms of which are oxidized in the active center of the oxygen-evolving complex.
ANSWER: **manganese** [or **Mn**]
[10e] The oxygen-evolving complex produces oxygen by oxidizing this compound to start the electron transport chain. The required inputs for typical photosynthesis are light, carbon dioxide, and this compound.
ANSWER: **water** [or **H_2O**]
[10h] In the non-cyclic part of the photosynthetic E·T·C, the electrons ultimately end up on this protein, which reduces N·A·D·P reductase and thus allows it to convert N·A·D·P-plus to N·A·D·P·H.
ANSWER: **ferredoxin** [or **Fd**]
<Gerhardt Hinkle, Biology>

4. In the United States, the names of certain foods are often changed due to foreign policy. For 10 points each:
[10m] Bob Ney renamed French fries to "freedom fries" due to French opposition to this U.S. action, which Michael Ledeen argued was justified due to a dictator's purchases of yellowcake uranium from Niger.
ANSWER: **invading Iraq** [or descriptive answers indicating **war** with **Iraq**; or the **Iraq War**; or Operation **Iraqi Freedom**; or the **Second Gulf War**; or **Second Persian Gulf** War; prompt on Gulf War or Persian Gulf War]
[10e] "Liberty steaks" and "liberty gardens" emerged during this president's tenure, which also saw "Meatless Tuesdays" and "Wheatless Wednesdays" as ways to ration during World War I.
ANSWER: Woodrow **Wilson**
[10h] This food was originally known as "Chinese gooseberries," but the American name was changed to avoid Cold War tensions. Jim MacLoughlin and John Hudson developed a large industry for this food in another country.
ANSWER: **kiwi**fruit [or **melonette**]
<Chandler West, American History>

5. Red and blue streams emanate from this object in a devotional image inspired by a vision of Faustina Kowalska. For 10 points each:
[10h] Name this object whose devotion was promoted by Margaret Mary Alacoque. Traditional depictions of this object show it on fire and topped by a cross.
ANSWER: the sacred **heart** of **Jesus** [or **sacred heart** of Jesus; prompt on heart by asking "of whom?"]
[10m] Unlike those addressed to saints, Catholic prayers addressed to the sacred heart of Jesus are followed by this specific request. This request is repeated three times in the hymn Kyrie.
ANSWER: have **mercy** [or "have **mercy** on us"; or "Lord have **mercy**"; or "Christ have **mercy**"; or **eleison**]
[10e] The words "have mercy on me, a sinner" are the second half of the Jesus prayer, which is recited continuously under the breath by monks of this tradition that split from Catholicism in the 1054 Great Schism.
ANSWER: Eastern **Orthodox** Church [accept more specific forms of **Orthodox**y; do NOT accept or prompt on "Oriental Orthodox Church"]
<Jacob Augelli, Religion>

6. This scene's falling semitones indicate that the character is losing connection to her past memories. For 10 points each:
[10h] Name this "anti-aria" that's nonetheless the high point of its opera. Its composer, Verdi, called it "one of the most sublime theatrical creations" despite its lack of "flowing, conventional melodies," and its hollow *sotto voce* indicates the character is catatonic rather than raving.
ANSWER: the **sleepwalking** scene [or gran scena del **sonnambulismo**; accept "**Una macchia** è qui tuttora!"] (in *Macbeth*)
[10m] The sleepwalking scene inverts the conventions of this stock scene of nineteenth-century opera. Donizetti originally wanted a glass harmonica to accompany the most famous one, in which Lucia sings "Il dolce suono" after killing Arturo.
ANSWER: **mad** scene [or scena della **pazzia**]
[10e] The vast majority of mad scenes were for this voice type that's standard for the main female character, including Lady Macbeth and Lucia. Of common voice types, this one has the highest range.
ANSWER: **soprano**
<Gerhardt Hinkle, Classical Music>

7. These operators for the *z*-component of the angular momentum of a quantum system depend only on the *x*- and *y*-components of its angular momentum. For 10 points each:
[10m] Name these pairs of creation and annihilation operators that raise or lower the eigenvalue of another operator by a constant. They are symbolized a and a-dagger.
ANSWER: **ladder** operators
[10h] A creation operator can be converted to an annihilation operator, and vice versa, by applying this operation. By definition, Hermitian operators are invariant under this operation.
ANSWER: complex **conjugation** [or complex **conjugate**; or **adjoint**]
[10e] The ladder operators of the quantum form of this system shift its energy by h-bar times omega. The classical example of this system is exemplified by a mass on the end of a spring.
ANSWER: **HO** [or **harmonic oscillator**; accept **simple harmonic oscillator** or **SHO** or **quantum harmonic oscillator** or **QHO**]
<David Bass, Physics>

8. In 1982, this Labour politician taunted the Conservative leadership by erecting a sign on County Hall displaying the number of unemployed people in Britain. For 10 points each:
[10h] Name this politician, who started a speech with "As I was saying before I was so rudely interrupted 14 years ago…" after being elected mayor of London in 2000.
ANSWER: Ken Robert **Livingstone** [prompt on "Red Ken"]
[10e] Livingstone was critical of this Conservative leader's policies during the 1980s, including this leader's decision to send British troops to the Falklands.
ANSWER: Margaret **Thatcher**
[10m] Livingstone controversially allowed Irish republican protestors to occupy the steps of County Hall during this 1981 event. This event was held at St. Paul's Cathedral and reportedly cost $50 million to put on.
ANSWER: the **wedding** of Prince **Charles** and Princess **Diana Spencer** [accept Diana or Spencer, prompt on answer involving royal weddings without specifying who]
<Beni Keown, European History>

9. Two people sharing one of these objects give testimony in English and in Zulu in Jane Taylor's play *Ubu and the Truth Commission*. For 10 points each:
[10h] Name these objects, one of which named Haas Das was created by Alida van Deventer. Writing schools in Mali began using these objects after a visit from a French troupe with Guignol.
ANSWER: **puppet**s
[10m] This author appeared in drag at the premiere of his play *A Place with the Pigs*, which is often performed with pig puppets. Morris can pass for white but his brother Zachariah cannot in this author's play *Blood Knot*.
ANSWER: Athol **Fugard** [or Harold Athol Lannigan **Fugard**]
[10e] Cape Town's Handspring Puppet Company created a fully moving puppet of one of these animals for a play adaptation of a Michel Morpurgo novel. A boy blinds six of these animals in Peter Shaffer's play *Equus*.
ANSWER: **horse** [or War **Horse**; or **equine**s]
<Ganon Evans, World Literature>

10. This being is cursed by Brahma to sleep for six months out of the year for fear of his destructive power, and he only awakes after being trampled by a thousand elephants. For 10 points each:
[10h] Name this very large rakshasa who devastates an army invading Lanka before being killed by Rama.
ANSWER: **Kumbhakarna** [or **Pot-Ear**ed]
[10e] Kumbhakarna kills thousands of these creatures, who make up the majority of Rama's army. Rama is loyally accompanied by the god Hanuman, the most powerful of these creatures.
ANSWER: **monkey**s [or **Vanara**s]
[10m] Hanuman carries a mountain containing one of these items called *sanjeevani* to Lanka after Kumbhakarna's nephew Indrajit nearly kills Lakshmana.
ANSWER: magical **herb**s [or **plant**s; anti-prompt on *sanjeevani* (ask "can you be less specific?") before mention]
<Lia Rathburn, Mythology>

11. These Chibcha-speaking people migrated to the Altiplano Cundiboyacense ["koon-di-boya-sen-say"] at some point between 1000 BCE and 500 CE and founded cities like Hunza and Bacatá. For 10 points each:
[10h] Name these people, who mined salt in large *gacha* pots and imported gold for *tunjo* figures of humans or animals at Guatavita.
ANSWER: **Muisca**
[10m] Sué, the father of the Muisca, was a god of this domain worshiped at Suamox. Incan ruler Manco Cápac claimed lineage from a god of this domain, whose cult Pachacuti expanded.
ANSWER: **Sun**
[10e] A ritual involving Muisca chiefs inspired a mythical king known by this Spanish name, which became associated with a legendary lost city of gold that Europeans would spend the next century trying to find.
ANSWER: **El Dorado**
<Erik Christensen, Other History>

12. An album cover showing the title man using this instrument infamously had it set up so that it would make no sound. For 10 points each:
[10m] Name this instrument played by Wendy Carlos in *Switched-On Bach*. That album inspired Keith Emerson to adopt this instrument, which he popularized in rock using a custom-built "monster" version.
ANSWER: **Moog** synthesizer [prompt on synthesizer; prompt on keyboard or keys; do NOT accept or prompt on "piano" or "(Hammond) organ"]
[10h] Part of the Moog's distinctive sound comes from a fault in the circuit meant to make this basic waveform. It's often used to make strings and brass because of its harmonic richness, and a common "synth-y" sound is a "super" variety made of several detuned ones.
ANSWER: **saw**tooth wave [or **supersaw**]
[10e] The Moog is this type of synth that uses circuits made of components like resistors, capacitors, and transistors and has a continuous signal. They're often said to be warmer and more organic than the later digital synths.
ANSWER: **analog** synthesizer
<Gerhardt Hinkle, Other Fine Arts>

13. This algorithm's runtime of big O of log of n cubed is used to demonstrate that the problem it works on belongs to the BQP complexity class. For 10 points each:
[10h] Name this algorithm which works by reducing the problem to a period-finding subroutine, which it solves using an analogue of the inverse Fourier transform.
ANSWER: **Shor**'s algorithm
[10e] Shor's algorithm was created to run on these computers, which unlike their "classical" counterparts, carry out computation by manipulating qubits which can exist in two states simultaneously.
ANSWER: **quantum** computers
[10m] Shor's algorithm can be used to break this public key encryption scheme, which is proved correct using Fermat's little theorem. It generates a private key by calculating the multiplicative inverse of either e or d modulo the totient function of n.
ANSWER: **RSA** encryption
<Vishal Puppala, Other Science>

14. Answer some questions about the screenwriting career of Leigh Brackett. For 10 points each:
[10e] Brackett's noir adaptations of *The Big Sleep* and *The Long Goodbye* both featured Philip Marlowe, a character with this profession. Arthur Conan Doyle created a famous character with this profession.
ANSWER: private **detective** [or private **eye** or private **investigator**; accept **private dick** or **gumshoe**]
[10m] This novelist co-adapted *The Big Sleep* with Brackett, one of several jobs for director Howard Hawks. One of this author's characters drowns himself at the end of a stream-of-consciousness section set at Harvard.
ANSWER: William **Faulkner** (The unnamed novel is *The Sound and the Fury*.)
[10h] Brackett died shortly after producing the first draft of this movie's script. Lawrence Kasdan wrote the final draft of this [emphasize] *sequel*, which took heavy inspiration from *The Hero With a Thousand Faces*.
ANSWER: *Star Wars: Episode V --- The **Empire Strikes Back*** [or *Star Wars: Episode V*; prompt on *Star Wars*]
<Henry Atkins, American Literature>

15. In anthropology, the different ways that people refer to their extended family are categorized into systems, which are customarily named for different cultures. For 10 points each:
[10e] Name this group, which names the kinship system used by English that emphasizes the nuclear family. This ethnic group lives in Greenland and the far north of Canada.
ANSWER: the **Inuit** [or **Inuuk**; prompt on Eskimo and ask for non-offensive term]
[10m] Another type of kinship system, a simple system that only differentiates gender and generation, is named for this Polynesian group that venerates the god Papa and refers to non-Polynesians as *haole*.
ANSWER: Native **Hawaiians** [or **Kānaka Maoli** or **Hawai'i Maoli**]
[10h] Different kinship systems are named for cultures in this anthropologist's book *Systems of Consanguinity and Affinity of the Human Family*. He was adopted by the Seneca and proposed that early humans were matriarchal.
ANSWER: Lewis Henry **Morgan**
<Erik Christensen, Social Science>

16. This party sank in the polls after its new leader was caught making jokes on camera as another politician made speeches about a series of deadly floods in July 2021. For 10 points each:
[10m] Name this party, which selected Armin Laschet to represent it in a federal election in 2021 and has an affiliated "Social" sister party.
ANSWER: **CDU** [or **Christian Democratic Union** of Germany; or **Christlich Demokratische Union** Deutschlands; prompt on Christian Democrats]
[10e] The C·D·U has previously been led by this politician, who had served as Chancellor of Germany for 16 years.
ANSWER: Angela **Merkel**
[10h] S·D·P leader Olaf Scholz succeeded in talks to establish a coalition with the F·D·P and the Greens, which is colloquially given this nickname. The economic positions of the F·D·P had prevented this kind of coalition after prior elections, though the Rhineland-Palatinate state has been governed by one since 2016.
ANSWER: **traffic light** coalition [or **Ampel**koalition]
<Erik Christensen, Other>

17. In a novel by this author, a man orders a lobster mayonnaise before being transported to an underground bunker filled with bombs. For 10 points each:
[10m] Name this author of *The Man Who Was Thursday*. This author compiled some of his lay theology in *Orthodoxy*.
ANSWER: G. K. **Chesterton**
[10h] A Chesterton essay notes that "poets have been mysteriously silent on" this food. A Chesterton sonnet addressed to this food states "my digestion, like the House of Lords / the heaviest burdens on herself doth lay."
ANSWER: **cheese** [or "Sonnet to a Stilton **Cheese**"; or "**Stilton**, thou shouldst be living at this hour"]
[10e] In *Martin Chuzzlewit*, this author repeatedly mentions characters who "toast the cheese." In *Great Expectations*, this author mentions a "cheese in the coalscuttle."
ANSWER: Charles **Dickens**
<Andrew Hanna, British Literature>

18. While attempting to spy on the Sultan's political machine by infiltrating his harem, Mary Wortley Montagu wrote one of the first cohesive accounts of this practice in the Ottoman Empire. For 10 points each:
[10e] Name this practice mandated in a ferman by Abdülmecid I to slow the spread of smallpox. This practice was aided by Turkish translations of the books of Edward Jenner.
ANSWER: **vaccination**s [or word forms like giving **vaccine**s; or **inoculation**; or **variolation**]
[10m] In 1845, a holder of this title wrote the treatise "Benefits to Children" describing vaccine efforts for a cowpox outbreak. Holders of this Ottoman title like Enver and Cemal ["jamal"] led a "Young Turk Triumvirate" shadow government until the empire's collapse post-WWI.
ANSWER: **pasha** [or **bashaw**; or the Three **Pasha**s]
[10h] The five smartest children from each of these Ottoman provinces would be selected to learn about vaccines and hajamat blood treatment. The Tanzimat Reforms replaced [*emphasize*] eyalets ["AY-uh-lets"] with these units, which were led by people like Muhammad Ali in Egypt.
ANSWER: **vilayet**s
<Ganon Evans, World History>

19. If these species contain aluminum, they must use a titanium or magnesium-containing support. For 10 points each:
[10m] Name this class of organometallic catalysts. Ethylene repeatedly adds to a growing chain via titanium using a homogenous example of one of these catalysts.
ANSWER: **Ziegler-Natta** catalysts
[10e] Ziegler-Natta catalysts produce high-density poly·ethylene, unlike polymerization reactions using these species. These highly reactive species are produced by homolytic cleavage and contain unpaired electrons.
ANSWER: free **radical**s
[10h] Kaminsky catalysts, which are also used to polymerize alkenes, have a bridged example of these compounds, which usually contain two Cp or Cot ligands. The prototypical one of these compounds has D5h symmetry.
ANSWER: **metallocene** [prompt on sandwich compound]
<Vikshar Athreya, Chemistry>

20. The "terrifying beauty" of a jagged landscape of this location featuring a shipwreck was contrasted with a partner painting by Johann Martin von Rohden. For 10 points each:
[10h] Name this location painted by William Bradford on eight expeditions on the *Panther*. Paul Nash's 1941 painting *Totes Meer* depicts downed Luftwaffe planes resembling an earlier painting of this location.
ANSWER: the **Arctic** [or the **North Pole**; or *The **Sea of Ice***; do NOT accept or prompt on "Antarctica" or the "South Pole"]
[10e] The Arctic is depicted in *The Sea of Ice*, a landscape by this German Romantic painter who also depicted a cane-wielding man with his back to the viewer atop a mountain in the painting *Wanderer above the Sea of Fog*.
ANSWER: Caspar David **Friedrich**
[10m] The pyramidal layout of *The Sea of Ice* was influenced by this painting's dual pyramid layout. A man in a red shroud cradles a corpse modeled on Eugene Delacroix in this painting
ANSWER: *The **Raft of the Medusa*** [or *Le **Radeau de la Méduse***] (by Théodore Géricault)
<Ganon Evans, Painting/Sculpture>