

CALISTO: California Spring Tournament 2020

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Packet 8 Tossups

1. A “soldier’s pocket bible” named after this leader was issued to his troops. This leader reversed the expulsion of the Jews after the Whitehall Conference. This ruler’s powers were outlined in his country’s first codified constitution, the Instrument of Government. This leader ordered the massacre of the garrison of (*) Drogheda during his conquest of Ireland. This man served under Thomas Fairfax at the Battle of Naseby, and was later posthumously beheaded for regicide. This man nicknamed “Old Ironsides” commanded the New Model Army in the English Civil War. For 10 points, name this Lord Protector of England who ruled after executing Charles I.

ANSWER: Oliver Cromwell

<British/Commonwealth History — Lin> [Ed. Athreya]

2. This formula is generalized to higher orders by Faà di Bruno’s formula. For multivariable functions, this formula decomposes the Jacobian matrix into the product of two other Jacobians. This formula can be spuriously “proven” in an abuse of Leibniz’ notation by cancelling two (*) differentials as if derivatives were fractions. Indefinite integrals may be computed by reversing this formula in u -substitution. For two functions f and g of x , the result of this formula is f prime of g times g prime of x . For 10 points, name this formula that computes the derivative of the composition of two functions.

ANSWER: chain rule

<Math — Dai> [Ed. French]

3. A book in this movement comparing it to the most important “cultural current” of the century, Freudianism, was written by Shulamith Firestone. Within this movement, Kimberlé Crenshaw created a framework in which subordination is heightened from overlapping identities. A book in this movement is named after a group referred to as the “privileged (*) Other.” That book, which opens by stating “one is not born, but rather becomes” a member of the title group, heavily influenced this movement’s second wave. For 10 points, intersectionality is central to what movements its third wave?

ANSWER: feminism [accept second-wave feminism or third-wave feminism or intersectional feminism or black feminism or radical feminism]

<Philosophy — Gray> [Edited]

4. This character prays at a cathedral but is interrupted by a man who asks “Don’t you know where you belong?” A short-sighted police officer arrests this character for riding a coach with a false passport. A man accuses Mrs. Podtochin of hiring witches to orchestrate this character’s disappearance. Earlier, that man sees this character exit a carriage wearing the plumed hat of a (*) state councilor. The barber Ivan Yakovlevich discovers this character in a loaf of bread at the beginning of the story in which it appears. For 10 points, name this body part that travels around St. Petersburg after detaching from Major Kovalyov’s face in a Nikolai Gogol story.

ANSWER: the Nose

<Short Fiction — Schwartz> [Ed. French]

5. **Examples of these cells that express CAR proteins are currently being used in experimental treatments for cancer. A certain virus infiltrates these cells by adsorbing its gp120 glycoprotein to receptors on their surface. These cells differentiate according to whether they bind to class 1 or class 2 MHC molecules. Two types of these cells are designated (*) CD8+ or CD4+ based on their surface receptors. HIV binds to and kills these cells. The "cytotoxic" type of these cells kills infected cells directly, while the "helper" type secretes cytokines to activate and regulate the immune response. For 10 points, name these lymphocytes that develop in the thymus and are contrasted with B cells.**

ANSWER: T cells [accept chimeric antigen receptor T cells or CAR T cells or CD8+ T cells or CD4+ T cells or cytotoxic T cells or helper T cells; do NOT accept or prompt on "B cells"]

<Biology — Schwartz> [Ed. Gurazada]

6. **These people developed a type of dance involving stamped feet called the “ring shout.” These people were mocked in a performance genre pioneered by Thomas “Daddy” Rice. Eugene Genovese titled a book about “the world [these people] made” after the song (*) “Roll, Jordan, Roll.” A genre of religious music developed by these people includes songs like “Wade in the Water” and “Go Down Moses.” According to legend, these people communicated secret travel directions through the song “Follow the Drinking Gourd.” For 10 points, name these people who sang spirituals and work songs to cope with the harsh conditions of plantation life.**

ANSWER: slaves [prompt on Africans or African-Americans or black people]

<Other Music — French> [Edited]

7. **This country captured lands earlier granted to its nobility during the Great Reduction. This country’s devastating invasion of Poland was termed the “Deluge.” The king of this country was forced to flee to Ottoman territory after losing the decisive Battle of (*) Poltava. The third phase of the Thirty Years’ War was named for the intervention of this country and was known as the Pomeranian War. During that intervention, one ruler of this country died at the battle of Lutzen. That ruler was known as the “Lion of the North.” Charles XII and Gustavus Adolphus ruled, for 10 points, what country that signed the Treaty of Stockholm in its capital?**

ANSWER: Kingdom of Sweden [or Konungariket Sverige; accept Swedish Empire]

<European History — Athreya> [Ed. Hong]

8. **Two of these instruments play a minor sixth apart to begin the “Game of Pairs” in Bela Bartok’s *Concerto for Orchestra*. Before the awakening of Kashchei (kuh-SHAY) in *The Firebird*, this instrument plays an exotic “Lullaby.” After the brief introduction, this instrument introduces the *spiccato* theme in Paul Dukas’ (due-KAHSS’) (*) *Sorcerer’s Apprentice*. This instrument represents the grandfather in *Peter and the Wolf*. Apocryphally, Camille Saint-Saëns exclaimed, “If that is [this instrument], then I am a baboon” after hearing the high-pitched solo for this instrument that begins *The Rite of Spring*. For 10 points, name this low-pitched double-reed woodwind.**

ANSWER: bassoon [prompt on baboon before “baboon”; do NOT accept or prompt on “contrabassoon” or “contrababoon”]

<Classical Music — Ma> [Edited]

9. **The last of three of these buildings to be built at the Findlay and Western intersection had a fifteen-degree inclined terrace leading up to a wall. They're not banks, but some of these buildings built in the early twentieth century that were generally asymmetrical were called "jewel boxes." One of these buildings with an (*) ivy-covered brick back wall has unpredictable wind patterns due to the proximity of Lake Michigan. A single red seat in one of these buildings is across from a wall called the "Green Monster." One of these buildings that replaced the Polo Grounds was nicknamed "The House That Ruth Built."** For 10 points, name these places like Fenway Park and Yankee Stadium.

ANSWER: **baseball stadiums** [or **baseball fields** or **baseball parks** or **Major League Baseball stadiums** or **MLB stadium** or baseball **diamonds**; accept **League Park** or **Palace of the Fans** or **Redland Field** or **Crosley Field** or **Wrigley Field**; accept **Fenway Park** before "Fenway"; accept **Yankee Stadium** before "Yankee"; prompt on **stadiums** or **fields** or **parks** by asking "For what sport?"]

<Geography — Gray> [Edited]

10. **In this novel, a woman is abruptly fired from her job after two soldiers appear at her workplace with machine guns. That character is inspired by a Latin phrase she finds engraved on a cupboard meaning "Don't let the bastards keep you down." In this novel, the lesbian Moira briefly reunites with its central character at the underground night club (*) Jezebel's. This novel's central character remembers Serena Joy's work as a singer on TV before she plays Scrabble with Serena's husband, the Commander. For 10 points, the fanatically religious nation Gilead oppresses women like Offred in what novel by Margaret Atwood?**

ANSWER: *The **Handmaid's Tale***

<Long Fiction — Schwartz> [Edited]

11. **One method of calculating this quantity expresses it as a linear function of the effective nuclear charge over the square of the covalent radius. This quantity, which can be measured by the Allred-Rochow scale, can also be found by taking the average of the electron affinity and ionization energy in Mulliken's scale. Since this quantity is not usually defined for (*) noble gases and it increases going from the bottom left to the top right of the periodic table, fluorine has the highest value for this quantity. The difference in this quantity between two atoms characterizes their bond as ionic, polar, or non-polar. For 10 points, name this quantity that describes an atom's ability to attract electrons.**

ANSWER: **electronegativity** [accept Allred-Rochow **electronegativity** or Mulliken **electronegativity**]

<Chemistry — Schwartz> [Ed. Gurazada]

12. **According to Diogenes Laertius, a man who killed himself at this place was shown *not* to have apotheosized due to the survival of one of his bronze sandals. While hiding at this place, Daedalus reveals his location by using an ant to string a thread through a seashell. At this place, the daughters of Cocalus use a bath of scalding water to murder (*) Minos. Ovid placed Scylla and Charybdis in the strait between this island and the mainland. The philosopher Empedocles killed himself on this island by jumping into the volcano beneath which Zeus imprisoned Typhon. For 10 points, Mount Etna lies on what island to the south of Italy?**

ANSWER: **Sicily** [accept Mount **Etna** before "Daedalus"]

<Mythology — Dai> [Ed. French]

13. In one novel by this author, a character wishes to visit the River of the Arrow so he can bathe in it and become enlightened. In a poem by this author, the phrases “limpin’ lump o’ brick-dust” and “squidgy-nosed old idol” describe the title water-bearer, who is told “You’re a (*) better man than I am.” This author wrote a novel in which Hurree Babu works alongside the title Irish orphan as British spies in the Great Game. In a collection by this author, the snakes Nag and Nagaina are killed by the mongoose Rikki-Tikki-Tavi. For 10 points, name this imperialist British author of *Kim* and “Gunga Din,” who wrote about Mowgli in *The Jungle Book*.

ANSWER: Rudyard **Kipling** [or Joseph Rudyard **Kipling**]

<Other Literature — Venkateswaran> [Ed. French]

14. An artist from this country created a triptych depicting wounded soldiers and dancers at a jazz club titled *Metropolis*. That artist belonged to an anti-expressionist movement from this country called “New Objectivity.” A Russian-born artist who worked in this country outlined his artistic philosophy in *Concerning the Spiritual in Art*. A school combining crafts, design, and fine arts was established by (*) Walter Gropius in this country home to an expressionist art movement founded by Franz Marc and Wassily Kandinsky. For 10 points, name this country home to The Blue Rider and the Bauhaus.

ANSWER: Federal Republic of **Germany** [or Bundesrepublik **Deutschland** or **Weimar Republic**]

<Painting — Li> [Ed. Malouf]

15. Frank Kusch described sitting down with many of this city’s police officers in his book *Battleground: [this city]*. Lip readers caught a mayor of this city swearing at Abraham Ribicoff, who criticized that mayor for using “Gestapo Tactics.” Abbie Hoffmann, Jerry Rubin, and other members of this city’s (*) “Seven” were imprisoned for inciting riots against pro-war candidate Hubert Humphrey, who was nominated at this city’s 1968 Democratic Convention. For 10 points, name this city once led by Richard J. Daley, the most populous in Illinois.

ANSWER: **Chicago**

<US History — Gray> [Ed. Iyer]

16. The first term of the multipole expansion for this quantity is always zero. This quantity is the curl of the vector potential, which is denoted A . This quantity is inversely proportional to radial distance inside a torus, while it is constant inside a (*) solenoid. Change in this quantity’s flux generates an electromotive force, according to Faraday’s law. A particle with charge q and velocity v undergoes a force equal to “ $q v$ cross” this quantity. The Biot-Savart law (Bee-oh Savart law) or Ampere’s law can be used to calculate this quantity from current. For 10 points, name this quantity denoted B that is measured in teslas.

ANSWER: **magnetic field** [accept **B-field** before “B”; prompt on B]

<Physics — Schwartz/Gurazada> [Ed. French]

17. After this event, a system of Gacaca courts was introduced to try its perpetrators, many of whom were part of a militia called “Those Who Attack Together.” Roméo Dallaire led a failed peace-keeping mission to stop this event. The radio station RTL M urged its listeners to begin this event with the command (*) “cut down the tall trees.” The Interahamwe began this event after the plane carrying Juvenal Habyarimana was shot down. This event ended after its country’s Patriotic Front took power under the leader Paul Kagame. For 10 points, name this 1994 atrocity in which Hutu militias massacred Tutsis in a central African country.

ANSWER: **Rwandan genocide** of 1994 [accept descriptive equivalents like **genocide of the Tutsis** before mention]

<African History — Iyer/French> [Edited]

18. The speaker “chopped down the house that you had been saving to live in next summer” in a parody of a poem by this author by Kenneth Koch. A poem by this author is set “By the road to the contagious hospital.” This author described “wheels rumbling / through the dark city” at the end of a poem that provided the title for Charles Demuth’s painting (*) *I Saw the Figure 5 in Gold*. This author, who described plums that were “so sweet / and so cold” in “This Is Just To Say,” wrote a poem about an object “glazed with rain / water / beside the white / chickens.” For 10 points, name this Imagist poet of “The Red Wheelbarrow.”

ANSWER: William Carlos Williams

<Poetry — French> [Edited]

19. In `vim`’s normal mode, this character is used to search forwards within the text buffer. This character surrounds search and replace patterns in regexes in `sed` and Perl. Many languages, such as C++ (C-plus-plus) and Java, designate the rest of a line as a comment using *two* of this character. Unix-like systems such as Linux and macOS (mac-O-S) use this character both to designate the (*) root directory and to separate directories in file paths. Closing tags in HTML are made by placing this character after the opening angle-bracket. A scheme like `ftp` is followed by a colon and *two* of this character at the start of a URL. For 10 points, name this character which separates the components of a URL.

ANSWER: forward slash [or solidus or oblique or virgule; do not accept or prompt on “backslash” or “backwards slash”]

<Computer Science — Gray> [Ed. Gurazada]

20. A band named after this word released the song “Alone Again Or” on the album “Forever Changes.” On the day LSD became illegal, a “Pageant Rally” named after this word was held in San Francisco. A red, green, and blue postage stamp is based on Robert Indiana’s sculptures in the form of this word, arranged in the form of a square with one (*) tilted letter. A season named after this word included gatherings in the Haight-Ashbury neighborhood of San Francisco; that season was 1967’s “Summer of” this word. For 10 points, a Beatles song states that “All You Need Is” what word?

ANSWER: love [accept Love Pageant Rally or Summer of Love or All You Need Is Love]

<Mixed/Other — Li> [Ed. Gray]

Packet 8 Bonuses

1. These species can break bonds in diatomic hydrogen or halogen gases through abstraction named for this species. For 10 points each:

[10] Name these chemical species which possess unpaired electrons. Examples of these species include superoxide.
ANSWER: free **radicals**

[10] Radicals are formed when one of these bonds is cleaved homolytically. Molecules are composed of atoms connected via these bonds, in which both atoms share electrons.

ANSWER: **covalent** bonds [accept polar **covalent** bonds or nonpolar **covalent** bonds]

[10] This phenomenon can stimulate radical formation by promoting bond dissociation. This phenomenon can be used to enable pericyclic reactions that are otherwise symmetry-forbidden.

ANSWER: **light** [or **radiation**; accept **UV** radiation or **photolysis** or **photochemical** reactions]

<Chemistry — Gurazada> [Edited]

2. This collection's version of "The Chimney Sweeper" describes a boy "clothed... in clothes of death," contrasting with a more cheerful version about little Tom Dacre. For 10 points each:

[10] Name this collection. This collection's poem "The Tyger" is often contrasted with a poem from an earlier collection, "The Lamb."

ANSWER: ***Songs of Experience*** [prompt on ***Songs of Innocence and of Experience***; do NOT accept or prompt on "*Songs of Innocence*"]

[10] This mystic English poet wrote *Songs of Experience* to follow his earlier collection, *Songs of Innocence*.

ANSWER: William **Blake**

[10] This poem from *Songs of Experience* describes an "invisible worm" that "flies in the night" and whose "dark secret love / Does thy life destroy."

ANSWER: "The **Sick Rose**"

<Poetry — Iyer> [Ed. French]

3. This pharaoh's co-regent Thutmose III ordered a *damnatio memoriae* against this pharaoh, erasing this pharaoh's name and image from many official records. For 10 points each:

[10] Name this pharaoh of the Fifteenth Dynasty. This pharaoh's mortuary temple in the Deir el-Bahari complex was designed by Senemut and is named Djoser-Djeseru, or the Holy of Holies.

ANSWER: **Hatshepsut**

[10] Hatshepsut was the second pharaoh of this status. The first pharaoh of this status was Sobekneferu due to Amenmhat IV's lack of male heirs.

ANSWER: **female** [accept **woman** or any answer indicating they are female]

[10] Hatshepsut was buried together with her father Thutmose I in tomb KV20, likely the first tomb constructed in this area west of the Nile. Other pharaohs buried here include Tutankhamun.

ANSWER: **Valley of the Kings** [or **Valley of the Gates of the Kings** or **Wadi Abwad al Muluk**; do NOT accept or prompt on "Valley of the Queens"]

<Ancient/Classical History — Iyer> [Ed. Ma]

4. This man was assassinated along with his brother Hyrum when a mob fired shots into his Illinois jail cell. For 10 points each:

[10] Name this man. He used the seer stones Urim and Thummim in order to translate a text that was presented to him on Cumorah Hill.

ANSWER: Joseph **Smith**

[10] Smith was the founder of this religion, which is currently based in Utah. Polygamy was practiced by many members of this religion, including Smith himself.

ANSWER: **Mormonism** [or **Mormon** Church or the Church of Jesus Christ of **Latter-day Saints** or the **LDS** Church]

[10] This angel is said to have visited Smith on Cumorah Hill and presented him with the golden plates, from which Smith was able to translate the Book of Mormon.

ANSWER: **Moroni**

<Religion — Venkateswaran> [Edited]

5. This composer's Opus 18 contains his String Quartets Nos. 1 through 6, all dedicated to Joseph Franz von Lobkowitz. For 10 points each:

[10] Name this composer. His String Quartet No. 14 in C-sharp minor is in seven movements.

ANSWER: Ludwig van **Beethoven**

[10] The original ending of Beethoven's String Quartet No. 13 was one of these pieces, but it was later published separately as Opus 133, named the "*Grosse*" one of these pieces. J. S. Bach paired a toccata with one of these contrapuntal pieces in a D minor composition.

ANSWER: **fugue** [accept double **fugue** or *Grosse Fuge*]

[10] Because of the arpeggiated *pizzicato* in its first movement, Beethoven's String Quartet No. 10 is nicknamed after this instrument which is not in a string quartet. This instrument has vertical strings that are plucked and pedals for key changes.

ANSWER: **harp**

<Classical Music — Gurazada> [Ed. Ma]

6. A form of emission tomography detects the gamma rays produced by these particles' annihilation. For 10 points each:

[10] Name this particle. This particle has a charge of positive one and is the antiparticle of the electron.

ANSWER: **positron** [prompt on anti-electron]

[10] A positron and an antiproton bind to create the antimatter counterpart of this atom. This atom has an atomic number of one.

ANSWER: **hydrogen** [accept **hydrogen-1** or **protium** or anti**hydrogen** or anti**hydrogen-1** or anti**protium**]

[10] In this process, a positron and an electron are created from a photon. It can only occur when the photon has an energy greater than 1.022 (one-point-zero-two-two) mega-electron-volts.

ANSWER: **pair production**

<Physics — Gurazada> [Ed. French]

7. This film ends with a character screaming “I drink your milkshake” while beating Eli Sunday to death with a bowling pin. For 10 points each:

[10] Name this 2007 film by Paul Thomas Anderson about a ruthless oil magnate.

ANSWER: ***There Will be Blood***

[10] *There Will be Blood* stars this actor, who also collaborated with P.T. Anderson on *Phantom Thread*. This man won the Academy Award for Best Actor for his 2012 portrayal of Abraham Lincoln.

ANSWER: Daniel **Day-Lewis**

[10] Daniel Day-Lewis practices Konstantin Stanislavski’s technique of method acting, which was pioneered in Hollywood by this actor. This actor played Stanley Kowalski in *A Streetcar Named Desire* and Vito Corleone in *The Godfather*.

ANSWER: Marlon **Brando**

<Film — Schwartz/Malouf> [Ed. French]

8. Board games! For 10 points each:

[10] The Sicilian Defense is a common strategy in this game, which ends when one of the two players’ kings is checkmated.

ANSWER: **chess**

[10] Players who roll a seven in this board game can move the robber to steal a resource. Players can build roads using lumber and brick in this game set on an island, with a bonus of two victory points for the longest road.

ANSWER: *The Settlers of **Catan*** [or **Settlers**; accept **Catan: Seafarers** or **Catan: Cities and Knights** or **Catan: Traders and Barbarians** or **Catan: Explorers and Pirates** or **Catan: Oil Springs** or **Catan: Frenemies of Catan**]

[10] “Province rushing” is a common strategy in this deck-building game, which has 25 kinds of “Kingdom” card. Players in this game initially purchase cards with the seven copper and three estates they are dealt.

ANSWER: **Dominion**

<Pop Culture — Schwartz> [Edited]

9. This text begins by asserting that it will not present “any repetition of those sentiments...which were last night so disgusting to you.” For 10 points each:

[10] Name this text, in which its author justifies his disdain for Mr. Wickham and apologizes for misleading Mr. Bingley. This text is read midway through a novel, the day after an awkward marriage proposal.

ANSWER: Mr. **Darcy’s letter** to Elizabeth Bennet [or **Fitzwilliam’s letter** to Elizabeth Bennet; prompt on **letter**]

[10] Elizabeth Bennet realizes she was unfairly prejudiced against Mr. Darcy after reading his letter in this author’s novel *Pride and Prejudice*.

ANSWER: Jane **Austen**

[10] Elizabeth is primarily prejudiced against Mr. Darcy because she thinks he steered Mr. Bingley away from a relationship with this character. This naïve, eldest sister of the Bennet family *does* marry Mr. Bingley by the novel’s end.

ANSWER: **Jane** Bennet

<Long Fiction — Schwartz> [Ed. French]

10. This man was known as “Raven” when he lived with the Cherokee. For 10 points each:

[10] Name this winner at the Battle of San Jacinto, who later became the first President of the Texan Republic upon its creation in 1836. The most populous city in Texas is named for him.

ANSWER: Sam **Houston** [or Samuel **Houston**]

[10] This successor to Houston attempted to curb debt through the institution of the Texan Dollar, also known as the “redback,” but the currency experienced rapid inflation instead.

ANSWER: Mirabeau **Lamar** [or Mirabeau Buonaparte **Lamar**]

[10] In exchange for federal assumption of Lamar’s debt, Texas was forced to cede land claims as far north as present-day Wyoming in this agreement. This agreement also established California as a free state.

ANSWER: Compromise of **1850**

<U.S. History — Shahriar> [Ed. Iyer]

11. A character this play tries to remove his son from the high school football team due to the racism he experienced while playing baseball in the Negro Leagues. For 10 points each:

[10] Name this play about the black garbage truck driver Troy Maxson.

ANSWER: **Fences**

[10] Troy’s mentally handicapped brother Gabe, who believes he is actually the archangel Gabriel, carries around this object for most of the play. At the play’s end, Gabe thrice tries to use this object to open the gates of Heaven.

ANSWER: his **trumpet** [prompt on horn or musical instrument]

[10] *Fences* was written by this author, who explored the African-American experience throughout the 20th century in his *Pittsburgh Cycle*.

ANSWER: August **Wilson**

<Drama — Schwartz> [Edited]

12. A 2014 essay titled “The Case for” these things in *The Atlantic* calls adopting them “the full acceptance of our collective biography.” For 10 points each:

[10] Name these payments to descendants of slaves. House Resolution 40, which has been re-introduced every Congress since 1989 by John Conyers, would create a commission to study these things.

ANSWER: **reparations** for slavery [accept “The Case for **Reparations**”]

[10] “The Case for Reparations” was written by this essayist, who other stories in *The Atlantic* include “My President was Black” and who wrote the book *Between the World and Me* as a letter to his son.

ANSWER: Ta-Nehisi Paul **Coates**

[10] This former Democratic presidential candidate introduced a Senate analogue to HR 40 and is also known for a “baby bond” proposal. This New Jersey senator was previously the mayor of Newark.

ANSWER: Cory Anthony **Booker**

<Current Events — Gray> [Edited]

13. Due to his Nazi sympathies, this man was appointed governor of the Bahamas during World War II to get him out of Britain. For 10 points each:

[10] Name this King of England, who gave up the throne of the United Kingdom in 1936 in order to marry the American divorcée Wallis Simpson.

ANSWER: **Edward VIII** (“the eighth”) [prompt on **Edward**]

[10] Apocryphally, the League of Nations offered English athlete C. B. Fry the vacant throne of this country after the First World War, but he declined. This country was instead ruled from 1928 to 1939 by its only king, Zog.

ANSWER: **Albania**

[10] In 1952, Albert Einstein was offered the presidency of this this young nation after the death of Chaim Weizmann, this country’s first president. Due to his age and lack of qualifications, Einstein also declined.

ANSWER: **Israel** [or State of **Israel**]

<European History — Gray> [Edited]

14. In a David Ricardo example of this phenomenon, Portugal produces both cloth and wine more efficiently than England, but it is optimal for Portugal to produce only wine and trade with England for cloth. For 10 points each:

[10] Name this phenomenon that explains why it’s optimal for economies with the lowest relative opportunity cost to produce goods.

ANSWER: **comparative advantage** [do NOT accept or prompt on “absolute advantage”]

[10] David Ricardo’s concept of comparative advantage explains why there are gains from this practice between countries. This practice is “free” if it is not subject to protectionist tariffs.

ANSWER: international **trade** [accept **imports** or **exports**; prompt on **buying** or **selling**]

[10] This economist’s New Trade Theory argues that trade occurs even without comparative advantage, since firms seek economies of scale. This economist and Robin Wells wrote a series of commonly-used economics textbooks.

ANSWER: Paul **Krugman**

<Economics — French> [Ed. Gray]

15. A Strombolian eruption will typically form a volcano of this type. For 10 points each:

[10] Name this type of volcano. These volcanoes are made up of pyroclastic fragments like ash and scoria, unlike shield volcanoes and stratovolcanoes.

ANSWER: **cinder cone** volcanoes

[10] This cinder cone volcano suddenly formed in 1943 in the middle of a Mexican corn field. Scientists were able to observe the complete life cycle of cinder cone volcanoes by observing it.

ANSWER: **Parícutin** (pa-REE-coo-teen)

[10] Like other Mexican volcanoes, Parícutin is part of the geologically active “Ring of Fire” surrounding this ocean. An interior hot spot within this ocean’s plate formed the Hawaiian islands.

ANSWER: **Pacific** Ocean [accept **Pacific** Plate]

<Earth Science — Lin> [Ed. French]

16. This event was accomplished by using the snake Vasuki (VAH-soo-kee) as a rope and Mount Mandara (MAHN-duh-ra) as a rod. For 10 points each:

[10] Name this event, which ended with the creation of *amrita* (UM-rit-ah), the nectar of immortality. During this event, the turtle Kurma appeared and allowed Mount Mandara to rest on its back.

ANSWER: the **Churning** of the **Ocean** of Milk [or the **Churning** of the **Sea** of Milk or **Samudra Manthana**, prompt on **churning**]

[10] During the Churning of the Ocean of Milk, the dangerous halahala poison emerged from the sea. To prevent it from engulfing the world, this god drank the poison, earning him the nickname *neelakantha* (NEE-la-KUHN-ta), or “blue throated.”

ANSWER: **Shiva**

[10] After the Churning was complete, this god appeared as the beautiful woman Mohini to beguile the Asuras into giving up the *amrita*. This Hindu preserver god forms the *trimurti* along with Brahma and Shiva.

ANSWER: **Vishnu**

<Mythology — Iyer> [Ed. Venkateswaran]

17. The first of three laws named after this author requires that certain beings “may not harm humans or allow humans to come to harm through inaction.” For 10 points each:

[10] Name this author. One of those beings created by this author, R. Daneel Olivaw, extrapolates that law to all of humanity to formulate the “Zeroth Law.”

ANSWER: Issac **Asimov**

[10] Asimov’s Three Laws govern the positronic brains of these beings. Susan Calvin is a psychologist for these beings in an Asimov collection titled “I, [one of these beings].”

ANSWER: **robots**

[10] Hari Seldon develops psychohistory in this series by Asimov. In the last novel in this series, Olivaw plans to uphold the Zeroth Law by protecting humanity through the collective intelligence Galaxia.

ANSWER: **Foundation** Series

<Mixed Fiction — Gray> [Edited]

18. This artist’s father created a series of monochrome depictions of the life of Christ in the *Grey Passion*. For 10 points each:

[10] Name this court painter to Henry VIII (“the eighth”). This artist’s patron Thomas Cromwell was executed for treason after this artist produced an unrealistically beautiful portrait of Anne of Cleves.

ANSWER: Hans **Holbein** the **Younger** [prompt on Hans **Holbein**]

[10] Holbein the Younger is best known for this double portrait of French diplomats that features a plethora of nautical and scientific instruments in the background. The bottom of this painting features an anamorphic skull.

ANSWER: *The **Ambassadors*** [or ***Jean de Tinteville and George de Selve***]

[10] Skulls were also commonly included in *vanitas* paintings, a subgenre of this genre. This genre of painting depicts inanimate objects such as fruit or flowers.

ANSWER: **still life** [or **stilleben**; accept *vanitas* **still lifes**]

<Painting — Ma> [Ed. Malouf]

19. This man earned his epithet after he suffered an injury while serving in Khorasan. For 10 points each:

[10] Name this Turkic conqueror who ruled a successor state to the Chagatai Khanate from Samarkand. He was interred in a jade tomb after his death.

ANSWER: **Tamerlane** [or **Timur** the Lame or **Taimur Lang** or **Timur Gurkani** or **Taimur Gurkani**]

[10] Timur defeated Bayezid I, nicknamed the “thunderbolt,” at a battle named after this city. This city is the current capital of Turkey.

ANSWER: **Ankara** [or Battle of **Ankara**]

[10] Timur defeated Mahmud Khan of this city’s Tughlaq Dynasty during one campaign that led to over 100,000 deaths. A successor state centered in this city was led by Ibrahim Lodi.

ANSWER: **Delhi** [or **Delhi** Sultanate; do NOT accept or prompt on “New Delhi”]

<Asian History — Shahriar> [Ed. Iyer]

20. These containers generally contain growth media such as Luria broth or agar. For 10 points each:

[10] Name these transparent circular containers. They are often used to culture bacteria or other microscopic cells.

ANSWER: **Petri** dishes [or **Petri** plates or **cell-culture** dishes; prompt on **plates**]

[10] If a biologist wishes to culture only one kind of bacterium in a Petri dish, they can make the growth medium “selective” by adding one of these substances, such as tetracycline or beta-lactams like ampicillin.

ANSWER: **antibiotics**

[10] A differential growth medium containing X-gal can be used to test the function of this system. This system binds three genes to a single promoter and operator and is activated by the cAMP-CAP (“C-A-M-P cap”) complex.

ANSWER: ***lac* operon** [or **lactose operon**]

<Biology — Schwartz> [Ed. Gurazada]