

CALISTO: California Spring Tournament 2020

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Packet 1 Tossups

1. **When bound to uridine diphosphate, this compound can be readily converted to a branched polymer for storage. The breakdown of this compound involves the production of DHAP by the action of aldolase. That process begins when this compound is acted upon by hexokinase and results in two molecules each of (*) ATP and pyruvate.** Plants can convert this compound into a structural polymer that humans cannot digest—cellulose. This compound is stored as glycogen in the liver, and its reuptake from the blood is promoted by insulin. For 10 points, glycolysis breaks down what six-carbon sugar, the main fuel of the body?

ANSWER: **glucose** [or D-**glucose** or D-**glucopyranose**; accept **dextrose** or uridine diphosphate **glucose** or UDP-**glucose**; prompt on $C_6H_{12}O_6$ or **sugar** or **monosaccharide**]
<Biology — Bandara> [Ed. Gurazada]

2. **According to legend, this ruler was chastised for letting a peasant woman’s cakes burn. This ruler created a military defense system in which a standing militia known as a *fyrð* (fihrd) guarded a network of fortresses known as *burhs*. This ruler combined Christian rules with three existing law codes to create the Doom Book. This victor of the Battles of Ashdown and (*) Edington forced Guthrum to sign the Treaty of Wedmore, which established the Danelaw in the north of England and pushed back Viking occupation of England.** For 10 points, what Anglo-Saxon king of Wessex is the only English king given the epithet “the Great?”

ANSWER: **Alfred** the **Great** [or **Alfred I**; prompt on **Alfred**]
<British/Commonwealth History — Dai/Lin> [Edited]

3. **In a play by this author, a character is forced to give up a bottle of morphine pills he was planning to kill himself with. One of this author’s characters represents Satan with two red eyes and the smell of sulfur in a play-within-a-play. The title character of a play by this author repeatedly fails to shoot a manipulative Professor.** (*) Treplev commits suicide after shooting a bird in honor of Nina in a play by this author. Another play by this author ends with the sound of trees being cut down after Lopakhin (lo-pah-KHEEN) buys the title estate from Madame Ranevskaya (rah-nev-SKY-uh). For 10 points, name this author of *Uncle Vanya*, *The Seagull*, and *The Cherry Orchard*, a Russian playwright.

ANSWER: Anton **Chekhov** [or Anton Pavlovich **Chekhov**]
<Drama — Gray> [Ed. Schwartz]

4. **For an object in a circular orbit, this quantity equals big *G* times the mass of each object all divided by twice the distance of separation. In special relativity, this quantity equals “gamma minus one” times “m c squared.” In Hamiltonian mechanics, this quantity is usually denoted with a capital *T*.** For a rotating body, this quantity is proportional to the moment of inertia times the (*) square of angular frequency. This quantity decreases in an inelastic collision. In classical mechanics, this quantity equals “one-half m v-squared.” For 10 points, name this energy of motion.

ANSWER: **kinetic energy** [accept just **kinetic** after “energy”; prompt on **K** or **KE** or **E sub K**; prompt on **T** before “T”; prompt on **energy** before “energy”; do NOT accept or prompt on “potential energy”]
<Physics — Gurazada> [Ed. French]

5. A film about this event ends with a priest shouting the title phrase to Julien Quentin (ken-TAHN). The actions of Père Jacques (pair JACK) during this event were fictionalized in the 1987 film *Au revoir les enfants* (oh ruh-VWAR layz on-FON). In another film set during this event, a man tells his son that they are playing a game and he will win a tank if he earns one thousand points. That film is (*) *Life is Beautiful*. A film set during this event is in black and white except for a scene of a girl in a red coat. That film's protagonist hires thousands of people to protect them from Amon Göth (gurt). *Schindler's List* is set during, for 10 points, what genocide of Jews during World War II?

ANSWER: the **Holocaust** [or the **Shoah**; prompt on World War II before mention]
<Film — Schwartz> [Edited]

6. Apocryphally, a king died of shock after several officials were killed in this city during a march on its New Town Hall. This city was home to the Taborite and Utraquist factions. During an event in this city, two officials were saved by the presence of horse manure. After that event, Frederick V (the fifth) fought the Battle of (*) White Mountain near this city. The Hussite Wars were fought near this city. A war which was ended by the Peace of Westphalia started after officials in this city were thrown out of windows in one of this city's three "defenestrations." For 10 points, name this historical capital of Bohemia, the modern-day capital of the Czech Republic.

ANSWER: **Prague** [or **Praha**]
<European History — Iyer> [Edited]

7. In JavaScript, these things can be created using the => ("arrow") operator. Asynchronous examples of these things use callbacks. Python's `__init__` ("dunder" IN-it) is one of these things. Anonymous inline examples of these things are called lambdas. Languages such as Clojure ("closure") and Haskell (HASS-kuhl) adhere to a programming (*) paradigm named for these things. Java's `new` keyword invokes a special kind of these things which initializes variables; that kind of these things are constructors. Recursive examples of these things call themselves. For 10 points, name these callable blocks of code that take parameters and return output.

ANSWER: **functions** [or **methods**, or **arrow functions**, or **functional** programming paradigm, or recursive **functions**; accept **callbacks** before mention; accept **lambdas** before mention; accept **constructor**s before mention]
<Computer Science — Gurazada> [Edited]

8. A character with this job suggests using miniature bottles of scotch as game-pieces for draughts so that he can get Captain Segura drunk. That character with this job avenges the death of Dr. Hasselbacher by shooting Carter. The vacuum salesman James Wormold takes this job in Graham Greene's novel (*) *Our Man in Havana*. A man with this job named George Smiley appears in a trilogy by John le Carré (luh car-RAY) beginning with the novel *Tinker, Tailor, Soldier*, this job. Another character with this job orders his martinis "shaken, not stirred." For 10 points, name this job held by Ian Fleming's character James Bond.

ANSWER: **spy** [or **secret agent** or **MI6 agent**; prompt on vacuum cleaner salesman by asking, "What other job does that character take?"]
<Long Fiction — Schwartz> [Ed. French]

9. **This artist's style was emulated by a group of Utrecht (YOO-trekt) painters led by Gerrit van Honthorst. The color of the draperies matches that of the spewing blood in this artist's *Judith Beheading Holofernes*. This artist included the "Inspiration" and "Martyrdom" of a saint in a series of paintings for the (*) Contarelli Chapel. A shaft of light illuminates a group of tax collectors in a painting by this artist in which Jesus extends his finger towards the title saint. For 10 points, name this Italian painter who pioneered the use of *chiaroscuro* (kee-AR-a-SKOOR-oh) in paintings such as *The Calling of Saint Matthew*.**

ANSWER: Michelangelo Merisi da Caravaggio [or Michelangelo Merisi; do NOT accept or prompt on "Michelangelo"]
<Painting — Ma> [Ed. Malouf]

10. **In February 2019, the U.S. government controversially approved 810 ("eight-ten") authorizations to share nuclear power secrets with this country. Senator Bob Corker authored an open letter to Donald Trump urging investigations into an October 2018 event in this country's Istanbul consulate. That event, which was allegedly carried out with a vat of acid and a (*) bone saw, was the killing of a Washington Post columnist from this country, Jamal Khashoggi (kah-"SHOW"-gee). Allegedly, Khashoggi's killing was ordered by this country's Crown Prince, Mohammad bin Salman. For 10 points, name this Middle Eastern country ruled by King Salman of the House of Saud.**

ANSWER: Kingdom of Saudi Arabia [or al-Mamlakah al-'Arabīyah as-Su'ūdīyah]
<Current Events — Gray> [Edited]

11. **J.J.C. Smart argued that one form of this theory engenders an irrational "worship" and "collapses" into another form of it. G.E. Moore's "ideal" form of this theory contrasts with Henry Sidgwick's "hedonistic" form. The repugnant conclusion is an objection to this theory, which has (*) "act" and "rule" types. This theory was founded by a thinker who devised a "felicific calculus," and a later advocate of this theory defined the "harm principle" in his essay *On Liberty*. For 10 points, name this consequentialist ethical theory which advocates "the greatest happiness for the greatest number," pioneered by Jeremy Bentham and John Stuart Mill.**

ANSWER: utilitarianism [accept act utilitarianism or rule utilitarianism or ideal utilitarianism or hedonistic utilitarianism]
<Philosophy — French> [Edited]

12. **Under one definition, a function from a set X to a set Y has this property if open subsets of Y are only mapped from open subsets of X. That form of this property is possessed by all homeomorphisms and generalizes the epsilon-delta definition of this property to non-metrizable (*) topologies. A function with this property must attain every value between its minimum and its maximum, according to the intermediate value theorem. This property is implied by differentiability. If f has this property, then f of a is always equal to the limit of f of x as x approaches a . For 10 points, name this property of functions whose graphs can be drawn without lifting one's pencil.**

ANSWER: continuity [or continuous; accept uniform continuity or uniformly continuous]
<Math — Gray> [Ed. French]

13. **The narrator of this novel is amazed when one group does not attack their employers despite having only rotten hippo meat to eat. A doctor in this novel tells the narrator to avoid "exposure to the sun" after measuring his skull. In this novel, a river on a map "charms" the narrator into travelling to a "whited sepulchre" so that he can join the (*) Company. A post scriptum which reads "exterminate all the brutes" is found by this novel's narrator, who lies to an ivory trader's wife about her husband's last words, "the horror, the horror." For 10 points, name this novella about Marlow's quest to find Mr. Kurtz in the Congo, by Joseph Conrad.**

ANSWER: Heart of Darkness
<Long Fiction — Schwartz> [Edited]

14. **This president signed an executive order targeting queer government workers in the “Lavender Scare.” The coup that ousted Jacobo Arbenz (AR-benz) was sponsored by this president in Operation PBSUCCESS (P-B-“success”). This president ended the bracero system by deporting a million Mexican immigrants in Operation Wetback. During this man’s presidency, the democratically-elected (*) Mohammad Mossadegh (moh-SAH-deck) was deposed in Operation Ajax, which was carried out by this president’s CIA Director, Allen Dulles (DULL-ez). This president signed the Federal-Aid Highway Act to create the interstate system. For 10 points, name this president of the United States from 1953 to 1961.**

ANSWER: Dwight David Eisenhower

<US History — Shahriar> [Ed. French]

15. **This composer’s travels inspired chamber compositions titled “souvenirs” like the violin and piano piece *Souvenir d’un lieu cher* (“souvenir” dun lyou “chair”) and the string sextet *Souvenir de Florence* (“souvenir” duh flo-RAHNS). A *fortissimo* french horn fanfare opens this composer’s Piano Concerto No. 1 in B-flat minor, which was championed by (*) Nicolai Rubinstein. This composer died soon after premiering his B minor sixth symphony, which due to French mistranslation is nicknamed *Pathétique* (pah-THAY-teek). This composer used “La Marseillaise (mar-SAY-ez)” to represent the invading French Army in a piece that includes celebratory cannon fire. For 10 points, name this Russian composer of the *1812 Overture*.**

ANSWER: Pyotr Ilych Tchaikovsky

<Classical Music — Ma> [Edited]

16. **One poem in this collection claims that “the sun will not harm you by day, nor the moon by night.” Another poem in this collection states that God “will command his angels concerning you” and “they will lift you up in their hands.” A group of fifteen poems in this collection is known as the Song of Ascents. In a poem in this collection, the speaker “will fear no (*) evil” even though he “walks through the darkest valley.” In that poem, the speaker “will not want” because “the Lord is my shepherd.” For 10 points, name this collection of 150 poems which forms the longest book in the Bible.**

ANSWER: Book of Psalms [accept Tehilim]

<Religion — Gray> [Ed. Dai]

17. **While in exile, this leader wrote a text that explains his republican principles and claims that “a state too expensive in itself... eventually decays.” This leader and Andrés Bello convinced Francisco de Miranda to return from exile and take power in a coup. This author of the Letter from Jamaica returned from exile to gain victory at the Battle of (*) Carabobo. This leader met with José de San Martín at the Guayaquil (guy-a-KEEL) conference, and he created the state of Gran Colombia. For 10 points, name this leader of most of the independence movement in South America, known as “The Liberator.”**

ANSWER: Simon Bolívar

<Latin American History — Iyer> [Edited]

18. In the presence of a ligand, one of these structures splits into the high-energy level “e-sub-g” and the low-energy level “t-sub-two-g.” These structures can be approximated using the self-consistent field method developed by Hartree. One type of these structures is indexed with symbols like “x-y” and “x-squared minus y-squared.” Within a molecule, these structures combine to form (*) “hybrid” structures that match the predictions of VSEPR (“vesper”) theory. These structures are filled in an order that maximizes the spin of the subshell, according to Hund’s rule. For 10 points, name these regions of an atom in which it is probable to find an electron, which are labeled s, p, d or f.

ANSWER: atomic orbitals [accept s orbitals or p orbitals or d orbitals; accept hybrid orbitals]

<Chemistry — Gurazada> [Ed. French]

19. A work in this language describes “the tail of a black fish” on a woman before reassuring the reader that “even Homer” makes mistakes on occasion. Another poem in this language describes “a monument more lasting than bronze” which will be “higher than the Pyramids.” An epic in this language begins (*) “I sing of arms and the man” and follows a character who, upon recognizing the belt of Pallas, decides to kill Turnus. That epic in this language follows a hero who abandons Dido after escaping the sack of Troy. For 10 points, name this language used by Horace, Virgil, and other ancient Romans.

ANSWER: Latin [or lingua latīna]

<Poetry — Schwartz> [Ed. French]

20. This product’s logo is the subject of the “greatest advertising coup in history” in the short story “Watch this Space.” To avoid copyright infringement, Ray Davies flew six thousand miles to rerecord one word in a Kinks song that mentions this product. This product’s company was the first Olympic sponsor. Variants of this product include a failed (*) “New” type and a clear version requested by Georgy (GYOR-ghee) Zhukov so as to resemble vodka. This product is named after the sources of two ingredients in its original formulation, caffeine and cocaine. For 10 points, name this carbonated beverage with an iconic white-on-red cursive logo.

ANSWER: Coca-Cola [or Coke; prompt on soda or pop]

<Mixed/Other — Gray> [Edited]

Packet 1 Bonuses

1. This composer's *Faschingsschwank aus Wien* (fash-ing-shvank aus VEEN) quotes "La Marseillaise (mar-SAY-ez)" in its first movement. For 10 points each:

[10] Name this composer. His many suites of piano pieces include *Papillons* (pa-pi-YON), *Kinderszenen* (kin-der-ZEN-en), and *Kreisleriana* ("cry"-sler-ee-AH-na), which was dedicated to Frederic Chopin.

ANSWER: Robert **Schumann** [or Jean-Baptiste Nicolas Robert **Schumann**]

[10] Schumann's works of this type include both his first and his last, which is named for "Geister," or ghosts. Ludwig van Beethoven based a work of this type off a waltz by Anton Diabelli.

ANSWER: theme and **variations** [or *tema con variazioni* or **variation** on a theme; accept *Geistervariationen* or Diabelli **Variations**]

[10] The opening flourish of Schumann's A minor Piano Concerto may have inspired the similar opening flourish of this Norwegian composer's A minor Piano Concerto. His *Peer Gynt* (peer ghint) contains "In the Hall of the Mountain King."

ANSWER: Edvard **Grieg** [or Edward Hagerup **Grieg**]

<Classical Music — Gurazada> [Edited]

2. Glaucus became a god of this domain after becoming immortal by eating a magical herb. For 10 points each:

[10] Name this domain. A group of nymphs called the Nereids (NEER-ee-ids) were daughters of a deity known as the "Old Man" of this domain.

ANSWER: the **sea** [or the **ocean** or *thalatta*; accept specific seas such as the **Aegean** or **Mediterranean**; accept **fishermen**]

[10] That "Old Man of the Sea" is Nereus (NEE-ree-us), who may be the same deity as this other "Old Man of the Sea." This deity who slept at mid-day on the island of Pharos could see the future and change shape.

ANSWER: **Proteus**

[10] Menelaus (men-uh-LAY-us) asked Proteus how to get back home when returning home from this war, which he and the rest of Greece fought to recapture his wife, Helen.

ANSWER: the **Trojan** War

<Mythology — French> [Edited]

3. A burette with a stopcock is often used to dispense solution in this technique. For 10 points each:

[10] Name this technique, in which a solution of known concentration is incrementally reacted with an analyte (an-ul-ITE) to measure the analyte's concentration. A common type of this technique depends on the neutralization reaction between an acid and a base.

ANSWER: **titration** [or **titrimetry** or **volumetric analysis** or **titration**; accept acid-base **titration** or acid-base **titrimetry** or **alkalimetry** or **acidimetry**]

[10] When titrating a weak acid with a strong base, the pH of the solution is equal to the pKa of the acid at this point. The concentration of acid is equal to the concentration of conjugate base at this point.

ANSWER: **half-equivalence** point [or **halfway** point; accept any answer that describes a point in the titration that occurs halfway to the equivalence point; do NOT accept or prompt on "equivalence point"]

[10] Zeta potential titration can be used to find the isoelectric point of these systems. When their zeta potential is close to zero, these systems are highly unstable and tend to coagulate.

ANSWER: **colloids** [prompt on **emulsions** with "emulsions are a subtype of what more general class of systems?"]

<Chemistry — Iyer> [Ed. Gurazada]

4. For 10 points each, name some forms used in Persian poetry:

[10] This form, usually translated as “quatrain,” consists of four lines with an AABA (A-A-B-A) rhyme scheme. The lines “A Book of Verses underneath the Bough / A jug of wine, a loaf of bread, and thou” originate from a collection titled for this form by Omar Khayyam (*kai-YAWM*).

ANSWER: ***rubai*** (roo-bah-EE) [or ***rubaiyat***; accept ***Rubaiyat of Omar Khayyam***]

[10] Rumi wrote around twenty-five thousand “spiritual” verses in this form in his *Masnavi*. In English poetry, this verse form simply consists of two paired lines.

ANSWER: **couplets** [accept rhyming **couplets** or *Spiritual Couplets*]

[10] This form of poetry consists of around ten thematically disparate couplets, which are linked by a rhyming phrase called the *radif* (ra-DEEF). Urdu poet Mirza Ghalib wrote many poems in this form, and they are often addressed to the poet’s beloved.

ANSWER: **ghazal**

<Poetry — Iyer> [Ed. French]

5. This event began when the offices of Rabochi Put were forced to close. For 10 points each:

[10] Name this event which ended when the Aurora fired a blank shot to signal the capture of the Winter Palace. John Reed chronicled this event in his eyewitness account, *Ten Days that Shook the World*.

ANSWER: **October Revolution** [or **Bolshevik Revolution**; prompt on November Revolution; prompt on Russian Revolution; do NOT accept or prompt on “February Revolution”]

[10] This leader of the Bolsheviks became the first leader of the Soviet Union after the October Revolution. He was succeeded by Joseph Stalin.

ANSWER: Vladimir Ilyich **Lenin** [or Vladimir Ilyich **Ulyanov**]

[10] This leader of the Red Army during the October Revolution was killed using an ice pick in 1940 by Ramon Mercader.

ANSWER: Leon **Trotsky** [or Lev Davidovich **Bronstein**]

<World History — Iyer> [Edited]

6. Voltage-gated examples of these proteins are instrumental in creating an action potential. For 10 points each:

[10] Name these proteins which completely span the cell membrane. These proteins allow ions to cross the cell membrane with no energy input.

ANSWER: ion **channels** [or **channel** proteins or voltage-gated ion **channels**]

[10] Ion channels perform the “passive” form of this task. This task, which can also be “active,” involves substrates crossing the cell membrane.

ANSWER: **transport** [accept active **transport** or passive **transport**]

[10] This toxin functions by blocking voltage-gated sodium ion channels, thus stopping action potentials from occurring. This toxin is found in raw pufferfish.

ANSWER: **tetrodotoxin** [or **TTX**]

<Biology — Gurazada> [Edited]

7. This author wrote that “there is no there, there” in reference to her home city of Oakland. For 10 points each:
[10] Name this author, who coined the term “Lost Generation” to describe disillusioned American expatriates who settled in Europe after World War I. This author also wrote an “autobiography” about her lover, Alice B. Toklas.

ANSWER: Gertrude **Stein**

[10] This author wrote about his life in Paris as part of the Lost Generation in his memoir *A Moveable Feast*. He also wrote *The Old Man and the Sea* and “Hills Like White Elephants.”

ANSWER: Ernest **Hemingway**

[10] This novel by Ernest Hemingway has the epigraph “you are all a lost generation.” In this novel, the impotent Jake Barnes romantically pursues Lady Brett Ashley through Pamplona.

ANSWER: *The **Sun Also Rises***

<Long Fiction — Schwartz> [Edited]

8. For 10 points each, answer the following about penguins:

[10] Most penguins live on this coldest continent, which is home to formations such as the Ross Ice Shelf.

ANSWER: **Antarctica**

[10] This species of Antarctic penguin breeds during the winter; females of this species lay a single egg per season, which males then balance on their feet while the females go on a long march across the ice to hunt.

ANSWER: **emperor** penguins [or *Aptenodytes **forsteri***]

[10] This medium-sized penguin species was named after the wife of the explorer who discovered them, Jules Dumont d'Urville (doo-MONT der-VEEL). Members of this species can be distinguished by the white ring surrounding their eyes.

ANSWER: **Adélie** (ah-DAY-lee) penguins [or *Pygoscelis **adeliae***]

<Geography — Venkateswaran> [Edited]

9. Utilities are a common example of the “natural” form of this market structure. For 10 points each:

[10] Name this market structure in which there is only one producing firm.

ANSWER: **monopoly** [accept natural **monopoly**]

[10] A monopoly will have the maximum value of 10,000 on this index, which measures the competition in a given industry. This index is given by the sum of the squares of the market share of each firm, expressed as a percent.

ANSWER: **Herfindahl**-Hirschman Index [or **HHI**]

[10] In a monopoly, a rationally-acting firm will maximize profits by producing at the output where these *two* quantities are equal.

ANSWER: **marginal revenue** and **marginal cost** [accept in either order; prompt on **MR** and **MC**]

<Economics — Shahriar> [Ed. French]

10. The Jiaqing (ja-cheeng) Emperor’s refusal to recognize this country as the successor of the ancient Nanyue Kingdom resulted in its modern name. For 10 points each:

[10] Name this country home to the Le and Nguyen (nwin) Dynasties that governed from this country’s modern day city of Hue. In later years, this country was led from Hanoi.

ANSWER: **Vietnam** [accept **Namviet**]

[10] Long before the Jiaqing Emperor’s refusal, these two sisters led a rebellion against their Han Chinese occupiers. They are considered the national heroines of Vietnam.

ANSWER: **Trung** sisters [or **Tru’ng Trác** and **Tru’ng Nhi**]

[10] This man ordered three failed invasions of the Tran Dynasty’s Dai Viet state, one of which was led by his son Toghhan. The invasions of Japan he ordered also resulted in failure due to divine winds or *kamikaze*.

ANSWER: **Kublai** Khan [or **Hubilie**; accept Emperor **Shizu** of Yuan]

<Asian History — Iyer/Ma> [Ed. Ma]

11. In early New Orleans jazz, this section often included a tuba and a banjo. For 10 points each:

[10] Name this band section that contains mostly low-pitched instruments or instruments that play chords. In most swing bands, this section includes guitar, piano, upright bass, and a percussion instrument.

ANSWER: **rhythm** section

[10] The percussion instrument in the rhythm section is this instrument, which was played by Buddy Rich and Chick Webb. This instrument is played with two sticks.

ANSWER: **drums** [or **drum** set]

[10] This musician plays a loud drum solo to begin Benny Goodman's rendition of "Sing, Sing, Sing." In 1952, this drummer played a drum battle against Buddy Rich in Carnegie Hall.

ANSWER: Gene **Krupa**

<Jazz — French> [Edited]

12. One of these beings, Watatsumi, is sometimes equated to Ryujin, the god of the sea. For 10 points each:

[10] Name these spirits of nature. One of these spirits, Ninigi, is the great grandfather of Emperor Jimmu, while another one of these spirits, Hachiman, functions as the god of war.

ANSWER: **kami** [prompt on BUT DO NOT REVEAL Shinto gods or Shinto spirits or Shinto deities]

[10] Kami are worshipped by members of this traditional religion of Japan. The holiest shrine in this religion is the Ise (ee-say) Grand Shrine, which is dedicated to Amaterasu.

ANSWER: **Shintoism** [or **kami-no-michi**]

[10] People entering Shinto shrines pass under these sacred gates. They are said to be the boundary between the sacred space of the temple and the normal space outside of it.

ANSWER: **torii**

<Religion — Venkateswaran> [Edited]

13. The wobble method for detecting these objects infers their existence from periodic shifts in a star's radial velocity. For 10 points each:

[10] Name these objects. These objects are called "hot" if they orbit close to the center of their system, like Gliese (GLEE-zuh) 436 b.

ANSWER: **exoplanets** [or **extrasolar planets**; prompt on planets; prompt on hot Jupiters or hot Neptunes with "those are a subclass of what more general class of object?"]

[10] A recent spike in the number of known exoplanets is the result of the space telescope named for this astronomer, who discovered three laws of planetary motion now named after him.

ANSWER: Johannes **Kepler** [accept **Kepler** Space Telescope]

[10] The Kepler telescope detects exoplanets using this method. This method calculates the period and size of an exoplanet from the dips in a star's light curve caused by this method's namesake process.

ANSWER: **transit** photometry [or **transit**; accept **transit** method; prompt on photometry]

<Astronomy — Gurazada> [Ed. French]

14. The title character of this play is cursed to be forgotten by her husband due to the machinations of the short-tempered sage Durvasa. For 10 points each:

[10] Name this play by Kālidāsa (kaa-lee-daa-suh). In this play, Dushyanta (doo-shyun-tuh) overcomes the curse by recalling his wife's signet ring after it is found in the belly of a fish.

ANSWER: *The Recognition of **Shakuntala*** [or *The Sign of **Shakuntala*** or *The Recognition of **Shakuntalam*** or *The Sign of **Shakuntalam*** or *Abhijnanashakuntala* or *Abhijñānaśākuntalam* or *Abhijñāna **Shākuntalam***]

[10] Kālidāsa wrote *The Recognition of Shakuntala* in this ancient Indian language. Valmiki used this language to write the *Ramayana*.

ANSWER: **Sanskrit**

[10] This author described “blossoms of spring” in an epigram about Shakuntala. *Shakuntala*'s prologue inspired the prologue of a play by this author in which a scholar strikes a deal with the demon Mephistopheles.

ANSWER: Johann Wolfgang von **Goethe** (GUR-tuh)

<Drama — Schwartz> [Edited]

15. This woman pushed for the replacement of Robert Lansing during a period of “stewardship” that she undertook with Cary Grayson. For 10 points each:

[10] Name this First Lady, who was called the “Acting President” over a period of seventeen months during which her husband was incapacitated with a stroke.

ANSWER: **Edith Wilson** [or Edith **Bolling** or Edith **Galt**; prompt on **Wilson**]

[10] Woodrow Wilson suffered his stroke in 1919 while on a speaking tour promoting the Treaty of Versailles, which ended this war.

ANSWER: **World War I** [or the **First World War** or the **Great War**]

[10] Woodrow Wilson's stroke and the subsequent stewardship of Edith Wilson helped inspire this amendment which, among other things, defines the line of succession and allows the cabinet to declare the president unfit for office.

ANSWER: **Twenty-Fifth** Amendment [or Amendment **25**]

<US History — Gray> [Edited]

16. The title of this series was taken from Franklin D. Roosevelt's 1941 State of the Union Address. For 10 points each:

[10] Name this series of paintings created in 1943. The “from want” entry in this series depicts a woman placing a turkey on a Thanksgiving table.

ANSWER: *The **Four Freedoms***

[10] The *Four Freedoms* were painted by this American artist who also painted many covers for the *Saturday Evening Post*. He depicted U.S. Marshals escorting an African-American girl in *The Problem We All Live With*.

ANSWER: Norman **Rockwell** [or Norman Percevel **Rockwell**]

[10] Rockwell was influenced by this American art movement of the 1930s. Grant Wood's *American Gothic* exemplifies this movement's realist depictions of rural life.

ANSWER: American **Regionalism**

<Painting — Li> [Ed. Malouf]

17. When the moment generated by this force and gravity is self-righting, then a body is statically stable. For 10 points each:

[10] Name this force. This force is proportional to displaced volume, according to Archimedes' principle.

ANSWER: **buoyant** force [or **buoyancy**; accept **upthrust**]

[10] By Archimedes's principle, buoyant force equals displaced volume times little-g times this quantity for the fluid. This quantity equals mass per unit volume.

ANSWER: fluid **density**

[10] In this approximation, fluid density is assumed to be constant with respect to time. This approximation can be expressed with the equation " $\nabla \cdot \mathbf{v}$ equals zero."

ANSWER: **incompressible** flow [or **incompressibility**; prompt on divergenceless velocity or divergenceless flow or answers indicating a flow or velocity with zero divergence]

<Physics — Gurazada> [Ed. French]

18. After this character is asked by a dying former teacher to shoot him, this character responds by saying "do it yourself" and tossing a gun onto the ground. For 10 points each:

[10] Name this character who is freed from working in a meth lab for Jack Walker's gang by a character driving a car mounted with a machine gun. This character drives away near the end of that series finale, "Felina."

ANSWER: Jesse **Pinkman** [or **Jesse**]

[10] Jesse Pinkman is a character on this AMC show, which follows the lung cancer-stricken Walter White's transformation into the meth kingpin "Heisenberg."

ANSWER: ***Breaking Bad***

[10] Jesse's fate after the finale of *Breaking Bad* was addressed in this spin-off movie. This movie starts immediately after "Felina" with Jesse behind the wheel of its title car and ends by mirroring that scene with Jesse safe in Alaska.

ANSWER: ***El Camino: A Breaking Bad Movie***

<Pop Culture — Schwartz> [Ed. Gray]

19. For 10 points each, answer the following about the general Belisarius:

[10] Belisarius spearheaded the reconquest of Ostrogothic Italy under this Byzantine Emperor, who was denoted "the Great." He is best known for his namesake legal code, which revised and clarified centuries of previous Roman law.

ANSWER: **Justinian** I [or **Justinian** the Great or Flavius Petrus Sabbatius **Justinianus** Augustus]

[10] Belisarius put down the Nika (NAI-kuh) Riots, which were sparked by the Blues and the Greens, factions that supported participants in these events. These events took place in the Hippodrome and often involved vehicles called quadriga.

ANSWER: **chariot** races

[10] At the Battle of Dara, Belisarius defeated forces under this empire, who were known for their heavy armored horsemen called *cataphracts*. Later, the Byzantine Empire established the Eternal Peace with its leader Khosrau I (KHOO-shuh-roo "the first").

ANSWER: **Sassanids** [or **Sasanian** Empire]

<Ancient/Classical History — Hong> [Edited]

20. In this novel, Berlioz is decapitated by a streetcar after he slips on sunflower oil. For 10 points each:

[10] Name this novel by Mikhail Bulgakov in which the devil, disguised as Professor Woland, visits Moscow.

ANSWER: *The Master and Margarita*

[10] In *The Master and Margarita*, The Master is working on a novel about the trial of this person. In another book, the Grand Inquisitor imprisons this person because he gave humanity free will rather than security.

ANSWER: Jesus Christ [or Jesus of Nazareth or Yeshua Ha-Notri]

[10] This author included the parable of the Grand Inquisitor in his *The Brothers Karamazov*. He also wrote *Crime and Punishment*.

ANSWER: Fyodor Dostoevsky [or Fyodor Dostoyevsky or Fyodor Mikhailovich Dostoevsky or Fyodor Mikhailovich Dostoyevsky]

<Long Fiction — Iyer> [Ed. French]