

Saturnalia: Packet 4

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THESE TOSSUPS ARE PAIRED WITH BONUSSES. IF A TOSSUP IS NOT CONVERTED, SKIP THE PAIRED BONUS AND MOVE ON TO THE NEXT TOSSUP. DO **NOT** COME BACK TO THE SKIPPED BONUS.

1. In a film by this director, a man compares the meaning of life to a pebble before he is killed by a traveling performer. Another film by this director ends with the entire cast running around in a circle underneath a rocket launchpad movie set after the protagonist shoots himself under a table. The word “paparazzi” comes from the name of a photographer in a film by this director. That film by this director opens with a (*) helicopter carrying a statue of Christ over an aqueduct. An autobiographical film by this director is about Guido Alberti’s struggle creating a story for his ninth movie. For 10 points, name this Italian director of *8½* and *La Dolce Vita*.

ANSWER: Federico **Fellini**

<Film — Ashbrook> [Edited]

1. Accompanied by drums and piano, Ambrose Akinmusire (“ah-kin-MOO-sir-ee”) and Josef Leimberg performed this instrument on Kendrick Lamar’s “Mortal Man” over an interview with Tupac Shakur. For 10 points each:

[H] Name this instrument played by Hugh Masekela and Roy Hargrove, both of whom died in 2018. Akinmusire commemorated Hargrove with the track “Roy” on his recent album *on the tender spot of every calloused moment*.

ANSWER: **trumpet**

[M] Akinmusire studied with this jazz pianist at the Thelonious Monk Institute of Jazz. This musician recorded the album *Head Hunters* and composed “Cantaloupe Island” and “Watermelon Man.”

ANSWER: Herbie **Hancock** [or Herbert Jeffrey **Hancock**]

[E] In a *Billboard* interview, Akinmusire claimed that this genre and jazz are the same thing. Prominent artists in this genre include the rappers Kendrick Lamar and Tupac Shakur.

ANSWER: **hip hop**

<Jazz — Condron> [Edited]

2. In this modern-day state, Thomas E. Breckenridge participated in a massacre of several hundred Wintu people. In the northeast of this state, a chief named “Captain Jack” led Native Americans against the US Army in the Modoc War. Commodore Robert Stockton led a naval expedition to secure this state, where he fought the Battle of San Pasqual along with (*) Stephen W. Kearney. After rebels seized the city of Sonoma, John C. Fremont led a battalion named for this state that established American control. This state declared independence from Mexico following the Bear Flag Revolt. For 10 points, name this state where Fremont ordered a massacre of Native Americans near the Sacramento River.

ANSWER: **California** [or **California** Republic]

<U.S. History — Athreya> [Edited]

2. In response to this photograph, Congress passed a bill requiring artworks to meet “general standards of decency” in order to be eligible for government grants. For 10 points each:

[H] Name this photograph by Andreas Serrano depicting a plastic crucifix submerged in urine.

ANSWER: **Piss Christ**

[M] This artist invited his friends over to pee on canvases covered in copper paint to create his *Oxidation* series.

This artist’s collaborations with Jean-Michel Basquiat (“zhawn mee-SHEHL bas-K’YA”) include a series of paintings with the General Electric logo stamped on.

ANSWER: Andy **Warhol** [or Andrew **Warhola**]

[E] In 2000, performance artists Cai Yuan (“tsai yoo-en”) and Jian Jun Xi (“jee-en joon shee”) peed on a replica of this Dadaist’s *Fountain*, which is just a urinal signed “R. Mutt.”

ANSWER: Marcel **Duchamp**

<Painting and Sculpture — Faeder> [Ed. Bowman]

3. One thinker argued that “exemplars” of this discipline withstand instances of so-called “crises” within it. Another thinker used a theory of “epistemological anarchism” to argue that there are no practices within this discipline that have no exceptions. Paul Feyerabend’s (“FIRE-uh-bend’s”) book *Against Method* attacks Karl Popper’s view that this discipline requires (*) falsification. Thomas Kuhn argued that this discipline proceeds through paradigm shifts in his book on the “Structure” of its revolutions. Francis Bacon’s *Novum Organum* lays out a framework for practicing this discipline. For 10 points, name this discipline that involves testing hypotheses using experiments in its namesake “method.”

ANSWER: **science** [accept **scientific** method or **scientific** revolutions]

<Philosophy — Iyer> [Ed. Ashbrook]

3. A bill that requires federal background checks before gun purchases was named after this president’s Press Secretary, James Brady. For 10 points each:

[M] Name this president, who was shot by a man attempting to impress the actor Jodie Foster. After that assassination attempt, this president quipped, “Honey, I forgot to duck.”

ANSWER: Ronald **Reagan**

[E] This vice president was not able to take power immediately after the shooting because he was on a plane. This successor to Reagan served one term before losing to Bill Clinton in the 1992 presidential election.

ANSWER: George **H.W. Bush** [or George **Herbert Walker Bush**; accept **Bush 41** or George **Bush Senior** or **Bush 1** or **Bush the Elder** or other names indicating the older Bush; prompt on **Bush** or **George Bush**; do NOT accept or prompt on “George W. Bush” or “Shrub” or “Dubya”]

[H] This Secretary of State proclaimed “I’m in control here” after the assassination attempt on Reagan, despite the Presidential rules of succession requiring the Speaker of the House to take control.

ANSWER: Alexander **Haig**

<U.S. History — Louis Li> [Ed. Iyer]

4. Gunter Wächtershäuser (“VEK-terz-hoy-zer”) proposed that life on Earth originated on the surface of minerals containing iron and this element. Euxinic (“yook-SIN-ick”) water lacks oxygen and has a high concentration of this element. Green and purple bacteria may reduce this element in anoxygenic (“ann-ox-ih-JEN-ick”) photosynthesis. This element is found with zinc in (*) sphalerite (“s’FAIL-uh-rite”) and with lead in galena. The amino acid cysteine (“SIS-teh-een”) contains this element in its side chain, which is a thiol (“THIGH-all”). In the atmosphere, this element’s dioxide oxidizes to form a strong diprotic (“dye-PRO-tick”) acid that is a component of most acid rain. For 10 points, name this element whose compound with hydrogen smells like rotten eggs.

ANSWER: **sulfur** [or **S**; accept iron-**sulfur** world or **sulfur** dioxide or **sulfuric** acid or hydrogen **sulfide** or purple **sulfur** bacteria or green **sulfur** bacteria]

<Chemistry — French> [Edited]

4. The companies JBS, Marfrig, and Minerva have pledged to not buy from suppliers in this industry that engage in illegal deforestation, although one report indicates that they still have. For 10 points each:

[H] Name this industry, the largest contributor to deforestation in the Amazon region.

ANSWER: **cattle** ranching [or **cow** ranching; prompt on **ranching** or **agriculture** or **raising animals** or **farming** by asking “Of what animal?”]

[E] This current president of Brazil has suggested that fires in the Amazon are a “lie” and that non-governmental organizations may have set the fires.

ANSWER: Jair **Bolsonaro**

[M] This non-governmental environmental organization wrote the report on illegal deforestation in the Amazon that indicated that JBS, Marfrig, and Minerva still ended up buying cattle from illegally deforested land. This organization also operated two ships called *Rainbow Warrior*.

ANSWER: **Greenpeace**

<Current Events — McAvoy-Bickford> [Edited]

5. **This artist wept after seeing a reproduction of Giorgio de Chirico's ("KEE-ree-koh's") painting *The Song of Love*, which inspired him to treat painting as poetry of image. This artist's painting of a man in a suit with a glowing head, *The Pleasure Principle*, is a portrait of his patron Edward James. A painting by this artist depicts dozens of well-dressed men who appear to rain from the sky. A man looking into a (*) mirror sees the back of his own head in this artist's *Not to be Reproduced*. This artist of *Golconda* painted a work in which a floating green apple obscures the face of a man in a bowler hat. For 10 points, name this Belgian surrealist who painted *Son of Man*.**

ANSWER: Rene **Magritte**

<Painting and Sculpture — Forrest> [Ed. Bowman]

5. Bayard, the son of this character, crashes a car off a bridge in the book *Flags in the Dust*. For 10 points each:
[H] Name this Confederate cavalry officer who served as Mayor of Jefferson. In one story, a character exclaims "See [this character]. I have no taxes in Jefferson."

ANSWER: Colonel John **Sartoris**

[M] Colonel Sartoris remits the title character's taxes in this story. The central character of this story sleeps with the rotting corpse of Homer Barron.

ANSWER: "A **Rose for Emily**"

[E] This author set "A Rose For Emily" in his fictional Yoknapatawpha County, where he also set *The Sound and the Fury*.

ANSWER: William **Faulkner** [accept William Cuthbert **Faulkner**]

<Short Fiction — Iyer> [Ed. Condrón]

6. **This state assisted Pope Sixtus IV ("the fourth") in a war to take control of saltworks at Comacchio ("coh-MAHK-k'yoh"). A league named after this state fought against Charles VIII ("the eighth") in the Battle of Fornovo. Francesco Foscari was forced to abdicate by this state's Council of Ten, which kept much of its *Stato da Màr* despite losing the Battle of Agnadello to the (*) League of Cambrai. The sack of Constantinople during the Fourth Crusade was led by a leader of this state, Enrico Dandolo. Marco Polo was born in this state, whose main maritime rival was Genoa. For 10 points, name this "Most Serene" republic on the Adriatic ruled by Doges and known for its canals.**

ANSWER: **Venice** [or the Most Serene Republic of **Venice** or the **Venetian Republic** or **Venezia** or **Vèneta** or *Serenissima Repubblica di Venezia* or *Serenissima Repubblica Vèneta*]

<European History — Laurence Li> [Edited]

6. After this character tells a man to leave her alone, that man asks, "It's just your little game isn't it?" For 10 points each:

[H] Name this character who is called nicknames like "little sky-lark," "little squirrel," and "precious little singing bird" by a man whom this character ignores by eating macaroons.

ANSWER: **Nora** Helmer [prompt on **Helmer**]

[E] Torvald calls Nora Helmer those nicknames in *A Doll's House*, a play by this Norwegian playwright.

ANSWER: Henrik **Ibsen**

[M] *A Doll's House* ends with the sound of Nora performing this action as she leaves Torvald and her family.

ANSWER: the **slamming** of a **door** [accept equivalents such as "**shutting**" or "**closing**" a **door**]

<Drama — Condrón> [Edited]

7. **In the 1960s, a short fishing boom called the Gadoid Outburst occurred in this body of water. The Brent oilfield in this body of water is being decommissioned but continues to name its crude oil. During the Mesolithic, the exposed bed of this body of water formed a landmass called Doggerland. The Delta Works were made following a 1951 flood of this body of water to protect land around the mouths of the (*) Maas and Scheldt rivers. Independence activists use the slogan "It's Scotland's Oil" to claim reserves in this sea, which is located between the UK, Continental Europe, and Norway. For 10 points, give this sea named for its location relative to the Netherlands.**

ANSWER: **North Sea**

<Geography — Daniel Ma> [Edited]

7. This text includes the earliest known formulation of the principle of double effect, which governs the morality of actions with both good and bad consequences. For 10 points each:

[M] Name this text which also includes five proofs for the existence of God.

ANSWER: ***Summa Theologica*** [or ***Summa Theologiae***]

[E] This scholastic philosopher and Doctor of the Catholic Church formulated the principle of double effect in *Summa Theologica*.

ANSWER: St. Thomas **Aquinas** [or Tommaso d' **Aquino**; prompt on **Thomas**]

[H] Aquinas condemned this thinker's doctrine of the unity of the intellect in his treatise "On the Unity of the Intellect." Aquinas also disagreed with this thinker's theory that religion and philosophy arrive at separate truths, known as his doctrine of "double truth."

ANSWER: **Averroes** [or Abu al-Walid Muhammad ibn Ahmad **ibn Rushd**]

<Philosophy — Condron> [Ed. Ashbrook]

8. Leslie Odom, Jr. wrote, "Am I a white person for the evening?" to describe the difficulty of acting in one of this author's plays, whose sparse stage design included only chairs, tables, and ladders. In another play by this author, Miss Somerset plays the governess Sabina in *Excelsior*, New Jersey. George is the President of the Ancient and Honorable Order of Mammals, *Human Subdivision* in a play by this author in which the (*) Antrobus family survives an Ice Age. Emily Webb relives her twelfth birthday after she dies in a play by this author featuring a Stage Manager and set in Grover's Corners. For 10 points, name this author of *The Skin of Our Teeth* and *Our Town*.

ANSWER: Thornton **Wilder**

<Drama — McAvoy-Bickford> [Ed. Condron]

8. At the beginning of this opera, a flourish in the trumpets called a toccata heralds the entrance of the Spirit of Music. For 10 points each:

[H] Name this opera titled for a character that sings "*Possente spirto, e formidabil nume*" before lulling the boatman to sleep with his lyre. Shepherds and nymphs form a Greek chorus that comment on the action in this opera.

ANSWER: *L'Orfeo* [or *La favola d'Orfeo*]

[M] *L'Orfeo* is by this Italian composer and opera pioneer. He also composed *The Return of Ulysses to his Homeland* and *The Coronation of Poppea*.

ANSWER: Claudio **Monteverdi**

[E] In *L'Orfeo*, Monteverdi employs rudimentary leitmotifs, representing Orpheus with the organ and this instrument. This string instrument has numerous vertical strings that are plucked and pedals that change the key.

ANSWER: **harp** [accept double **harp**]

<Classical Music — Jeffrey Ma> [Edited]

9. When using the mongo shell, MongoDB queries are written in this language. This language's MEAN ("mean") stack includes the express framework, which creates a light webserver. Nitro, SpiderMonkey, and V8 are engines that run code written in this language. Frontend applications written in this language can use (*) React or Angular. This language dynamically manipulates the DOM ("D-O-M"), often with assistance from jQuery ("j-query"). This language's objects inspired the data storage format JSON ("j-sawn"). This language declares variables with the keyword `var` and prints text with the function `console.log` ("console dot log"). For 10 points, name this language commonly used alongside HTML and CSS.

ANSWER: **JavaScript** [or **JS**; accept **TypeScript** or **ES6** or **ECMAScript 6** or **node.js**; do NOT accept or prompt on "Java"]

<Computer Science — Maharjan> [Ed. Gurazada]

9. The expansion of repetitive DNA sequences that code for this amino acid cause a namesake class of neurodegenerative diseases. For 10 points each:

[H] Name this amino acid encoded by the DNA base triplets CAG (“C-A-G”) and CAA (“C-A-A”). Like asparagine, this amino acid’s polar side chain contains an amide group.

ANSWER: **glutamine** [or **Q**; accept poly**glutamine** sequences or poly**glutamine** tracts or poly**Q** sequences or poly**Q** tracts; do NOT accept or prompt on “glutamate” or “glutamic acid”]

[M] This most-common polyglutamine disease occurs when a mutation expands CAG (“C-A-G”) repeats on chromosome 4. That mutation causes this disease’s namesake protein to form amyloid fibrils in the brain.

ANSWER: **Huntington**’s disease [or **Huntington**’s chorea or **HD**] (The amyloid-forming protein is huntingtin.)

[E] Amyloid fibrils like those characteristic of Huntington’s are composed of a secondary protein structure named for this Greek letter. That “sheet” named for this letter is often contrasted with the alpha helix.

ANSWER: **beta** [accept **beta** sheet or **beta**-pleated sheet]

<Biology — Daniel Ma> [Ed. Yin]

10. In a poem by this author, “Mimes, in the form of God on high... / hither and thither fly” before a “blood red thing” that “writhes” intrudes amid a “mimic rout.” One of this author’s characters remarks that newspapers “create a sensation” in “The Mystery of Marie Roget.” That character arranges a gunshot to steal the title object of another story from (*) Minister D—. A detective created by this author uses his “ratiocination” skills to find out that the murderer of Madame L’Espanaye was an orangutan. A character in a poem by this author sits “rapping” at the narrator’s chamber door quoting “nevermore.” For 10 points, name this author of “The Raven.”

ANSWER: Edgar Allan **Poe** (The poem in the first sentence is “The Conqueror Worm,” the story in the third sentence is “The Purloined Letter,” and the story in the fourth sentence is “The Murders in the Rue Morgue.”)

<Other Literature — Iyer> [Edited]

10. An argument in support of this theory relies on the false observation that the Hopi language has no words to express time. For 10 points each:

[M] Name this linguistic theory that states the structure of language influences human perception of the world.

ANSWER: Sapir-**Whorf** (“suh-PEER Worf”) hypothesis [accept **linguistic relativity** or **linguistic determinism** or **Whorfianism**; prompt on **relativity** or **determinism**]

[E] This MIT professor emeritus argues that the Sapir-Whorf hypothesis is false, since humans have an innate capacity for language. This linguist wrote the sentence “Colorless green ideas sleep furiously” as an example of a grammatically-correct sentence that has no meaning.

ANSWER: Noam **Chomsky**

[H] In this short story, a linguist begins to view time nonlinearly after deciphering the non-linear language of the heptapods. This story by Ted Chiang (“chang”) was adapted into the film *Arrival*.

ANSWER: “**Story of Your Life**”

<Other — Young> [Ed. McAvoy-Bickford]

11. A character from this literary work is depicted in a sprightly scherzo in a choral symphony adaptation of it by Hector Berlioz. In another adaptation, the English horn and viola represent a character from this work in a passionate D-flat major “love theme.” That (*) “fantasy-overture” based on this work is by Pyotr Tchaikovsky. In a Broadway musical based on this work, Tony sings that he “just met a girl named Maria,” and a rumble occurs between rival gangs, the Jets and the Sharks. For 10 points, Leonard Bernstein’s *West Side Story* was inspired by what William Shakespeare tragedy titled for a pair of “star-crossed lovers”?

ANSWER: **Romeo and Juliet** [prompt on *West Side Story* by asking “what literary work is *West Side Story* based on?”]

<Classical Music — Jeffrey Ma> [Edited]

11. While serving as a judge in the Maldives, this person was surprised when many members of a courtroom fainted after he sentenced a thief's hand to be cut off. For 10 points each:

[M] Name this Moroccan explorer who travelled across the world for over 30 years after going on hajj. He wrote the *Rihla* as an account of his travels.

ANSWER: Ibn **Battuta**

[E] Ibn Battuta was incensed after this empire's Mansa Sulayman gave him food instead of gold during his travels here. This empire's earlier ruler, Mansa Musa, devalued the worth of gold in Alexandria after giving so much away on his hajj.

ANSWER: **Mali** Empire

[H] Ibn Battuta noted that "a week was not passed without spilling of Muslim blood" while serving in this city under the patronship of Muhammad bin Tughlaq. A sultanate based in this city lost the first battle of Panipat.

ANSWER: **Delhi** [accept **Delhi** Sultanate]

<World History — Louis Li> [Ed. Iyer]

12. **In one theory of this phenomenon, the space of Lorentzian manifolds is replaced with a set of locally finite posets called causal sets. A system of equations describing this phenomenon contains a factor of "eight pi over c-to-the-fourth" times a namesake constant. Because this phenomenon originates from the stress-energy tensor, which is second-order, its (*) undiscovered gauge ("gayj") boson would have a spin of two. The Standard Model fails as a theory of everything because it cannot describe this force. This force arises from the curvature of spacetime according to general relativity. For 10 points, name this fundamental force that attracts objects with mass.**

ANSWER: **gravity** [accept **gravitational waves** or **graviton** or quantum **gravity** or **gravitational** constant; prompt on curvature or curvature of spacetime before "curvature" by asking "what force arises from the curvature of spacetime?"]

<Physics — Maharjan> [Ed. French]

12. This psychological structure provides frameworks for relationships and experiences that are used by the human mind to achieve self-individuation. For 10 points each:

[M] Name this theoretical database in the mind shared by all humans that contains archetypes like the animus and anima according to one psychologist.

ANSWER: **collective unconscious** [prompt on unconscious]

[E] This Swiss psychologist theorized that humans use archetypes in the collective unconscious as a guide to realizing the Self through individuation.

ANSWER: Carl Gustav **Jung** ("YOONG")

[H] Jung's process of individuation involves centering on the Self using these things, which Jung discussed in *Psychology and Alchemy*. These graphical depictions of the Self can also manifest as circular fountains or UFOs.

ANSWER: **mandalas**

<Psychology — Ashbrook> [Edited]

13. **This deity is repeatedly asked, "Do you want to know more, and what?" in a poem from the Codex Regius. In another poem, this deity consults a *völva* about his son's nightmares. This god adopts the name "Gagnrad" ("GAG'N-rad") in a wisdom contest which he wins by asking what he whispered to his son at his son's (*) funeral. This god transforms into an eagle after he steals mead from Suttung's mountain. This god hangs from an ash tree for nine days and nine nights to learn the secret of runes, and he leaves one eye in Mimir's ("MEE-mear's") well in exchange for more knowledge. For 10 points, name this wisest of the Æsir ("ICE-ear"), the chief god of Norse mythology.**

ANSWER: **Odin** [or **Wodan** or **Wotan**]

<Mythology — French> [Edited]

13. These particles displayed a diffraction pattern in the Davisson–Germer experiment. For 10 points each:

[E] Name these particles discovered by J. J. Thomson in cathode rays. Thomson proposed that these negatively-charged particles were embedded inside atoms like plums in a pudding.

ANSWER: **electrons**

[M] J. J. Thomson names a type of this interaction between electrons and low-energy photons. Another type of this interaction named for Arthur Compton occurs at high energies.

ANSWER: **scattering** [accept Thomson **scattering** or Compton **scattering**; prompt on **collision**]

[H] For both Thomson and Compton scattering, the Klein-Nishina (“kline nuh-SHEE-nuh”) formula gives one type of this quantity. The integral of the “differential” type of this quantity with respect to solid angle equals the “total” type of it, which is measured in barns.

ANSWER: **cross section** [accept differential **cross section** or total **cross section**]

<Physics — Yin> [Ed. French]

14. **A paste of fruits and nuts eaten during this holiday symbolizes mortar. On this holiday, Jacob’s theft of Esau’s (“EE-saw’s”) blessings is reenacted by hiding a piece of bread for children to steal. After the destruction of the Second Temple, this holiday’s Five Questions were reduced to the (*) Four Questions, the first of which asks, “why is this night different from all other nights?”** During this holiday, bitter herbs called *maror* (“mah-ROAR”) are eaten to commemorate slavery, and ten drops of wine are removed from cups in remembrance of the Ten Plagues of Egypt. For 10 points, unleavened bread called *matzah* (“MOT-suh”) is eaten during the Seder (“SAY-der”) feast of what Jewish holiday that celebrates the Exodus?

ANSWER: **Passover** [or **Pesach** (“PEH-sah”) or **Pesah**; accept **Seder** until read]

<Religion — McAvoy-Bickford, Dai> [Ed. Dai]

14. This man agreed to combine forces with king Peter II (“the second”) in the Treaty of Vis. For 10 points each:

[M] Name this leader who defeated Draža Mihailović (“drah-zhah mee-HIGH-loh-veech”) while serving as leader of the Partisans. This man’s country was brought into the Informbiro Period following a dispute with another leader.

ANSWER: Josip Broz **Tito**

[H] Mihailović was a leader of this Monarchist movement that operated during World War II and advocated for a racially pure Serbia. This organization supported the rule of Peter II.

ANSWER: **Chetniks** [or **Chetnik** Detachments of the Yugoslav Army or **Ravna Gora** Movement]

[E] Tito threatened to send someone to kill this leader of the USSR after he tried to assassinate Tito multiple times. This man won a power struggle over Leon Trotsky to succeed Vladimir Lenin.

ANSWER: Joseph **Stalin** [or Ioseb Besarionis dze **Jughashvili**]

<European History — Louis Li> [Ed. Laurence Li]

15. **Arif Mohammad Khan resigned in protest after one member of this family passed a law reversing the Shah Bano decision. A member of this family was implicated in the Bofors scandal. That member of this family stated, “when a big tree falls, the earth shakes,” to explain retaliatory killings after the death of another member of this family. A member of this family was assassinated by a suicide bomber associated with the (*) LTTE in 1991. Another member of this family was accused of election fraud before declaring the Emergency in 1975 and was later assassinated in 1984 for ordering a raid on the Golden Temple.** For 10 points, name this Indian political family whose members included Rajiv and Indira.

ANSWER: **Gandhi** [or Nehru-**Gandhi**; accept Indira **Gandhi** or Rajiv **Gandhi**]

<World History — Iyer> [Edited]

15. In set theory, these functions are any bijection from a set to itself. For 10 points each:

[M] Name these functions, which can be represented in terms of their cycles and fixed points. One of these functions with no fixed points is called a derangement.

ANSWER: **permutations**

[E] The number of permutations on a set of n elements is this function of n . This function is the product of all integers from one to n .

ANSWER: **factorial** [prompt on **exclamation point** or **!**]

[H] Permutations can be classified as “even” or “odd” depending on whether they decompose into an even or odd amount of these permutations. These permutations switch two elements but leave everything else fixed.

ANSWER: **transpositions** [prompt on **2-cycles**]

<Math — French> [Edited]

16. In this novel, a character flees on horseback after three of his fingers are cut off with an axe. Against his father's wishes, a character in this novel holds Friday sessions with the Mora sisters. That character in this novel is given a dog after her uncle Marcos dies at sea. Near the end of this novel, the prostitute Tránsito Soto helps free (*) Alba from prison after a military coup. After his fiancée is accidentally poisoned by some brandy, a character in this novel rebuilds the Tres Mariás estate. This novel features the sisters Rosa and Clara, the latter of whom marries the miner Esteban. For 10 points, name this magical realist novel about the Trueba family by Isabel Allende.

ANSWER: *The House of the Spirits* [or *La casa de los espíritus*]

<Long Fiction — Orr> [Ed. Mayers]

16. These reactions can be catalyzed with a magnesium ribbon. For 10 points each:

[H] Name these highly exothermic substitution reactions between elemental metal powders and metal oxides.

ANSWER: **thermite** reactions

[M] Exothermic welding involves a thermite reaction between a powder of this element and another metal oxide, commonly iron oxide. The Bayer process is used to produce this element's oxide.

ANSWER: **aluminum** [or **aluminium**]

[E] In exothermic welding, the metal oxide undergoes one of these reactions, while the aluminum metal undergoes an oxidation. These reactions involve species gaining electrons.

ANSWER: **reduction** [prompt on **redox** or **oxidation-reduction**; do NOT accept or prompt on "oxidation"]

<Chemistry — Athreya> [Edited]

17. The genes *API* ("A-P-one") and *AP2* ("A-P-two") help regulate the development of these structures in a model organism. These structures' namesake primordia may form when the concentration of far-red sensing phytochrome ("FYE-toh-kroh-m") either exceeds or falls below a certain threshold. Three classes of homeotic ("hoh-mee-OT-ik") genes are differentially expressed across these structures' four whorls in the ABC model of their development. The (*) corolla and calyx make up these structures' outer portion, which is called the perianth. These structures give the common name to a clade that includes monocots and dicots; that clade is Angiospermae. For 10 points, name these plant reproductive organs that contain nectar, pollen and petals.

ANSWER: **flowers** [accept **flower** primordia or **floral** primordia or **flowering** plants; prompt on **sepals** or **nectaries**; prompt on **petals** or **corollas** or **calyxes** or **perianths** until they are read] (The model organism in the first clue is *Arabidopsis thaliana*.)

<Biology — French> [Ed. Yin]

17. In this collection, Thomas Rhodes denounces "you liberals, / And navigators into realms intellectual." For 10 points each:

[M] Name this Edgar Lee Masters collection about an Illinois town with residents such as Anne Rutledge, who was "Beloved in life of Abraham Lincoln."

ANSWER: ***Spoon River Anthology***

[E] In *Spoon River Anthology*, a character named for this poet roams the fields with Burt Kessler. This poet wrote, "Look on my Works, ye Mighty, and despair!" in his poem "Ozymandias."

ANSWER: Percy Bysshe **Shelley**

[H] *Spoon River Anthology* begins with this poem, which asks, "Where are Elmer, Herman, Bert, Tom and Charley," before responding "all, all are sleeping" and listing their manners of death.

ANSWER: "The **Hill**"

<Poetry — Tagtmeier> [Edited]

18. *Riverdale* star Charles Melton appears in the music video to one of this artist's songs that remarks "you know what you're doin' to me, you're singing my songs in the streets." This is the younger of two artists that appear on a song that remarks "I'd rather be dry but at least I'm alive." That song is (*) Lady Gaga's "Rain on Me." A song by this artist states "you can hit it in the morning, yeah yeah like it's yours," even though "I know it ain't right, but I don't care." This artist repeats the lines "I want it, I got it" in a song based on the musical number "My Favorite Things." For 10 points, name this singer of *Seven Rings* and *Break Up With Your Girlfriend*.

ANSWER: Ariana **Grande**

<Popular Culture — Dai> [Ed. Maharjan]

18. At one of these events, a world leader caused controversy by shouting “Long live free Quebec!” from a balcony. For 10 points each:

[M] Name this type of event that Montreal hosted in 1967. The Eiffel Tower was built for one of these events that was hosted in Paris in 1889.

ANSWER: **World’s Fair** [accept **Exposition Universelle** or **Expo 67** or The 1967 International and Universal **Exposition**]

[E] This first president of the French Fifth Republic proclaimed “Long live free Quebec!” at the 1967 World’s Fair. He earlier shouted “No!” in the Appeal of 18 June while serving as leader of the Free French during World War II.

ANSWER: Charles **de Gaulle**

[H] After de Gaulle’s proclamation, this Canadian prime minister said that “Canadians do not need liberating.” This leader formed the Royal Commission on the Status of Women while serving as Prime Minister from 1963 to 1968.

ANSWER: Lester **Pearson**

<World History — Louis Li> [Ed. Iyer]

19. **A man who achieved his highest post after the success of this cause was exiled to Bavaria with his wife Amalia. A proponent of this cause was blocked from entering Austria after losing the Battle of Dragasani. The Great Powers ratified the London Protocol two years after troops led by Edward Codrington defeated the naval forces of Ibrahim Pasha at the battle of (*) Navarino in the war for this cause. Filiki Eteria launched the revolts that led to this cause, which was championed by Alexander Ypsilantis. For 10 points, name this cause which resulted in the ascent of Otto I (the first”) to the throne of a newly-independent country once ruled by the Ottoman Empire during the Peloponnesian uprising.**

ANSWER: **Greek independence** from the Ottoman Empire [accept word forms such as **independence** of **Greece**]

<European History — Condron> [Edited]

19. This author created a character inspired by Alexis de Tocqueville who is sickened by the sight of Independence Day celebrations but decides to stay in America to wed Amelia Godefroy. For 10 points each:

[H] Name this author of *Parrot and Olivier in America*. In another novel, this author created a character who constructs suits of steel armor after being cornered by police in the town of Glenrowan.

ANSWER: Peter **Carey**

[E] Peter Carey is from this country. A glass cathedral is transported across the Outback in this country in Carey’s novel *Oscar and Lucinda*.

ANSWER: **Australia** [or Commonwealth of **Australia**]

[M] Peter Carey’s *Jack Maggs* is an adaptation of this novel. In this novel, all the clocks in Satis House are stopped after a woman is “left at the altar” by her former fiancé, Compeyson.

ANSWER: **Great Expectations**

<Long Fiction — Raymond Wang> [Edited]

20. **This author described a group of men who are hanged in Shrewsbury jail in a poem beginning, “On moonlit heath and lonesome bank.” In another poem by this author, a boisterous character ironically laments, “the cow, the old cow, she is dead,” before advocating that poetry show “the world as the world’s not.” That poem analogizes poetry to inoculations against poison in a verse ending, (*) “Mithridates, he died old.” This poet asserted, “Malt does more than Milton can / to justify God’s ways to man.” Another poem by this author recalls “the time you won your town the race.” For 10 points, name this author of “Terence, This is Stupid Stuff” and “To an Athlete Dying Young.”**

ANSWER: A. E. **Housman** [or Alfred Edward **Housman**]

<Poetry — Tagtmeier> [Ed. Condron]

20. For 10 points each, answer the following about plants used in mining:

[M] *Phyllanthus balgooyi*, a “hyperaccumulator” of this metal, is increasingly being smelted to extract this metal in Borneo. This metal is often purified by reacting it with carbon monoxide in the Mond process.

ANSWER: **nickel** [or **Ni**]

[E] The basil species *Ocimum centraliafricanum*’s high tolerance for this metal makes it a useful indicator for deposits of this metal’s ores, such as chalcopyrite (“kal-kuh-PYE-rite”). This metal is alloyed with zinc in brass.

ANSWER: **copper** [or **Cu**]

[H] The screw palm *Pandanus candelabrum* can be used to locate diamonds, since it only grows atop this igneous rock. Most natural diamonds are mined from volcanic pipes of this rock, which also contains many peridotite xenoliths (“ZEH-noh-liths”).

ANSWER: **kimberlite**

<Earth, Atmospheric, and Ocean Science — McAvoy-Bickford> [Ed. Yin]