



ACADEMIC
COMPETITION
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FINALS 2

Packet by

The Editors

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Tossups

1. In a musical titled for these objects, an organ alternates between long G-flat major and G-flat major flat 5 chords to begin a choral number called "A Bird of Passage." A difficult tenor aria titled for two groups of these objects begins with repeated pianissimo high Es as it describes the title objects "drawing up the clouds of human grief"; that aria was written for Peter Pears. Opera critic Joseph Kerman maligned the "pointless" reprise of an aria theme about these objects which plays after a character's suicide. Kurt Weill's tombstone is inscribed with music from a musical titled for these objects which he and Maxwell Anderson adapted from *Cry, the Beloved Country*. In *Tosca*, a clarinet solo introduces a tragic tenor aria that begins by describing light from these objects. For 10 points, name these celestial bodies, the subjects of Cavaradossi's aria "E lucevan le stelle" and Peter Grimes's aria "Now the Great Bear and Pleiades."

ANSWER: stars [accept constellations; accept *Lost in the Stars*]

<Other Fine Arts>

2. A bird-shaped chandelier hangs from the ceiling of a theater in this city whose facade is decorated with statues of puppets. This city boasts the world's largest enclosed Ferris wheel, which is part of its Alem Cultural and Entertainment Center. Weekly, denizens of this city climb up and down the Serdar Health Path, an eight-kilometer stretch of stairs built into the hills of the nearby Kopet Dag range. Like Baku, this city features a wedding venue called the "Palace of Happiness," which in this city is topped by a disco ball globe encased in a frame of eight-pointed stars. A "Monument to Neutrality" in this "city of white marble" features a golden statue of a former president that no longer rotates to face the sun. At 8:00 PM every day in this city, a giant mechanical book opens and recites passages from the *Rukhnama*. For 10 points, name this Pyongyang-esque futuristic capital of Turkmenistan.

ANSWER: Ashgabat [or Ashkhabad; or Poltoratsk]

<Geography>

3. In Pontefract, opponents of this political agent poured cayenne pepper over the floor of a hayloft and set straw on fire in the room below to sabotage a campaign against Hugh Childers. A friend who used the pseudonym "Ellis Ethelmer" invited this author of *The Constitution Violated* to become president of the LNA, which ran a spoiler candidate to swing a Parliamentary election against Henry Storks. This cousin of Earl Grey introduced W.T. Stead to Rebecca Jarrett, who helped Stead purchase the thirteen-year-old Eliza Armstrong as research for his series "The Maiden Tribute of Modern Babylon." In the memoir *Personal Reminiscences of a Great Crusade*, this woman recounted a campaign in which she denounced the "steel rape" inflicted on "lock hospital" residents, women suspected of prostitution who were arrested in port cities. For 10 points, name this Victorian feminist who successfully campaigned for the repeal of the Contagious Disease Acts.

ANSWER: Josephine (Grey) Butler

<European History>

4. This non-spectroscopic method can be used to analyze oxygen-containing functional groups found on carbon surfaces in a method developed by H.P. Boehm that preferably treats the sample with sodium carbonate in order to avoid CO₂ interference. Metrohm produces an Optrode sensor used to automate this technique. In an electroanalytic variant of this technique, samples are first treated with an auxiliary reducing agent. A form of this technique that applies a constant current is used by a device named for Coflove which is the most common method for obtaining serum chlorine levels. This name is given to a technique in which the highest separation index among serially diluted antibody solutions is identified prior to flow cytometry. Potentiometric and coulometric forms of this technique do not need indicators to identify the endpoint. For 10 points, name this technique in which chemicals of known concentration are used to determine an analyte's concentration.

ANSWER: titration

<Chemistry>

5. One novel from this modern-day country details the recovery of a woman after she is mutilated and her sister killed by a soldier named Sibaso. That novel from this country is *The Stone Virgins* by Yvonne Vera. In a scene set in this country, children pretend to be doctors so that they can attempt to give their pregnant eleven-year-old friend an abortion. After her home is bulldozed, the protagonist of a novel lives in a shack with her parents and eventually leaves this country to live with her aunt in Detroit. After Nyasha's bout with an eating disorder in a novel set in this country, Tambu begins to think critically about her time in missionary school. Novels from this country include *We Need New Names* and *Nervous Conditions*. For 10 points, name this country that produced authors such as NoViolet Bulawayo and Tsitsi Dangarembga.

ANSWER: Republic of **Zimbabwe**

<World Literature>

6. Some supporters of this policy circulated a forged pamphlet called *Monita Secreta* along with tracts by members of the "Archetto circle" around Giovanni Gaetano Bottari. Catherine the Great, who refused to carry out this policy, instead permitted Stanislaus Czerniewicz [CHER-neh-wich] to put down roots at Polotsk in modern-day Belarus. The Count of Campomanes in Spain delivered a report advising this action after taking over a special investigation into the Esquilache Riots. The supposed involvement of Gabriel Malagrida in the Tavora Conspiracy was a pretext for the Marquis de Pombal to enact this policy in Portugal. Decreed in Clement XIII's *Dominus ac Redemptor*, the performance of this action in the Spanish empire spelled ruin for the "reductions" around the Rio de la Plata where Guarani Indians lived. For 10 points, identify this action carried out in several European empires in the late 18th century, which entailed crushing an order founded by Ignatius of Loyola.

ANSWER: **suppressing** the **Jesuits** [or **expelling** the **Jesuit** order; or **expelling** the **Society of Jesus**]

<European History>

7. A book by this writer accuses a subject of "borrowing the arts of the magazine writer," and criticizes "the adjectival insistence upon... mystery" found in one of that author's novels. This writer's belief that literature "makes you a better person" is contrasted with the image of concentration camp commandants reading Goethe in Terry Eagleton's *Literary Theory*, which also remarks that "There is no more need to be a card-carrying" follower of this critic "today than there is to be a card-carrying Copernican." This critic was married to the author of *Fiction and the Reading Public*, Q.D. Roth. In 1962, this writer set off a controversy in British intellectual circles by calling another writer "portentously ignorant" in a vicious response to C.P. Snow's *The Two Cultures*. In his best-known volume, this editor of *Scrutiny* declared that "there are no novelists in English worth reading" except Austen, Eliot, James, and Conrad. For 10 points, name this Cambridge-based critic who wrote *The Great Tradition*.

ANSWER: F. R. **Leavis** [or Frank Raymond **Leavis**]

<British Literature>

8. An artist with this surname trained with the draughtsman Innocenzo Francucci, and painted a version of *The Adoration of the Magi* that rests nearby Leonardo's *The Last Supper* in the Santa Maria del Grazie. An artist with this surname painted a portrait in which a small dog rears up on its hind legs to paw at a noblewoman's dress. A historical painting that depicts Vincenzo Gonzaga and Elanora de Medici as Solomon and the Queen of Sheba respectively was one of several portraits by an artist with this surname to have once been wrongly attributed to Guido Reni. That artist with this surname depicted the Senator Ulisse and his two daughters Laudomia and Ginevra in a group portrait of the Gozzadini Family. This was the surname of a minor High Mannerist artist from the Bolognese school named Prospero, as well as of an artist who painted Jesus wearing a straw hat and holding a shovel in *Noli Me Tangere*, who was Prospero's daughter. For 10 points, give this surname of the first female career artist in Western Europe, Lavinia.

ANSWER: **Fontana** [accept Prospero **Fontana** or Lavinia **Fontana**]

<Painting and Sculpture>

9. This property and closedness can be given to a connected type of a certain surface by performing a Dehn surgery with a surgery coefficient of one or minus one on a framed link embedded in a 3-sphere, according to the Lickorish-Wallace Theorem. A fiber bundle will have this property if the underlying structure group consists of matrices that have only positive determinants. This property is *not* possessed by objects that can be immersed but not embedded in 3-space, such as the projective plane. Manifolds that have this property can have a normal vector field assigned over it such that the right-hand rule is always applicable. For 10 points, name this property possessed by the torus, but *not* the Mobius strip, whose name suggests that the object has a consistent sense of direction.

ANSWER: **orientability** [accept word forms, such as **orientable**]

<Other Science>

10. As a reward for preparing a dish of some meat soup and drink, this woman was promised a palace in paradise without any noise or trouble. This woman confirmed that a supernatural being who was not visible to her was not a demon, but an angel, by throwing a veil over the eyes of a man. Some scholars allege that three of this woman's daughters were actually born to her sister Hala. This woman, who unusually never believed in idols during the "Age of Ignorance," was the first to die during the Year of Sorrow. This woman instructed her servant Maysarah to monitor the conduct of a man during a trade mission to Syria. Subsequently, this forty-year old merchant proposed to that twenty-five year old man, hearing from her cousin Waraqah ibn Nawfal that he was the prophet foretold by the Christians and Jews. For 10 points, name this first follower of Islam, the first wife of the prophet Muhammad.

ANSWER: **Khadija** bint Khuwaylid

<Religion>

11. In string theory, the slope parameter, symbolized "alpha-prime", equals this function of the characteristic string length. The ratio of the thermal conductivity of a metal to the electrical conductivity is proportional to this function of Boltzmann's constant over the electron charge according to the Wiedemann-Franz law. The Drude model of metals assumes that the relative dielectric constant equals 1 minus this function of the ratio of the plasma frequency to the frequency of the applied electric field. The integral of this function of the magnitude of a wavefunction must be finite for the wavefunction to be part of Hilbert space. In the Kerr effect, the change in refractive index of a material is proportional to this power of the applied electric field, and the quantum Hall conductivity is proportional to this power of electric charge. For 10 points, the potential energy of a simple harmonic oscillator has what dependency on the displacement?

ANSWER: **square** [accept **quadratic** or **second power** but not "inverse square"]

<Physics>

12. In an *espressivo amoroso* section of one of these pieces, the left hand plays descending arpeggios while the right hand plays groups of five repeated notes where the fourth note is raised an octave. The second one of these pieces begins with an unaccompanied right hand playing a fast minor-scale run from B to F-natural, an eerie diminished fifth, which is repeated 6 measures later from B to F-sharp. The first of these piano pieces begins in 3/8 time repeating a low E, and adding higher Bs, F-sharps, and C-sharps to create stacked open fifths, reminiscent of a violinist tuning their strings. The first two of these four pieces were originally written for orchestra and were inspired by a verse drama by Nikolaus Lenau. The first of these pieces bears the subtitle "The Dance at the Village Inn," and depicts the title villain stealing a fiddle and enchanting wedding guests. For 10 points, name these waltzes by Franz Liszt.

ANSWER: the **Mephisto Waltzes** [accept **Mephisto** after "waltzes"; prompt on **Liszt waltzes** or partial answers]

<Music>

13. One work compares obtaining this concept to obtaining movement via the Nietzschean dance; in that work, Peguy and another philosopher are praised for locating this concept in the future but criticized for grounding it in faith. Another text calls this concept the modern view of life and contrasts it with the Hegelian dialectic, which it calls "mediation." This concept titles a completed narrative work whose "real reader" is called "Mr. X, Esq." that analyzes it using Zeno and Parmenides' paradox of motion. This is the *last* word in the title of a book that contrasts this concept to generality and theorizes this concept "for itself." A book claiming that this concept is the same action as recollection, just reversed, is narrated by Constantin Constantius and was written by Kierkegaard. For 10 points, Deleuze's most famous solo work is titled for "Difference and" what concept?

ANSWER: **repetition** [or *gjentagelsen*; accept word forms like "**repeat**"]

<Philosophy>

14. Thomas Hutchins was commissioned to work in this profession by a 1785 law passed by the Congress of the Confederation. William Leybourn and John Love's reference texts for this profession explain how to use an invention of Edmund Gunter. It's not astronomy, but a man who worked in this profession in the District of Columbia wrote a letter to Thomas Jefferson rebuking him for keeping "so numerous a part of [his] brethren under...cruel oppression." People in this profession employed theodolites and the "metes and bounds method." Two men most famous for working in this profession first met in Sumatra during a transit of Venus. Before becoming a soldier, George Washington worked in this profession for the Ohio Company. For 10 points, name this profession of Benjamin Banneker, Charles Mason, and Jeremiah Dixon, which involves measuring the distances between geographical points.

ANSWER: land **surveying** [or topographical **survey**; accept **mapmaking** or **cartography**]

<American History>

15. In an influential 1926 essay titled for the "Psychology" of this literary technique, George Philip Krapp attacked it for being contrived and inauthentic. In one of his "Prattler" columns, Ambrose Bierce called for a writer to be arrested for using this technique to mask the ineptitude of his poems, like one that diagonally renders the last four words of each stanza: "you / don't / watch / out!" In his *Harper's Weekly* review of an 1896 collection, William Dean Howells emphasized the forgettability of the poems that *didn't* use this technique. Poems written in this technique constitute the "Ivy" section of the collection *Oak and Ivy*. An "explanatory note" stating that this technique has been used not in a "haphazard fashion, or by guesswork; but painstakingly" prefaces *Huckleberry Finn*. James Whitcomb Riley and Joel Chandler Harris used, for 10 points, what technique to render the actual speech of their subjects?

ANSWER: **dialect** [or descriptive answers indicating **non-standard English**; or African-American **vernacular English**; or **Black Vernacular English**; or **Black English**; or **AAVE**; accept **Ebonics**; prompt on **local color**; do not accept or prompt on "slang"]

<American Literature>

16. Lord Ellenborough's 1842 order to steal doors from this ruler's tomb was lambasted in Parliament by Thomas Macaulay. A court astrologer for this ruler laid out a method for finding the *qibla* from any city in a "canon" named for this man's son, Masud. The poet Sa'adi praised this man's homosexual love for the slave Malik Ayaz. The first ruler to claim the title "Sultan," this man had the steps of the Friday mosque in his capital built out of the fragments of an object he broke with his mace during his sack of Somnath. According to tradition, this patron-slash-captor of al-Biruni paid in silver instead of the promised gold pieces for every couplet of a poem he commissioned. This man became known as the "Idol Breaker" for plundering Hindu temples during his seventeen invasions of the Indian subcontinent. For 10 points, name this commissioner of Ferdowsi's *Shahnameh*, the most famous king from the Ghaznavid Dynasty.

ANSWER: **Mahmud** of Ghazni

<World History>

17. The first paper titled for this concept analyzes the same dream from the author's earlier "A Dream that Interprets Itself" to conclude that some forms of this concept are "normal" and "feminine." An essay titled for this concept divides it into "primary" and "secondary" types corresponding to the "ego-libido" and the "object-libido," a distinction that inspired Jacques Lacan's idea of the "mirror stage." The loss of this concept at the end of childhood, corresponding to the loss of infantile omnipotence, is replaced with a drive toward the perfected "ego ideal," according to a 1914 essay on this concept by Sigmund Freud that was inspired by Otto Rank's pioneering paper on this concept. In modern therapeutic psychology, the four "cluster B" personality disorders are denoted by the words "antisocial," "histrionic," "borderline," and, for 10 points, what psychological term signifying extreme and grandiose self-regard?

ANSWER: **narcissism** [accept word forms such as **narcissistic** or **narcissist**; accept "On **Narcissism**" or "Zur Einführung des **Narzissmus**" or **narcissistic** personality disorder]

<Social Science>

18. This protein's precursor contains many hydrophilic domains in which pairs of lysines are separated by one or two prolines, or by two or three alanines. A "receptor complex" consisting of protective protein/cathepsin A, neuraminidase-1, and EBP binds to fragments derived from this protein, whose half-life of seventy years makes it the longest-lived protein in the human body. This is the *less abundant* of the two proteins that are formed by the covalent cross-linking of a precursor by the enzyme lysyl oxidase. This protein is degraded by a namesake enzyme that is itself inhibited by alpha-1-antitrypsin, whose deficiency may lead to emphysema. Fibrillin and fibulin form the microfibrils surrounding a "core" of these proteins in their namesake fibers. The extracellular matrix is made up of collagens and, for 10 points, what protein that allows connective tissues to regain their shape after stretching?

ANSWER: **elastin** [or **tropoelastin**]

<Biology>

19. Ruth Oldenziel and Karin Zachmann's book titled for the "Cold War" type of these places includes an essay on how one designed by General Motors was used to sell the Dutch on atomic energy. A forerunner to modern examples of these places was designed by communist architect Margarete Schutte-Lihotzky for a project led by Ernst May, which was named for the city of Frankfurt. Christine Frederick applied Taylorist notions of efficiency to these places by standardizing the height of work surfaces in them. William Safire took an iconic photograph of an event named for one of these places, which took place in a structure nicknamed "Splitnik" and featured Lois Epstein demonstrating a washing machine. One of the earliest color videotape recordings captured an exchange in one of these places at the opening of the American National Exhibition in Sokolniki Park, Moscow. For 10 points, Vice President Richard Nixon engaged in a debate with Nikita Khrushchev in a model example of what type of household room?

ANSWER: **kitchens** [or **Kitchen** Debate; or Frankfurt **kitchen**; or open **kitchen**]

<Other Academic>

20. In a novel, this man's thoughts travel from a time he pretended to hate Picasso to Rochefoucauld's *Maxims* as this man lies dying in a hospital bed; in that novel, a detective enlists Simon Herzog to help him find a document stolen from this man, a false copy of which is revealed to have been taken by the husband of a Bulgarian spy to help him take control of the Logos Club. Laurent Binet's *The Seventh Function of Language* spins a murder mystery out of this man's death from being hit by a laundry van. This writer's only novelistic book consists of short chapters of numbered fragments in which the narrator reflects on their love for the ambiguously gendered X. This author of *A Lover's Discourse* wrote that a "text does not consist of a line of words, releasing a single 'theological' meaning" in an essay that postulates a "scriptor" who is "born simultaneously with his text." For 10 points, name this French literary theorist who wrote "The Death of the Author."

ANSWER: Roland (Gérard) **Barthes**

<European Literature>

Bonuses

1. A stairway, a mirror, and a single star appear in the gaps of the cloud cover in a painting of this subject by Francisco de Zurbarán. For 10 points each:

[10] Name this religious subject that Western artists struggled to depict until the mid-17th century, when the Spanish painter Francisco de Pacheco codified an iconography showing a teenage girl standing on a translucent crescent moon.

ANSWER: **Immaculate Conception**

[10] This son-in-law of Pacheco painted Mary wearing a bronze tunic in his best-known version of the *Immaculate Conception*. Columns of lances dominate the upper right of this man's painting *The Surrender of Breda*.

ANSWER: Diego **Velázquez** [or Diego Rodríguez de Silva y **Velázquez**]

[10] References to the Marian litanies are absent from the nearly twenty versions of the *Immaculate Conception* created by this artist, who painted the beggars and street urchins of his native Seville.

ANSWER: Bartolomé (Esteban) **Murillo**

<Painting and Sculpture>

2. In one poem, a "beloved shadow who knows not how to guide" decides to "sink" this man in a "long sleep." For 10 points each:

[10] Name or describe this person who is left in a "crib in a snow of lilies" after "wicked hands" take his life in a sequence of poems that begins by describing the "humble, sunny earth."

ANSWER: **Romelio Ureta** [accept either name or equivalents of Gabriela **Mistral's lover**; accept the **subject** of the *Sonnets of Death* until mentioned]

[10] Gabriela Mistral's *Sonnets of Death* won a 1914 Chilean "Floral Games," a type of literary contest originally practiced in this language. Mistral took her pen name from Frederic Mistral, an author who revived this Romance language of southern France.

ANSWER: **Occitan**

[10] Mistral discussed her refusal to speak about Ureta's suicide in her correspondence with this author, which has been published as *This America of Ours*. Tagore wrote his "Purabi" poems while staying at the villa of this intellectual, who introduced Borges to Bioy Casares.

ANSWER: **Victoria Ocampo** [prompt on **Ocampo**]

<World Literature>

3. During this period, scholars in the *kokugaku*, or "national learning," movement emphasized studying Japanese cultural traditions over Confucian classics. For 10 points each:

[10] Name this era of Japanese history during which the military government implemented the *sakoku* policy of isolation, which conventionally ended with the arrival of Matthew Perry's "black ships."

ANSWER: **Tokugawa** Shogunate [or **Edo** Period]

[10] In the 18th and 19th centuries, this name was given to the study of Western science and medicine from translated books obtained through trade on Dejima Island.

ANSWER: **Dutch** Learning [or **Dutch** studies; or *rangaku*]

[10] This Meiji era intellectual founded a Dutch-language school in Edo called Keio-Gijuku, which became Keio University. This writer explicated his philosophy of education in the series *An Encouragement of Learning* and championed Western liberalism in the 1860s bestseller *Conditions in the West*.

ANSWER: **Fukuzawa** Yukichi [prompt on **Yukichi**]

<World History>

4. This name is given to ligands with two Schiff bases and two acidic hydroxyls. For 10 points each:

[10] Name this class of tetradentate ligands named for a compound containing two salicylaldehydes substituted onto ethylene diamine.

ANSWER: **salen** [accept **salen**-type ligands]

[10] Salen complexes have been used with White's catalyst, which has also been used to catalyze this palladium cross-coupling reaction which does not have a transmetalation step in its catalytic cycle.

ANSWER: **Heck** reaction

[10] Heck reactions can be performed in the presence of liquids with this property such as BMIM-PF₆. Liquids with this property are liquid salts, while electronegativity differences higher than polar bonds result in "bonds" of this name.

ANSWER: **ionic**

<Chemistry>

5. A 1999 work by Claude Panaccio traces theories of this entity starting from Plato. For 10 points each:

[10] Name or describe this construct which another philosopher posited in his book *Summa Logicae*. That book uses supposition theory to develop a theory of this construct, which maintains it would consist of pluralized and singular words, but *not* gendered nouns.

ANSWER: a **mental language** [or **mentalese**; or **mental speech**; accept anything that indicates **human thought** is in the language]

[10] This philosopher built on Augustine's remarks to develop a theory of mental language in *Summa Logicae*. He also promulgated a view that universal qualities are purely mental constructs, which is termed nominalism.

ANSWER: **William** of **Ockham** [accept either underlined answer]

[10] This philosopher's distinction between *logos prophorikos* and *logos endiathetos* or the "written" and "thought" word is a forerunner to the argument for a mental language. This Jewish philosopher from Alexandria argued that the Logos was an "ordering" principle of God.

ANSWER: **Philo** of Alexandria [or **Philo** Judaeus; or **Phílōn**; or **Yedidia** HaCohen]

<Philosophy>

6. Cole's paradox describes how this strategy does not predominate in nature, despite animals adopting it needing only produce a single more offspring per litter to maintain the same population growth as their counterparts. For 10 points each:

[10] Identify this strategy adopted by annual plants and many r-selected species, who produce lots of offspring in a single reproductive episode before dying. It is the opposite of iteroparity.

ANSWER: **semelparity** [or word forms, such as **semelparous**]

[10] Semelparity in mammals is restricted to the families *Dasyuridae* and *Didelphidae*, which are examples of these organisms that nourish their young in the pouches of their mothers.

ANSWER: **marsupials** [or **Marsupialia**]

[10] Iteroparity often exemplifies this strategy in evolutionary biology, in which an organism reduces its present fitness in exchange for either increasing or reducing the variation in fitness under future stressful conditions. The saying "don't put all your eggs in one basket" illustrates its "diversified" form.

ANSWER: **bet-hedging** [or answers indicating **hedging one's bets**; prompt on **hedging**]

<Biology>

7. The steps formed by the arms and superimposed square of a *chakana* cross represent these three entities, whose names include the words *hanan*, *ukhu*, and *kay*. For 10 points each:

[10] Give this term for the three levels of the cosmos in Incan mythology.

ANSWER: **pachas** [accept *hanan pacha*, *ukhu pacha*, or *kay pacha*]

[10] The heavenly *hanan pacha* was home to this sun god and his sister, the moon goddess Mama Killa. He is generally held to be the son of Viracocha.

ANSWER: **Inti**

[10] Particularly remarkable events that connected the *pachas* were called *pachakutiq*; one such occurrence, the Unu Pachakuti, was one of these events brought to the Lake Titicaca area by Viracocha.

ANSWER: a **flood** [or a **deluge**]

<Myth>

8. In a section of *Don Quixote* that parodies this genre, the beautiful Marcela appears at a funeral to defend herself from the friends of the proto-incest Chrysostom, who died after she spurned his advances. For 10 points each:

[10] Name this genre exemplified by Jacopo Sannazaro's *Arcadia*, which features shepherds in an idyllic landscape.

ANSWER: **pastoral** poetry/romance

[10] Cervantes used the pastoral genre for a work in which Elicio and Erastro become enamored with a woman of this name. A later pastoral "fable" by Luis de Gongora is partly titled for a nymph of this name.

ANSWER: **Galatea**

[10] Another pastoral romance of the 17th century was this 3,000 page book by Honoré d'Urfé, which according to Steven More concerns "the longest lover's tiff in literary history." Its title character's lover Celadon became the namesake of a type of pottery.

ANSWER: *L' Astrée* [or *Astrea*]

<European Literature>

9. In a tradition that precedes these events, participants gather together in a hotel room to watch the 1969 film *White Sun of the Desert*. For 10 points each:

[10] Identify these events, which in America are usually preceded by a breakfast of scrambled eggs and steak and a game of blackjack to leave behind all bad luck.

ANSWER: **rocket launches** [or **space missions**; or **shuttle launches**]

[10] Cosmonauts urinate onto the right rear wheel of the bus taking them to the rocket in a tradition dating back to this man, the first human to enter outer space.

ANSWER: Yuri (Alekseyevich) **Gagarin**

[10] This NASA Flight Director was known for wearing a new hand-sewn vest for each mission. This man's 2000 memoir was titled *Failure Is Not An Option* after a line ascribed to him in the film *Apollo 13*.

ANSWER: Gene **Kranz** [or Eugene Francis **Kranz**]

<Other Academic>

10. The hundred-plus enslaved people on this ship were purchased after Timothy Meaher made a wager with a New Yorker that he could successfully skirt the US ban on the slave trade. For 10 points each:

[10] Identify this ship captained by William Foster that secretly made the Middle Passage by July 1860.

ANSWER: **Clotilda**

[10] Zora Neale Hurston tracked down Kossola, a man who had been brought to the US on the *Clotilda*, in this state's Africatown. Civil Rights demonstrators were beaten on Edmund Pettus Bridge during a march in this state in 1965.

ANSWER: **Alabama**

[10] Hurston was part of this program within the Works Progress Administration that went around the South to find material for *Slave Narratives: A Folk History of Slavery in the United States*. The *American Guide Series* was also created from this project.

ANSWER: **Federal Writers' Project** [or **FWP**]

<American History>

11. For 10 points each, let's get over our cultural taboos and answer some questions about menstruation.

[10] This term refers to a Jewish woman who is on her period or to the time period of menstruation itself. A woman can leave this state by cleansing herself in a mikvah.

ANSWER: niddah

[10] Unlike many major religions, this religion does not regard menstruation as unclean. Accordingly, women of this religion may enter *gurdwaras* to worship whenever they want.

ANSWER: Sikhism [or Sikhi]

[10] In some rural areas of this country, Hindus practice *chhaupadi*, during which women and girls have to cease day-to-day life and live in a hut or shed.

ANSWER: Nepal [or Federal Democratic Republic of Nepal; or Saṅghīya Lokātāntrik Gaṇatantra Nepāl]

<Religion>

12. The eighth movement of this work, "*Fac, ut ardeat cor meum*," sets the two featured voices in fugue-like counterpoint with the strings and each other. For 10 points each:

[10] Name this work, a set of 12 solos and duets for soprano, alto, and string accompaniment, that takes its text from a medieval religious poem.

ANSWER: Stabat Mater

[10] *Stabat Mater* was written by this Italian composer. Igor Stravinsky used some of his works in his *Pulcinella* ballet. This composer's opera *La Serva Padrona* was so popular that it led to many forged works after his death in the so-called "war of the buffoons."

ANSWER: Giovanni Battista Pergolesi

[10] This other Italian composer and violinist wrote a *Stabat Mater* for alto and string orchestra. His other vocal works are less-performed, although he wrote a cantata called *Dixit Dominus* that was only discovered in 2005.

ANSWER: Antonio Vivaldi

<Music>

13. Answer the following about the use of cannons in French warfare, for 10 points each.

[10] Using seventy-two cannons transported across the Alps, the French army under this king destroyed Swiss pike squares at the battle of Marignano. He was captured by Charles V after the Battle of Pavia.

ANSWER: Francis I of France [or Francois I; prompt on Francis or Francois]

[10] This general under Louis XIV, who introduced ricochet cannonfire during the siege of Phillipsburg, designed an "iron fence" of characteristic siege-resistant "star forts" to protect France's northern border.

ANSWER: Sebastien Le Prestre, Marquis de Vauban [or the Comte de Vauban]

[10] France owed its advantage in artillery during the French Revolutionary wars to its development of this system of cannon, which replaced the Valliere System in 1765 and emphasized mobile guns with interchangeable parts.

ANSWER: Gribeauval system [or systeme Gribeauval; or equivalents specifying a system introduced by Jean Baptiste Vaquette de Gribeauval]

<European History>

14. This process absorbs energy when it takes place in an atom whose mass is less than or equal to that of iron, and it releases energy when the atom has a mass greater than iron. For 10 points each:

[10] Name this process in which a gamma ray is absorbed by a nucleus, leading it to emit an alpha particle, proton, or neutron. The loss of energy in this process accelerates certain kinds of supernovas.

ANSWER: photodisintegration [or phototransmutation]

[10] Since photodisintegration of elements lighter than iron is endothermic, it often triggers this kind of supernova, in which a stellar interior's reduced pressure and energy causes the surrounding material to rapidly accelerate inward. Some of them have hydrogen lines in their spectra, while others do not.

ANSWER: core collapse [prompt on gravitational collapse]

[10] Several theories hold that these elements were first introduced into the universe by the photodisintegration of high-mass stars. In astronomy, this term refers to elements heavier than helium.

ANSWER: metals <Other Science>

15. This novel's protagonist spends ten pages trying to understand an instruction about feeding leftover food to a dog. For 10 points each:

[10] Name this Samuel Beckett novel about a man who becomes Mr. Knott's manservant. It was written while Beckett was hiding in Roussillon due to his activities with the French Resistance.

ANSWER: Watt

[10] While lying in a ditch, Watt hears a chorus of these animals, which is depicted as a rhythmically spaced matrix of the sounds "KraK!" "Krek!" and "Krik!" The cry of these animals is rendered as "brekekekex koax koax" in an Aristophanes play.

ANSWER: frogs

[10] Watt is deeply perturbed by a visit from "the Galls father and son," who work in this profession. Watt notes that the elder Gall is blind, "like so many members of [this] profession."

ANSWER: piano tuners [prompt on incomplete answers or on answers like "piano technicians" or "piano repairmen"; prompt on answers that mention musical instruments but not specifically pianos; do not accept or prompt on "pianist"]
<British Literature>

16. Answer the following about mathematical advances in medieval Europe, for 10 points each.

[10] After studying under Arabic mathematicians in Algeria, Fibonacci published this book of arithmetic, which describes his namesake sequence and popularized the Arabic number system in Europe.

ANSWER: Liber Abaci [or Book of the Abacus]

[10] In 12th-century England, Adelard of Bath created the oldest outstanding Latin translation of the *Elements* by this Greek geometer from ancient Alexandria.

ANSWER: Euclid

[10] Gerard of Cremona translated Euclid's *Elements*, Ptolemy's *Almagest*, and 85 other texts on math and science from Arabic into Latin while working from the vast library in this city's cathedral.

ANSWER: Toledo, Spain [accept the Toledo School of Translators]

<European History>

17. The polyamorous, opium-loving poet Harry Crosby took this occupation during World War I, and published works by its most famous holder via his Black Sun Press afterwards. For 10 points each:

[10] Name this wartime job that titles a 2017 James McGrath Morris double biography about a "friendship made and lost in war," which details the time that Hemingway and John Dos Passos spent in it.

ANSWER: ambulance drivers [accept anything indicating a member of the Ambulance Service or Ambulance Corps; prompt on drivers]

[10] The time this American poet spent in a French prison while serving in the ambulance corps inspired his only novel, *The Enormous Room*.

ANSWER: ee cummings [or Edward Estlin Cummings]

[10] An author from this family named Geoffrey wrote a biography of Harry Crosby titled *Black Sun*. His brother of this surname described a man's life flashing before his eyes as he dies during a bank robbery in the story "Bullet in the Brain."

ANSWER: Wolff [accept Tobias Wolff or Geoffrey Wolff]

<American Literature>

18. This director exorcised Jimmy Page's house in exchange for the soundtrack to his film in which the Magus whirls around in a circle to summon plumes of lava. For 10 points each:

[10] Name this experimental filmmaker and associate of Aleister Crowley who directed *Scorpio Rising*, a homoerotic biker film whose soundtrack prominently features several 1960s rock and pop songs.

ANSWER: Kenneth **Anger** [or Kenneth Wilbur **Anglemyer**]

[10] The protagonist of *Scorpio Rising* maintains a shrine to this actor, in reference to his death in a 1955 car crash less than a month before the release of *Rebel Without a Cause*, in which he starred.

ANSWER: James (Byron) **Dean**

[10] In *Scorpio Rising*, this Bobby Vinton song plays over a shot of a biker zipping up his fly. This song names a 1986 film in which it sung at a nightclub by a woman who is raped by Dennis Hopper's character as he inhales an unknown gas and yells "Baby wants to fuck!"

ANSWER: "**Blue Velvet**"

<Other Fine Arts>

19. Motion under this kind of force can produce Cotes's spirals. For 10 points each:

[10] Name this kind of force. According to Newton's theorem of revolving orbits, one can multiply the angular speed of a Keplerian orbit without altering its trajectory by a force of this kind.

ANSWER: **inverse-cube** [prompt on "**central force**"]

[10] The shape of a Cotes spiral depends on how the reduced mass compares with the square of this quantity, denoted h . It is a constant of the motion in Kepler problems and equals the ratio of another conserved quantity to mass.

ANSWER: **specific angular momentum**

[10] The conservation of angular momentum in an orbit underlies this law, which states that a line segment adjoining two orbiting bodies sweeps out equal areas in equal times.

ANSWER: **Kepler's 2nd law**

<Physics>

20. A 2019 paper by Jae Song et al., which is punningly titled for these entities, suggests that a majority of earnings inequality is driven by variation between them. For 10 points each:

[10] David Autor et al. linked the fall of the labor share of GDP to the rise of the "superstar" variety of what economic entities?

ANSWER: **firms** [accept **companies** or similar answers; accept superstar **firms**; do not accept or prompt on "establishments"; the paper by Song et al. is titled "Firming Up Inequality"]

[10] In 2017 and 2018 papers, José Azar et al. linked market concentration to lower wages by demonstrating that, because of the small number of firms, the labor market had this anticompetitive form. This market structure has a single buyer, in contrast to a monopoly, which has a single seller.

ANSWER: **monopsony** [or **monopsonies**; accept labor **monopsony** or **monopsonistic** structure]

[10] The coauthors of the 2017 "superstar firms" paper include this Harvard economist, whose book *The Race Between Education and Technology* is one of his several collaborations with his partner, Claudia Goldin.

ANSWER: Lawrence **Katz** [or Lawrence Francis **Katz**]

<Social Science>