

**2022 Medium RaNge Academic, a Vanderbilt and Company
Collaboration vIa Network (MRNA VACCINE)**

Edited by: Eric Mukherjee (head), Erik Christensen, Chandler West, Conor Thompson, Ganon Evans, Henry Atkins, Jaimie Carlson, Sam Bailey, Chris Sims, Jacob O'Rourke, and William Grossman

Written by: The Editors, Gerhardt Hinkle, Vikshar Athreya, Andrew Hanna, David Bass, Owen Riley, Lia Rathburn, Beni Keown, Vishal Puppala, Aidan Fein, Jacob Augelli, Liam Thompson, Will Alston, Michael Borecki, Sharath Narayan, Zachary Beickman, Rebecca Thomas, Bryanna Shao, and Willie Chen

Packet 6: "I had to listen to Norse heavy metal which was basically just 10 minutes of creepy whispering to get a reasonable PG for this"

1. *Description acceptable.* **One man was beheaded when a hero took this action against him in order to steal his wife, Flidais. During one of these events, a man shoots a bird and a squirrel off his enemy's shoulder, and men are cursed with labor pains. One figure was strangled to death so strongly that his eyes popped out after performing this action in an unusual manner to avoid detection; that giant was (*) Cacus. The Pandavas reveal themselves after thirteen years of exile shortly after preventing the Kauravas from performing this action against King Virata. Ferdiaid is killed during the last of a series of single combats undertaken to prevent Queen Medb's ["mave's"] forces from performing this action. It doesn't involve murder, but Heracles travels to Erytheia to perform this action against Geryon. For 10 points, Cú Chulainn prevents what kind of theft in Cooley?**

ANSWER: a **cattle raid** [or a **táin bó**; accept any answers indicating **cattle rustling** or the **theft** of **cattle** or **cows**; prompt on just **theft** with "of what?"; prompt on **invasion** with "what were they trying to achieve by the invasion?"; prompt on a description of **dragging cows backwards** with "for what purpose?"]

<Conor Thompson, Mythology>

2. **This element's zero-valent form can be catalytically activated in solution by a compound in which three tetrahydrofuran ligands stabilize a bridge formed by this element across the central ring of anthracene. It's not born, but some organic compounds with this element are prevented from dimerizing by having this element bond to the oxygen of an ether. This element is activated by one-two-di-bromo-ethane in the synthesis of certain organic compounds containing this (*) metal. Compounds in which an organic group is bonded to this metal can be used to attach that group to a ketone to give a tertiary alcohol. This metal is bonded to an organic group and a halogen in Grignard ["GRIN-yard"] reagents. For 10 points, name this metal that emits an intense white light when burned and is in the center of the porphyrin ring of chlorophyll, the second-lightest alkaline earth metal.**

ANSWER: **magnesium** [or **Mg**]

<Gerhardt Hinkle, Chemistry>

3. The southwestern German city of Hirsau became a center for people in this profession after a man named William popularized new techniques and systems from France. People who started this profession at a young age were known as *oblates* [“ob-lates”]. In *Technics and Civilization*, Lewis Mumford argues that the modern parceling out of time comes from people in this profession using (*) clocks. An institution that employed people of this profession near Grenoble was founded by Bruno of Cologne. During the Middle Ages, people of this profession were largely responsible for preserving the writings of ancient Greece and Rome. For 10 points, name this profession that produced illuminated manuscripts in orders named for St. Basil and St. Benedict.

ANSWER: monks [or abbot]

<Erik Christensen, European History>

4. An early observation of a sudden change in this faculty was a Norwegian woman named Astrid who was injured during an air raid in World War II. Pure apraxia of this faculty is a rare complication of strokes affecting the precentral gyrus. One condition affecting this faculty occurs in ataxic, hypokinetic, and flaccid forms. Dysarthria inhibits the muscle used to perform this activity. One condition that affects this ability has transcortical motor and transcortical sensory forms, and damage to the arcuate fasciculus causes the (*) “conduction” form of that condition. Performing this activity becomes difficult with damage to Wernicke’s area and Broca’s area, which leads to two forms of aphasia. For 10 points, name this activity which is disordered in people who stutter.

ANSWER: speech processing [or language processing; or speaking with an accent] (The first clue refers to foreign accent syndrome.)

<Erik Christensen, Social Science>

5. In a novel from this country, a woman begins to hear a voice and a typewriter that perfectly match her own thoughts. In a novel from this country, the protagonist’s alcoholic mother fantasizes about owning her own front door and often draws comparison to Elizabeth Taylor. Caroline Rose realizes that she is a fictional character in a novel from this country called *The Comforters*. In a novel from this country, a character tries to partner a one-armed art teacher with a girl who is (*) “famous for sex.” An author from this country fictionalized his own mother in a novel that won the 2020 Booker Prize. Another novel from this country follows a “set” of six students devoted to the fascist teacher Jean Brodie. For 10 points, name this home country of Douglas Stuart and Muriel Spark, as well as the poet Robert Burns.

ANSWER: Scotland [prompt on the United Kingdom of Great Britain and Northern Ireland; prompt on Great Britain; do NOT accept or prompt on “England”]

<Andrew Hanna, British Literature>

6. Two-dimensional examples of these objects can be described intrinsically via a Cesàro equation. These objects are “rectifiable” if there is an upper bound on the size of a polygonal approximation for them. The rate at which one of these objects leaves its osculating plane is described by its torsion. A theorem by Jordan gives conditions under which one of these objects admits a bounded interior and unbounded exterior. These objects can be (*) parametrized as the image of a continuous function mapping from a real interval to a topological space. The distance between two points on one of these objects can be computed by integrating the square root of one plus their slope and is called the arc length. Line integrals are defined along these objects. Lines are a type of, for 10 points, what geometric objects that can be traced out by a moving point?

ANSWER: curves [accept planar curves, plane curves, rectifiable curves, integral curves, or parametrized curves]

<David Bass, Other Science>

7. A 2021 Rebecca DeWolff book ties debate over this legislation to the rise of combative liberalism and conservatism. Jane J. Mansbridge argued this legislation originated from activism around the case *Rostker v. Goldberg*. The “three-state strategy” supported this legislation, which Carolyn Maloney introduced to Congress eleven times. After success on *previous* legislation through the Silent Sentinels and NAWSA, this legislation was drafted by (*) Alice Paul. The “STOP” Campaign and Eagle Forum led by Phyllis Schlafly organized opposition to this legislation, which fell short in 1979 from a 38 state threshold needed for ratification. For 10 points, name this proposed constitutional amendment which would have guaranteed equal legal rights in the United States regardless of sex.

ANSWER: Equal Rights Amendment [or the ERA]

<Eric Mukherjee, American History>

8. A book by a [*emphasize*] *different* author contains a chapter explaining why this author imagined Neptune as descending from Isis. A poem by this author asks the title group “Why be outraged at the guilt / that is of your own doing?” The last stanza of a poem by this author describes how the “golden Sun / adorned our Hemisphere / with skeins of judicious light.” That poem by this author begins by describing a “Pyramidal / death-born shadow of earth / aimed at heaven” and ends by stating “the world illuminated, / and I awake.” This author of (*) “You Foolish Men” is the subject of Octavio Paz’s *The Traps of Faith*. This author defended women’s right to education in her *Reply to Sister Filotea*. For 10 points, name this author of *First Dream*, a Mexican nun who wrote during the seventeenth century.

ANSWER: Sor Juana Ines de la Cruz [or Sor Juana Inés de la Cruz; or Juana Inés de Asbaje y Ramírez de Santillana]

<Chandler West, World Literature>

9. A painting by an artist from this country depicts a woman grabbing her heel with one hand and using the other to balance on the woman walking in front of her. Artists from this country developed the “Company Style” while working for European patrons. A painter from this country who never wore shoes became known as the “Barefoot Picasso” and ignited controversy by painting deities from this country’s mythology nude. A yellow pigment from this modern-day country was created from the urine of (*) cows that were fed a special diet. Persian-style miniatures influenced this country’s Pahari style of painting. Four tall minarets flank a white marble mausoleum which was commissioned by an emperor of this country. For 10 points, name this home country of Raja Ravi Varma where miniatures were created for Mughal rulers such as Shah Jahan.

ANSWER: Republic of India [or Bhārat Gaṇarājya] (The painting described in the first sentence is *Shakuntala* by Varma; Maqbool Fida Husain was known as the “Barefoot Picasso.”)

<Vikshar Athreya, Painting/Sculpture>

10. In a book titled for this field, the author states that Diana Fuss’s critiques of Black feminist literary criticism allowed her to formulate her own thoughts on essentialism. A book titled for this field argues that humanization is the “people’s vocation” and advocates for the adoption of a “problem-posing” model of this field in place of the “banking” model. The Brazilian author Paulo (*) Freire wrote about [*this field*] of the *Oppressed*. A book about the progressive movement of this field was written by John Dewey and pairs it with Democracy. A method of independence in this field was pioneered by Maria Montessori. For 10 points, name this field whose “critical” form deemphasizes conventional tools like tests and grades.

ANSWER: education [or pedagogy; or teaching; or Teaching to Transgress; or Pedagogy of the Oppressed; or *Democracy and Education*]

<Chandler West, Philosophy>

11. Camilla Townsend used newly translated sources on this empire, often written by women, in a 2019 revisionist *New History*. Internal affairs in this empire were managed by people with a deceptive title meaning “female snake,” who were male and often related to its “great speakers.” Schools and farmlands in this empire were organized in districts called *calpulli*. This empire fought nearby city-states like (*) Cholula in short, ritualized wars with preselected times for battles intended to take captives. This empire succeeded the rule of Tepanec as an informal “Triple Alliance” ruled equally between three *altepetl* city-states, but came to be dominated by a city on Lake Texcoco. For 10 points, name this empire that ruled over the Valley of Mexico from the city of Tenochtitlan.

ANSWER: Aztec Empire [accept the Mexica, accept the Triple Alliance until read]
<Erik Christensen, Other History>

12. Conditions for when processes *lacking* this property can be represented as limits of processes *with* this property are given by the Gorban-Yablonsky theorem. A theorem derived by Crooks shows that certain processes are exponentially less likely to exhibit this property than not. The “microscopic” form of this property is an assumption of the Onsager relations, which describe processes lacking this property. Detailed balance gives that, at equilibrium, elementary processes have this property. A closed (*) integral of change in heat energy over temperature equals zero for this type of process according to the Clausius theorem. Processes that are both quasistatic and isentropic have this property. Heat engine cycles with maximal efficiency have this property, like the Carnot cycle. For 10 points, name this property of ideal thermodynamic processes that can occur backwards.

ANSWER: reversibility [or reversible; prompt on anything mentioning detailed balance before read]
<David Bass, Physics>

13. Indian politician Tiruchi Siva introduced a rare private member’s bill regarding these people shortly after a 2014 Supreme Court decision won by the N-A-L-S-A. Nancy Burkholder started a camp for these people as a protest against the MichFest music festival. Popular attitudes towards these people in the U.K. have been attributed to the discussion boards on the website Mumsnet. The modern movement organizing these people is traced to the riot at Compton’s (*) Cafeteria. These people are the subject of a controversial “critical” trend within British feminism that often cites “lived experiences.” For 10 points, name these people excluded from feminism by TERFs, the target of controversial “bathroom bills.”

ANSWER: transgender people [accept third gender as the Indian laws use that concept, accept the older term transsexual; accept non-binary; prompt on LGBT or larger acronyms and ask “what specific group encompassed by that acronym?”; do NOT accept or prompt on “gay” or “homosexual” or other answers that refer to sexuality and not gender identity]
<Erik Christensen, Other>

14. A character in this play is convinced to throw a cup at a door, but hurts his bursitis-afflicted arm while doing so. A character in this play is compared to Mary Poppins and Louis Pasteur in a scene in which he asks “who turned off the Pure-A-Tron?” A character in this play checks his watch constantly during the poker game that opens it because one of the players has to leave by twelve. During an argument in this play’s third act, a character throws a plate of linguini against the wall. Two characters in this play have a (*) double date with Cecily and Gwendolyn Pigeon. In this play, a suicidal clean freak moves in with a slobbish sportswriter. For 10 points, name this play about the strange living arrangement between Felix and Oscar, written by Neil Simon.

ANSWER: *The Odd Couple*
<Chandler West, American Literature>

15. **Motifs in this opera include reorderings of the notes of a major seventh chord and a five-note “M-shaped” motif that was often borrowed by Messiaen. Debussy said “all of *Pelléas* is there” about this opera, which cured him of his love of Wagner. Richard Taruskin claimed that the octatonic scale was the source of the bell-like alternating dominant seventh chords in this opera’s second scene. A chiming clock is heard in a scene in this opera during which the (*) hallucinating title character says “Begone, begone child” to a ghost. This opera's supposedly clumsy orchestration led to extensive “corrections” by Rimsky-Korsakov. The murder of Dmitriy precedes the title character’s coronation in, for 10 points, what Mussorgsky opera about a tsar during the Time of Troubles?**

ANSWER: *Boris Godunov*

<Gerhardt Hinkle, Classical Music>

16. **This process can be inhibited by C·B·R compounds or salinamides binding to the trigger loop. The two largest subunits of the enzyme that catalyzes this process form an active center cleft; that enzyme has alpha, beta, beta-prime, and omega subunits, and has an alpha-C-terminal domain connected by a flexible linker. Initiating this process requires the minus-35 and minus-10 sites to bind the sigma factor. This process is terminated by the formation of a 3-4 stem loop (*) under high tryptophan conditions in the trp [“trip”] operon, and it is enhanced by the binding of CAP to the Lac operon. This process’s namesake factors bind to the promoter, which often has a TATA box. Its product is usually later bound by ribosomes to initiate translation. For 10 points, name this process in which R·N·A is made from D·N·A.**

ANSWER: transcription

<Eric Mukherjee, Biology>

17. **A chapter of a novel is titled for this author who “Takes the Waters at Riva,” which is a reference to a story by this author in which the title hunter, who is already dead, describes wandering around on his boat to a burgomaster. In *Illuminations*, Walter Benjamin discusses a story by this non-Leskov author, which ends with a traveler observing a tablet beneath a table in a tea house. In a different story by this author, three bearded lodgers leave a house after encountering a character with an (*) apple lodged in his back. In that story by this author, the main character starts planning his death after his sister, Grete, suggests getting rid of him. For 10 points, name this author of “The Hunter Gracchus” and “In the Penal Colony,” who depicted the transformation of Gregor Samsa in “The Metamorphosis.”**

ANSWER: Franz Kafka [or “Dr. K Takes the Waters at Riva”] (The unnamed novel is *Vertigo* by W.G. Sebald.)

<Andrew Hanna, European Literature>

18. **To represent the Bodhi Tree, ru·drak·sha seeds are often used as these objects, which are worn for 40 days to grow accustomed with its owner’s energy. Because it represents ego, Hindus avoid using the index finger to touch the 109th one of these objects. That one of these objects is the sumeru, which represents the static point on a japamala [“jahp-uh-MALL-uh”]. The phrase “Subhan Allah” is uttered while touching these objects, the first of which was made by Fatima using soil from Husayn’s grave. Three sets of thirty three of these objects represent the Tasbeeh, Tahmeed, and Takbeer on the Islamic (*) misbaha, which was introduced to the West by Crusaders. Five sets of ten of these objects adjoined by a string with a crucifix make up a structure that Catholics use to count Hail Marys. For 10 points, name these objects used to focus and count prayers, exemplified by the rosary.**

ANSWER: prayer beads [prompt on japamala; or rosary; prompt on garland or necklace with “What is the religious use of these objects?” and accept any responses pertaining to prayer thereafter]

<Ganon Evans, Religion>

19. **One of these objects names a Jacquelyn Buglisi piece in which 150 whiteclad dancers memorialized 9/11 victims at the Lincoln Center. It's not a chair, but Marcel Breuer used tubular steel instead of wood to vary upon Josef Albers' colorful design for a "nesting" set of these objects at the Bauhaus. Herman Miller popularized one of these objects with a base of two curved rosewood boards designed by Isamu (*) Noguchi. *The Endless Column* and *Gate of the Kiss* can be found alongside one of these objects surrounded by twelve hourglasses at Târgu Jiu. Constantin Brâncuși made one of these objects "of Silence."** For 10 points, name these objects on which Judy Chicago's *Dinner Party* is served.

ANSWER: tables [or the Noguchi Table; or Table of Silence]

<Ganon Evans, Other Fine Arts>

20. **Artifacts from this city provide evidence that its Jewish population used double-entry bookkeeping before Italy. A complex of "Great Palaces" was built in this city as the centerpiece of its planning by the general Jawhar. 400,000 Jewish manuscripts were found in a geniza below this city's Ben Ezra Synagogue. In this city, the Burji dynasty arose under Barquq and other Circassian slaves. Jews were forced to wear bells to baths in this capital of the "mad" (*) caliph al-Hakim, which in 973, was made the capital of an Ismaili dynasty that claimed descent from Muhammad's daughter. That dynasty was overthrown by a Zengid general who founded the Ayyubid dynasty. For 10 points, name this capital of the Fatimid dynasty, where Saladin constructed a citadel that overlooks the Nile.**

ANSWER: Cairo [or ah-Qahirah] (The Barquq clue refers to the creation of the Mamluk Sultanate.)

<Eric Mukherjee, World History>

1. According to Cassius Dio, the freedman Narcissus was accused of sabotage after failing to remove one of these things. For 10 points each:

[10h] Name these things, one of which was built in the middle of the Domus Aurea until Vespasian removed it to build the Colosseum.

ANSWER: **lakes**

[10e] A group of people in what would become this province led by Brennus probably threw the Gold of Tolosa into lakes because they thought it was cursed. This province included modern-day France.

ANSWER: **Gaul**

[10m] This emperor built floating palaces on the “Nemi ships.” In his spare time, this emperor looted Alexander the Great’s tomb, invaded Mauritania to steal a purple cloak, and got himself assassinated by Cassius Chaerea.

ANSWER: **Caligula**

<Owen Riley, Other History>

2. These materials are modeled as a collection of dipoles, and their namesake strength is the electric field strength at which they undergo breakdown. For 10 points each:

[10e] Name these insulators which are placed between the plates of a parallel-plate capacitor to increase capacitance.

ANSWER: **dielectric**

[10h] This quantity for a linear homogeneous dielectric is equal to the polarization density divided by the product of the electric field and the permittivity of free space. This quantity is also equal to the relative permittivity minus one.

ANSWER: electric **susceptibility** [prompt on **chi**]

[10m] A field with this name is equal to the divergence of the free charge of a dielectric. The derivative of that field gives the current of this name, which appears in Maxwell’s extension to Ampere’s law

ANSWER: **displacement** field [or **displacement** current; prompt on **D**-field]

<Eric Mukherjee, Physics>

3. After this conflict, Katherine Philips was forced to apologize for a poem calling posthumous criticism of a dead monarch “A Double Murder.” For 10 points each:

[10e] Name this conflict, in which Cavalier poets like Richard Lovelace opposed Parliamentarians like John Milton.

ANSWER: The **English Civil War** [ot the **War of the Three Kingdoms**; or the **British Civil War**; prompt on the **Civil War**]

[10h] Cavalier poet Katherine Philips is best known for her poems on this subject, as in several addressed to “Lucasia.” Montaigne’s essay on this concept articulates its “true” form while remembering Étienne de La Boétie.

ANSWER: female **friendship** [or male **friendship**]

[10m] Philips’ poem “Upon the Double Murder of King Charles” is one of several she wrote in this form. Dryden and Pope, both admirers of Philips, wrote most of their verse in the “heroic” kind of this form.

ANSWER: heroic **couplets**

<Henry Atkins, British Literature>

4. In one tradition, the subdivisions of these things may be spoken using syllables such as "tha ki ta" in the solfège-like genre konnakol. For 10 points each:

[10h] Name these rhythmic patterns that traditionally have thirty five theoretical possibilities, with seven families along with five jātis that indicate the number of beats in the laghu.

ANSWER: **tālas** [or **titi**; or **pipi**]

[10m] The ādi tāla is the most popular tāla in this style from Southern India. Major forms in this style are varnam and kriti, and it's mainly learned through compositions, in contrast to Hindustani music from the north.

ANSWER: **Carnatic** music [or **Karnāṭaka** saṅgīta; or **Karnāṭaka** saṅgītam]

[10e] In Carnatic music, tālas are often contrasted with ragas, which represent this “horizontal” feature of music that is typically played with a harmony underneath it in Western classical music.

ANSWER: **melody**

<Gerhardt Hinkle, Other Fine Arts>

5. *Description acceptable.* A Pu Songling story is titled for a “Sequel” to this event, which convinced a man to apprentice himself to a man who gave him ten trials. For 10 points each:

[10h] Name this event, during which a man excels in exams and becomes a minister, only to be accused of crimes and die in the street. This ordeal seemingly lasted eighteen years.

ANSWER: Dream of the **Yellow Millet** [or Dream of the **Yellow Rice**; or **Huáng Liáng** Mèng]

[10m] The Dream of the Yellow Millet was dreamed by Lu Dongbin, one member of this group. This group also includes the iron-crutch-carrying Li Teiguai and the gender-ambiguous Lan Caihe.

ANSWER: **Eight Immortals** [or **Baxian**; or **Pa Hsien**; or **Xian**; prompt on **immortals**; prompt on **Eight Genies**]

[10e] The immortal Han Xiangzi is often depicted playing one of these instruments. In Greek myth, the satyr Pan created the first of these instruments from a set of reeds.

ANSWER: **flute** [or **pipes**, or **panpipes**]

<Jaimie Carlson, Mythology>

6. Answer the following about historiography of Native American peoples, for 10 points each:

[10e] Dee Brown’s Indian History of America is titled *Bury My Heart at this South Dakota creek*. Roughly 300 members of the Lakota were murdered by the U.S. military at this location after Black Coyote’s accidental rifle discharge during a Ghost Dance ceremony.

ANSWER: **Wounded Knee** [or the **Wounded Knee** Massacre; or Battle of **Wounded Knee**; or *Bury My Heart at **Wounded Knee***]

[10m] S.C. Gwynne wrote about this tribe’s leader Quanah Parker in his book *Empire of the Summer Moon*. These “Lords of the Southern Plains” fought skirmishes from 1706 to 1870 as part of their namesake “Wars.”

ANSWER: **Comanche** [or **Numunuu**; or **Yamparika**; or **Kotsoteka**; or **Nokoni**; or **Penateka**; or **Kwahadi**; or **Quohada**; or **Jupe**]

[10h] A Roxanne Dunbar-Ortiz “Indigenous” history takes its title from this other book, which opens with the chapter “Columbus, the Indians, and Human Progress.”

ANSWER: *A **People’s History** of the United States* [or *An Indigenous **People’s History** of the United States*]

<Chandler West, American History>

7. The monoclonal antibody ibalizumab [“EEB-uh-LIZ-oo-mab”] is used to treat disease caused by multidrug resistant forms of this virus, which is more often treated with protease inhibitors and integrase inhibitors. For 10 points each:

[10e] Name this lentivirus that causes AIDS.

ANSWER: **H·I·V** [or **human immunodeficiency virus**]

[10m] Ibalizumab blocks this protein on the surface of helper T cells, which serves as the receptor for HIV. When the count of cells positive for this marker drops below 200, AIDS-associated illnesses are more common.

ANSWER: **C·D·4** [or **cluster of differentiation 4**]

[10h] Another drug, maraviroc, functions by blocking this co-receptor for H·I·V. A delta-32 mutation in this protein makes T-cells resistant to infection by H·I·V.

ANSWER: **C·C·R·5**

<Eric Mukherjee, Biology>

8. Everyone attempting to obtain a Pakistani passport must declare that people of this sect are not Muslims. For 10 points each:

[10m] Name this Islamic movement founded by Mirza Ghulam in Punjab. Followers of this movement are often persecuted because of their belief that Muhammad is not the final prophet.

ANSWER: **Ahmadiyya** [accept **Ahmadiyya Muslim Community** or **Ahmadiyya Muslim Jama'at** or al-Jamā‘ah al-Islāmīyah al-**Ahmadiyyah**]

[10h] Ahmadiyyas allegedly assassinated Pandit Lekh Ram, a member of the Arya Samaj sect that performs this action through *Shuddhi* ceremonies. The *ghar wapsi*, or “coming home” movement advocates this practice.

ANSWER: **conversion** to **Hinduism** [prompt on **conversion** with “to what religion?”; prompt on **ghar wapsi** before mentioned]

[10e] In addition to each other, the Ahmadiyya and Arya Samaj movements also had to compete with revival movements of this religion in Punjab. This religion’s members observe the Five Ks, which include wearing a turban.

ANSWER: **Sikhism** [or **Sikhi**]

<Vikshar Athreya, Religion>

9. A member of this family who succeeded her father at the court of Louis XV became the first French female court musician. For 10 points each:

[10m] Name this French musical family. The best-known member of this family, who was nicknamed “le Grand,” developed an original notation for unmeasured preludes, which he introduced to a certain instrument.

ANSWER: **Couperin** (“koo-peh-RAN”)

[10e] Marguerite-Antoinette Couperin played this Baroque keyboard instrument like her father, François, who wrote a treatise on *The Art of Playing* it.

ANSWER: **harpsichord** [or **clavecin**; prompt on **keyboard** or **clavier**; do NOT accept or prompt on “harp” or “clavichord”]

[10h] François Couperin coined one name for this style to describe his heavy use of this style in works like *Les Barricades mystérieuses* [“lay bah-rih-KAD mis-tay-ree-EUZE]. Louis Couperin's unmeasured preludes also exemplify this style of harpsichord music characterized by irregularly arpeggiated chords.

ANSWER: style **brisé** [or style **luthé**]

<Gerhardt Hinkle, Classical Music>

10. In the play in which she appears, this character recites a poem beginning with the line “the polypoids were burning in the wood.” For 10 points each:

[10h] Name this character, who claims her real name is Sherlock Holmes. This character rambles about two daughters’ red and white eyes in an aside that claims Donald is not Donald and Elizabeth is not Elizabeth.

ANSWER: **Mary**

[10e] This author created the maid Mary in *The Bald Soprano*. This author of *Exit the King* wrote a play in which Bérenger [“bay-rehn-zhay”] refuses to capitulate, *Rhinoceros*.

ANSWER: Eugene **Ionesco**

[10m] Ionesco also wrote this “tragic farce,” in which the Old Man imitates the month of February. At the end of this play, the Old Man and the Old Woman throw themselves out of a window into the ocean.

ANSWER: *The **Chairs***

<Owen Riley, European Literature>

11. Phil S. Baran suggested characterizing these procedures with an ideality measure based on the number of construction reactions, the number of strategic redoxes, and the total number of steps. For 10 points each:

[10m] Name this type of organic synthesis, in which a complex product is created from simple off-the-shelf precursors. E.J. Corey is a pioneer of using retrosynthetic analysis to plan this kind of synthesis.

ANSWER: **total** synthesis

[10e] A particularly important measure in total synthesis, and in any other kind of synthesis, is this value, which is the amount of product obtained divided by the amount expected.

ANSWER: percent **yield**

[10h] This particularly desired type of organic synthesis applies reagents in series in a single vessel, rather than requiring purification steps.

ANSWER: **one-pot** synthesis

<Eric Mukherjee, Chemistry>

12. Hey besties! Answer the following about multi-leveling marketing schemes, for 10 points each:

[10e] Because revenue for an MLM’s members comes from recruiting new sellers below them, many are described by this business model in which wealth flows to a few elite at the top. Ponzi schemes resemble this business model.

ANSWER: **pyramid** scheme [accept **pyramidal** schemes]

[10m] Along with Jay Van Andel, the patriarch of this family founded the health MLM AmWay. A member of this Michigan family strengthened protections for accused offenders in Title IX and financed Detroit charter schools.

ANSWER: **DeVos** [accept Richard **DeVos** or Betsy **DeVos**]

[10h] After the Destiny Group MLM was found to be selling fake plantation trees, this country banned MLMs in 2015. Muhammad Yunus founded the Grameen Bank to give microloans to the impoverished in this country.

ANSWER: **Bangladesh** [or the People’s Republic of **Bangladesh**]

<Ganon Evans, Other>

13. Answer the following about Chinese agricultural development in the 1900s, for 10 points each:

[10h] Peasants in this province coined the phrase “If you want more grain, look for Zhao Ziyang [“jow tsuh-yahng”] after successful reforms. This province names a system of agricultural development, and along with Anhui, was the first target of the Rural Reforms.

ANSWER: **Sichuan** [or **Szechuan**; or **Szechwan**]

[10e] This large-scale initiative to industrialize China under Mao encouraged backyard furnaces and incorporated Trofim Lysenko’s bizarre seeding ideas, resulting in widespread famines.

ANSWER: **Great Leap Forward** [or the **Second Five Year Plan**; or **Dàyuèjìn**]

[10m] Steel melting policies popularized by the Dazhai village agriculture program caused the failure of one of these projects named Banqiao [“bahn-chyao”]. Another of these projects disrupted the *baiji*’s ecosystem.

ANSWER: hydroelectric **dam** [or the Banqiao **Dam**; or the Three Gorges **Dam**]

<Liam Thompson, World History>

14. This clause is applied procedurally, substantively, and as a protection against vague laws. For 10 points each:

[10m] Identify this constitutional clause, which is found in two amendments. This clause prevents people from being deprived of life, liberty, or property.

ANSWER: **due process** clause

[10e] The due process clause can be found in the fifth amendment and in this other amendment, which applies the due process clause to states. This amendment made all people born in the U.S. citizens.

ANSWER: **fourteenth** amendment

[10h] In *Bolling v. Sharpe*, part of *Brown v. Board*, this doctrine was established when the court applied the equal protection clause of the fourteenth amendment through the due process clause of the fifth amendment.

ANSWER: **reverse incorporation** [do NOT prompt on partial answers]

<Chandler West, Social Science>

15. This prose style turns the sentence “‘why am I playing this tournament,’ she wondered” into the authorial statement “and just why was she playing this tournament?” For 10 points each:

[10h] Name this technique of inserting a character’s voice into narration, without the use of an attributing expression like “she thought.”

ANSWER: **free indirect** discourse [or **free indirect** speech; or **free indirect** style; do NOT accept or prompt on “indirect discourse”]

[10e] This author used increasingly byzantine free indirect speech in late novels like *The Wings of the Dove*. This author also wrote *Daisy Miller*.

ANSWER: Henry **James**

[10m] James used free indirect discourse to ironic effect in this novel, which follows the clueless Lambert Strether as he tries to bring his fiancé’s son back from Paris.

ANSWER: *The **Ambassadors***

<Henry Atkins, American Literature>

16. A self-portrait by this artist is dated 1554 in the open book she holds in her left hand. For 10 points each:
[10h] Name this artist, who in another self portrait depicted herself in the act of painting a Virgin and child scene. This artist painted her sisters playing the title *Game of Chess* in another painting.

ANSWER: Sofonisba **Anguissola** [or Sophonisba **Angussola**; or Sophonisba **Anguisciola**]

[10m] Élisabeth Vigée Le Brun depicted herself in a white bonnet and simple black dress completing a portrait of this woman.

ANSWER: **Marie Antoinette** [or **Marie Antoinette** Joséphe Jeanne; or **Maria Antonia** Josepha Johanna; prompt on **Marie** of France]

[10e] Artemisia Gentileschi [“artah-MEE-zyah jenteel-esh-ski”] depicted herself as this woman decapitating her rapist Agostino Tassi, who is depicted as Holofernes, in a 1613 version of a Biblical scene.

ANSWER: **Judith** [or **Judith** *Slaying Holofernes*; or **Judith** *Beheading Holofernes*]

<Ganon Evans, Painting/Sculpture>

17. Intention-to-treat analysis preserves the effects of this process, which helps remove the effect of confounding variables. For 10 points each:

[10e] Name this procedure, where subjects in a trial are assigned to control and treatment arms by chance. This process gives its name to a type of “controlled trial” which is considered the gold standard of clinical trials.

ANSWER: **randomization** [or **random** assignment; or **random** placement]

[10m] The sample size of an RCT is selected based on a calculation of this quantity, which is the probability of NOT committing a type II error. Alternatively, it’s the ability of a test to find a difference if one really exists.

ANSWER: **power**

[10h] In this kind of study, the two arms switch treatments after a washout period, so one group receives treatment A, then treatment B, and the other group receives treatment B, then treatment A.

ANSWER: **crossover** study

<Eric Mukherjee, Other Science>

18. A document signed in this city included points confirming the “inviolability of frontiers” in Europe, respect for human rights, and refraining from military force. For 10 points each:

[10m] Name this city, which hosted a summit in 1975 attended by nations on both sides of the Cold War as a key part of détente.

ANSWER: **Helsinki**, Finland

[10e] The Helsinki Accords were signed by NATO and nations in Eastern Europe in a military treaty named for this city. Albania withdrew from the Pact named for this city after the Soviet invasion of Czechoslovakia in 1968.

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

[10h] The Helsinki Accords were hosted by this Finnish President, who led the country from 1956 to 1982 and developed a doctrine of neutrality during the Cold War, despite following free market economics.

ANSWER: Urho Kaleva **Kekkonen**

<Erik Christensen, European History>

19. In this novel, a group of coworkers are disgusted by a woman's refusal to wear a bra. For 10 points each:

[10h] Name this novel in which a man is filmed painting flowers over a woman with a blue Mongolian birthmark. The title character of this novel goes to the forest to stand on her hands and gradually starves herself.

ANSWER: The Vegetarian

[10m] In this novel by David Mitchell, the fabricant Sonmi-451 has a birthmark on her neck, which she shares with the main characters from 5 other storylines. This novel is titled for a shifting atmospheric feature.

ANSWER: Cloud Atlas

[10e] In "An Orison of Sonmi-451," clones are the main source of cheap labor. In this author's novel *Never Let Me Go*, the students at Hailsham are clones created to donate organs. He also wrote *The Remains of the Day*.

ANSWER: Kazuo Ishiguro

<Andrew Hanna, World Literature>

20. In a heavily criticized argument, René Descartes argued that if an idea or perception will have these two qualities, we cannot doubt the idea after having thought of it. For 10 points each:

[10m] Name these two qualities, which according to Descartes describe our knowledge of a piece of wax if we understand the math behind its expansion under heat.

ANSWER: clear AND distinct [or clair et distinct or clarum et distinctum]

[10e] Descartes believed that his idea of this statement was clear and distinct, and therefore undoubtable. Though criticized for the use of circular logic, this statement became the foundation for Descartes' metaphysics.

ANSWER: "I think, therefore I am" [or "cogito, ergo sum"; or "je pense, donc je suis"]

[10h] One of the earliest critics of the circular logic in the cogito was this French logician, whose objection was the fourth included in the first edition of *Meditations*. This thinker co-wrote the *Port-Royal Logic* with Pierre Nicole.

ANSWER: Antoine Arnauld

<Erik Christensen, Philosophy>