



ACADEMIC  
COMPETITION  
FEDERATION

**ACF NATIONALS 2019**

**PACKET 6**

**Packet by**

**Minnesota A + Harvard A + Harvard B**

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## Tossups

1. In a novel titled for a *ruler* of this place, Sapho refuses to marry Phaon but moves with him to a utopia where the sexes are equal. In that novel, a prince of this place circumvents an old law against marrying foreigners by simply conquering every kingdom on the continent. Robert Shackleton analyzed the lunar calendar used by a work titled for this place. In that work, a woman from this place declares “you thought me deceived, and I have deceived you” in a letter where she describes her suicide by poison. In a novel by Madeleine de Scudéry that is often considered the first roman à clef, Mandane is wooed by the rightful prince of this region, Artamène. Roxana leads a rebellion in a 1721 philosophical novel about two men from this region who write home about the odd cultural and religious practices of the French. For 10 points, name this place that titles an epistolary novel by Montesquieu about Rica and Usbek.

ANSWER: **Persia** [accept the **Persian** Empire; accept la **Perse**; prompt on **Iran**; prompt on more general answers like the **Middle East**]

<European Literature>

2. The presence of these molecules was shown by Xinhe Bao’s group to enhance the catalytic activity of rhodium particles in converting syngas into ethanol in an effect termed synergetic confinement. A common composition for inorganic examples of these molecules contains a transition metal bound to tuneable amounts of a chalcogen and hydrogen. The first inorganic examples of these molecules were produced by Reshef Tenne’s group as the crystal structure of tungsten disulfide allowed it to form the necessary structure. Tomoko Kasuga found that treating titanium dioxide with a sodium hydroxide solution would result in the formation of these molecules. HiPCO and arc discharge are common methods for the synthesis of these molecules. The structure of these molecules can be characterized by their chiral vector, which describes chiral, single-walled examples of these molecules. For 10 points, name these molecules defined by their cylindrical structures.

ANSWER: **nanotubes** [accept more specific answers such as carbon **nanotubes** or inorganic **nanotubes**; prompt on **fullerenes**]

<Chemistry>

3. In his exhaustive study of this building’s decoration, the Austrian art historian Otto Demus proposed that the contemporary figure Ranier Zen was painted into a historical scene showing the “apparition” of some relics. Visitors to this building look for two enormous pairs of mosaic peacocks as they traverse its extensive tessellated floor. Fourteen marble statues make up the Gothic iconostasis designed by the brothers Pierpaolo and Jacobello dalle Masegne, which separates this building’s nave from its presbytery. A heavily jeweled enamel altarpiece known as the Pala d’Oro hangs above the main altar of this cathedral, which is topped in total by five domes, one above the center and the others at the end of each arm of its Greek cross design. Four bronze statues of horses taken during the Fourth Crusade stand in front of this cathedral, which lies adjacent to the Doge’s Palace. For 10 points, identify this cathedral named for the patron saint of its location, Venice.

ANSWER: **Saint Mark’s** Basilica [or **Saint Mark’s** Cathedral; or Basilica di **San Marco**; or Patriarchal Cathedral Basilica of **Saint Mark**; or Basilica Cattedrale Patriarcale di **San Marco**; or Baxélega de **San Marco**; after “saint” is read in the giveaway, accept just **Mark** or **Marco**]

<Other Fine Arts>

4. Joachim Radkau disputed Werner Sombart’s contention that pre-modern people lived in the “age of” this resource. According to Roger Williams, Indians believed that colonists had come to North America because they ran out of this resource. 20th-century historian John U. Nef used price data to argue that in the sixteenth century there was indeed a shortage of it in England. Hans Carl von Carlowitz wrote one of the first treatises on the management of this resource, influenced by his experience in the Saxon mining industry. There have been persistent fears about its imminent shortage, or *Holznot*, in Central Europe since the sixteenth century. Wilhelm Heinrich Riehl’s call to preserve this resource “in order that Germany remains German” inspired many German nationalists to call for creating more of it. In areas with nutrient-poor soil, people practice swidden agriculture, which normally involves burning this resource. For 10 points, name this resource which is produced at sawmills from trees.

ANSWER: **lumber** [or **wood**; or **timber**; or **trees** before it is read; or **forests**] <European/World History>

5. A religious text opens by declaring that the head of one of these animals “is the dawn” as part of an extended analogy comparing this animal to the universe. A being with the head of one of these animals, who dove into the ocean to retrieve scriptures from two anti-gods who had stolen them, is worshipped as a god of knowledge in the Vaishnava tradition. The bodies of several naked women collectively take the shape of one of these animals on the cover of Wendy Doniger’s controversial 2009 study *The Hindus*. A king allowed one of these animals to wander for one year to allow rival claimants to the throne to kill or capture it in the Ashvamedha ritual from Vedic religion, which culminated in an elaborate sacrifice of this animal. A white one of these animals will appear at the end of the Kali Yuga, accompanying Vishnu’s avatar Kalki. The migration of Aryans to the Indian subcontinent is dated to the introduction of, for 10 points, what domesticated animal, which Krishna managed as Arjuna’s charioteer?

ANSWER: horses [or ashva before “Ashvamedha”; or Hayagriva]

<Religion>

6. A rock that contains a high quantity of this mineral and is named for a New Zealand mountain is often found at the base of island arcs. That rock, dunite, is a candidate rock to be pulverized and placed at beaches since this mineral is a good sink for carbon dioxide. One source of hydrothermic vents from non-volcanic sources is the reaction of this mineral to form serpentines. Goldich’s dissolution series shows that this mineral weathers into iddingsite when it is heated. Polymorphs of this mineral include one that contains hydroxide ions in its crystal structure, ringwoodite, as well as wadsleyite, which was found in the Peace River meteorite. A reaction that often takes place near hotspots and creates antigorites begins on an iron-rich form of this mineral called fayalite. Melting this mineral may convert it to pyroxene, which appears just above it on the Bowen’s Reaction series. Peridot is a gemstone of, for 10 points, what silicate named for its green hue?

ANSWER: olivine

<Other Science>

7. A dispute over the language of instruction in schools in one region of this country nearly caused its collapse in the Cilli affair. In this country, members of the Trialist Pure Part of Rights attacked members of an independence party during the High Treason Trial, also known as the Agram Trial. Using the pseudonym “Nikon Nizetas,” this country’s greatest traitor passed its “Plan III” to foreign powers, potentially leading to the deaths of over half a million of his countrymen. Since he was found to be in a state of “mental imbalance” at death, this country’s heir was buried in the Church of the Capuchins even though he committed suicide with his mistress, Mary Vetsara. The phrase kaiserlich und königlich, meaning Imperial and Royal, was used to refer to this country’s sovereign, as he ruled over both an empire and a kingdom. The death of Crown Prince Rudolf in the Mayerling Incident destabilized, for 10 points, what European power, whose Archduke Franz Ferdinand was assassinated in Sarajevo?

ANSWER: Austria-Hungary [or the Austro-Hungarian Empire; or Slovenia until “Trialist” is read; prompt on Austrian Empire; prompt on Hungary]

<European History>

8. As a practical joke, Thomas Parnell translated parts of an unpublished poem by this author into Latin and used the translation to accuse this author of plagiarism. Nicholson Baker proposes this man may have contributed to or copied from Samuel Garth’s *The Dispensary* in an essay titled for the phrase “learned lumber.” In an incident meant to “save a fellow a beating by giving him a vomit,” this man poisoned a bookseller who later published an unauthorized “key” to one of this author’s works. He produced an edition of Shakespeare’s plays in which he corrected “anachronisms” like references to philosophers he felt Shakespeare couldn’t possibly have heard of. This writer was attacked by the author of *Shakespeare Restored*, prompting him to retaliate by writing a poem in which that critic, Lewis Theobald, is crowned as a replacement to Elkanah Settle by the goddess Dulness. For 10 points, name this 18th century poet of mock-heroic epics such as *The Dunciad*.

ANSWER: Alexander Pope

<British Literature>

9. Theodor Adorno called this piece an “Alienated Masterpiece” in an essay asserting that it is problematic for its use of both “developing variations” and the stasis of an archaic genre. The second movement of this work begins with overlapping scalar passages beginning on half note D and ascending in eighth notes to a held A. One section of this work in 12/8 features a virtuosic violin solo that ends on a high G accompanied by flute trills. This work uses a section of the Hallelujah Chorus as a fugue subject in a pastoral 6/8 “Dona nobis pacem” setting, which is interrupted by martial timpani rolls and trumpet fanfares. The very long “Credo” ends this work with a fugue on the words “Et vitam venturi saeculi.” This choral work was written for the same dedicatee as the composer’s *Archduke* Trio. For 10 points, name this mass setting by the composer of the *Hammerklavier* Sonata.

ANSWER: Missa solennis by Ludwig van **Beethoven** [or **Beethoven’s solemn mass**; or **Beethoven’s Op. 123**; prompt on Missa solennis or solemn mass by asking “which was composed by whom?”]

<Music>

10. The philanthropist Jonas Hanway wrote a “sentimental history” of this profession and worked with David Porter to create a friendly society to advocate for its members. To replace a particular task in this occupation, George Smart invented the scandiscope, which Joseph Glass later improved upon by designing an apparatus made of cane rods connected with brass joints. Sir Percival Pott found that lifelong members of this profession developed a squamous cell carcinoma in the scrotum, which was the earliest identified occupational cancer. One member of this profession says that “God and his priest and king... make up a heaven of our misery” and another of them named Tom Dacre dreams that thousands of these people are “locked up in coffins of black,” in two poems from *Songs of Innocence and of Experience*. Largely ignored acts of Parliament in 1788, 1834, and 1840 raised the minimum age of, for 10 points, what horrific profession often performed by young boys in industrial England?

ANSWER: **chimney sweeps** [or **chimney sweeps’** apprentices]

<Other Academic>

11. The unusual 1966 appearance in this river of a beluga whale nicknamed Moby Dick, whose skin was heavily damaged by its polluted waters, is credited with starting a country’s environmental movement. Each August, businesses along this non-American river place red lights on their terraces and set off flares to make it appear as if this river is “in flames.” Rock crystals gathered from this river were coated in metal powder to create the earliest imitation diamonds. A 19th century merchant wrote the lyrics to a patriotic song issuing a call that “resounds like thunder’s peal” to defend this river. Many towns along this river appoint “wine queens” to represent regional varieties of Riesling. Opposite the town of Sankt Goar in this river’s “gorge” is a steep rock into which many sailors have crashed their boats, legendarily due to the alluring song of the Loreley. For 10 points, what river flows through Mainz and Cologne in Germany?

ANSWER: **Rhine** River [or **Rhenus**; or **Rein**; or le **Rhin**; or **Reno**; or **Rijn**]

<Current Events>

12. Nikolai Kobasko pioneered the “intensive” form of this process, which uses very high rates of agitation. The suitability of oils for this process can be measured by placing a nickel ball in the oil and measuring the time needed for it to be attracted to an external magnet. Heat transfer primarily occurs through radiation during the vapor blanket stage of this process, which is followed by the nucleate boiling stage, and then the convection stage. The ideal for this process is to barely miss the “knee” of a TTT diagram. When the austenite phase of steel is subjected to this process, it undergoes a diffusionless transformation resulting in the extremely brittle, body-centered tetragonal phase of martensite. To restore ductility, this process is often followed by tempering in the manufacture of swords. For 10 points, give this term for the rapid cooling of a piece of hot metal by immersion in a liquid such as cool water.

ANSWER: **quenching** [prompt on “cooling” or “rapid cooling” before mention]

<Physics>

13. In a book by an author of this surname, Dafiro Miro and Ratho Miro find a scroll in a fish that states, "Huno Krima Will Be King." That book begins with an attempted assassination attempt on Emperor Mapidéré by a man on a kite and occurs 14 years after the Xana conquest of Dara. An author of this surname wrote a short story in which an Obi-Wan Kenobi toy that can only say "Use the force!" gets destroyed by an animated toy tiger named Laohu. In that story, Jack finds a letter from his mother on Qingming two years after she dies of cancer. That author of this surname wrote *The Grace of Kings*, as well as a short story which was the first to win the Hugo, Nebula and World Fantasy awards in the same year, "The Paper Menagerie." A different author of this surname wrote a book which contains the Trisolarians, an alien race able to desiccate themselves in order to survive "chaotic eras." For 10 points, identify this surname shared by the translator and author of *The Three Body Problem* trilogy, Ken and Cixin respectively.

ANSWER: **Liu** [accept Ken **Liu** or **Liu** Cixin]

<World Literature>

14. To address this disaster, a group of Hungarian contractors strapped two MiG engines onto a Soviet tank to jury-rig a device known as "Big Windy." This disaster provided a tactical advantage to the defending troops in a battle at a location codenamed "Phase Line Bullet." This disaster, which was the subject of Werner Herzog's largely wordless documentary *Lessons of Darkness*, led Richard Turco and Carl Sagan to make predictions that largely did not come to pass. Bechtel, which was the lead contractor addressing this disaster, dubbed the project to fix it "al-Awda," or "The Return." This disaster's end was commemorated with Sheikh Jaber Al Ahmad Al Sabah ceremonially operating "blow out" equipment in November 1991. The phenomena of "tarcrete," black rain, and smoke that reached the Arabian Peninsula were caused by, for 10 points, what ecological disaster started by Iraqi troops who were fleeing a smaller neighboring country?

ANSWER: **Kuwaiti oil fires** [or First **Gulf War oil fires**; accept answers that indicate (1) **burning** or **fire** of (2) the **oil** or oil **wells** or oil **fields** (3) in **Kuwait** or during the First **Gulf War**; give a directed prompt (i.e. "in what country" on less-specific answers]

<American History>

15. Max Friedlander described his pioneering usage of photographs as an aid to performing this task in his standard 1946 textbook on this subject. The overly inclusive attitude toward this task taken by scholars such as Wilhelm von Bode prompted the formation in 1968 of the RRP. A method for this task named for Giovanni Morelli focuses on closely examining anatomical features. Bernard Berenson's authority as an expert of this task has been cast into doubt ever since he was called to testify in a high-profile trial concerning *La Belle Ferronnière*. A work must successfully undergo this process before it can be included in a *catalogue raisonné*. Since 1996, X-ray spectroscopy and radiocarbon dating has been used to challenge the results of this task for *Landscape with the Fall of Icarus*. For 10 points, name this task of determining who created a particular artwork.

ANSWER: **attributing** art [or word forms, such as **attribution**; accept **authenticating** art or **authentication**; accept **connoisseurship**; or descriptive answers suggesting **determining who created an artwork** until the word "determining" is read; prompt on **detecting forgeries** or similar answers by asking "for what purpose?"]

<Painting and Sculpture>

16. In this novel, variants on the phrase "by Jove, I believe she will stick!" are repeated by a man for whom the idea of that character "sticking" offers a "prospect of entertainment." A character in this novel worries that her father may be planning to strangle her with his "neat, fine, supple hand" when he becomes angry as they walk in a lonely Alpine valley. Its author wrote the actress Fanny Kemble into this novel as Mrs. Montgomery in thanks for her inspiring it with a story about her brother's relationship with Mary Anne Thackeray. This novel was excluded from an edition of its author's collected works titled for his home city, despite being his only novel set there. This novel ends with the main female character taking up her needlework "for life, as it were" after turning away a confidant of Lavinia Penniman who had come to see her twenty years after their engagement was broken off. For 10 points, the fortune-hunting Morris Townsend courts Dr. Sloper's daughter Catherine in what Henry James novel set in New York?

ANSWER: **Washington Square**

<American Literature>

17. This philosopher claimed the Arabic copula is analogous to “can” and characterized the “is” relation as transitive, not attributive. He called existence the “link of a being as One, with itself as a multiplicity” and called being “revelation” as part of his identity philosophy. This non-Comte philosopher characterized his early work as a “negative” project to explain the logic of change and sought a “positive philosophy” that moved beyond the “merely logical relationship between God and the world” in *Die Weltalter*. This philosopher’s notion of a “point of absolute indifference” was mocked by *another* philosopher as a “night in which all cows are black.” Manfred Frank argues Feuerbach and Marx drew their critique of Hegel from this thinker, who was Hegel’s former roommate. For 10 points, name this German idealist who developed his early *Naturphilosophie* in works like *System of Transcendental Idealism*.

ANSWER: Friedrich (Wilhelm Joseph) von **Schelling**

<Philosophy>

18. The actions of these bodies are examined under a three-part test set forth in the 1976 case of *Mathews v. Eldridge*, which determines the due process requirements that attach to them when their functions are adjudicative in nature. In December 2018, the Supreme Court granted cert in the case of *Kisor v. Wilkie*, a test case involving whether allowing these bodies to interpret legal provisions published in a source known as the C.F.R. contravenes the nondelegation doctrine. These bodies may only exercise one of their central functions after satisfying the requirement of “notice and comment” set forth in the APA. The enabling legislation of these bodies typically give them rulemaking power, which courts defer to under the *Chevron* doctrine. Administrative law is the legal practice concerning, for 10 points, what federal bodies in the executive branch such as the National Labor Relations Board and the Bureau of Land Management?

ANSWER: federal **agencies** [or federal **agency**; or executive-branch **agencies** or **agency**; or administrative **agencies** or **agency**; accept federal **departments** or executive-branch **departments** or cabinet (level) **departments**]

<Social Science>

19. Rebels under Juan Francisco Berbeo unsuccessfully attempted to march on this city in 1781 in response to a tax hike on tobacco and *aguardiente* [ah-gwar-dee-EN-tay]. A people’s *junta* took over this city after advocates of independence provoked a crisis by smashing Joaquin Llorente’s [yoh-REN-tay’s] flower vase. Antonio Nariño’s “centralist” faction governed from this city during the *patria boba* period, when it was the capital of the State of Cundinamarca. In this city, Manuela Saenz cajoled her lover into escaping an assassination attempt through his bedroom window. Francisco Santander governed as acting president from this city after its liberation, which followed Simon Bolivar’s capture of Jose Maria Barreiro at the Battle of Boyaca. For 10 points, name this capital of the colonial Kingdom of the New Granada, which became the modern-day capital of Colombia.

ANSWER: Santa Fe de **Bogotá**

<World History>

20. The DNA repair and checkpoint activation proteins Rad9, Hus1, and Rad1 form the “9-1-1” complex with this protein function. One of these proteins, which has a very similar structure to the T4 phage protein gp45, is ubiquitinated at its lysine-164 residue to initiate translesion synthesis. The movement of a protein domain with this specific function causes five switch regions to cooperatively fold within the largest subunit of RNA polymerase II. Along with Mdm-2 and Ki-67, one of these proteins is the most commonly used proliferation marker. The heteropentameric RFC complex is responsible for “loading” these proteins. The trimerization of PCNA forms one of these proteins, which dramatically increase the processivity of a certain enzyme by preventing it from “sliding” off its substrate. For 10 points, name these proteins which hold DNA polymerase in place during replication.

ANSWER: DNA **clamps** [or sliding **clamps**; or **clamp** complexes; or **clamp** domains; or **PCNA** before “PCNA” is read; or **proliferating cell nuclear antigen** before “PCNA” is read]

<Biology>

## Bonuses

1. In 2018 the National Gallery held the first joint exhibition for these two men, both of whom chose a barren, craggy landscape as the setting for their versions of *The Agony in the Garden*. For 10 points each:

[10] Name these two fifteenth century artists who were brothers-in-law. One of them painted the Camera degli Sposi as the court artist for Ludovico Gonzaga in Mantua, whereas the other's canvas *The Feast of the Gods* was modified by his pupil Titian.

ANSWER: Andrea **Mantegna** and Giovanni **Bellini**

[10] In commemoration of the birth of his first child to Nicolosia Bellini, Mantegna painted a version of this scene showing an infant swaddled in mummy-looking white cloth. Bellini exactly traced Mantegna's rendition when painting his own version of this scene, which changes the colors of Simeon's vestments.

ANSWER: **Presentation** of Christ in the Temple

[10] Mantegna and Bellini both shaped the iconography of a scene depicting this saint reading "in the wilderness," by emphasizing the cragginess of his rocky hermitage and including the lion that he had tamed. This saint was also commonly painted *in His Study*.

ANSWER: Saint **Jerome**

<Painting and Sculpture>

2. The belief in these people comes from a passage in the Babylonian Talmud from the *amora* Abbaye which says that there are no fewer than thirty-six people in the world who receive the divine presence, or Shekhinah. For 10 points each:

[10] Give the collective name for these thirty-six anonymous people whose righteousness justifies mankind to God in mystical Judaism.

ANSWER: **Lamed Vavniks** [or **Lamed Vav Tzadikim**; or **Tzadikim Nistarim**]

[10] Many Jews have linked the Lamed Vav to the story in Genesis when God declares that he will spare Sodom and Gomorrah if this prophet could find fifty righteous men.

ANSWER: **Abraham** [or **Abram**]

[10] The Hebrew letters *lamed* and *vav* add up to thirty-six according to the values assigned by this Kabbalistic system of assigning numbers to words or names.

ANSWER: **gematria**

<Religion>

3. In response to the events of this campaign, the Ottoman government ended the elective monarchy in the Danubian Principalities, instead imposing a line of Phanariot governors starting with Nicholas Mavrocordatos. For 10 points each:

[10] Identify this campaign initiated by an alliance including Prince Dmitrie Cantemir, which received surprisingly lenient peace terms despite being surrounded by the vizier Baltadji at the Battle of Stanilesti.

ANSWER: **Pruth River** Campaign [or the Battle of **Pruth** River; or the **Russo-Ottoman War of 1710**]

[10] Peter the Great launched the Pruth River Campaign after the Ottomans refused to give up Charles XII, who had fled after losing the Battle of Poltava to Peter during this war between Russia and Sweden.

ANSWER: **Great Northern** War

[10] Charles XII was holed up at this town in present-day Moldova, where his entourage ran up such heavy expenses that the Ottomans began to call him "Iron-Head Charles."

ANSWER: **Bender**, Moldova

<European History>

4. A carbene derivative of this molecule oddly has a triplet ground state that is lower in energy than its singlet state. For 10 points each:

[10] Name this nearly planar 13-carbon compound consisting of two benzene rings linked to each other and a methylene bridge.

ANSWER: **fluorene**

[10] A fluorenyl group is found on fmoc, a protecting group used in solid phase procedures for synthesizing these compounds from amino acids.

ANSWER: **proteins** [accept polypeptides; accept oligopeptides]

[10] The fmoc protecting group is commonly removed by a wash of this compound which has the structure of cyclohexane with a carbon replaced by a nitrogen.

ANSWER: **piperidine**

<Chemistry>

5. A poem by this writer depicts water that “spills / In threads then from the scalloped rim” above “a faun-ménage and their familiar goose.” For 10 points each:

[10] Name this American poet of “A Baroque Wall-Fountain in the Villa Sciarra.” This Molière translator imagined souls being lifted out of their bodies in “Love Calls Us to the Things of This World.”

ANSWER: Richard **Wilbur** [or Richard Purdy **Wilbur**]

[10] This poet praised “A Baroque Wall-Fountain,” although he complained that Wilbur “never goes too far, but he never goes far enough.” His own poems include “The Death of the Ball-Turret Gunner.”

ANSWER: Randall **Jarrell**

[10] “A Baroque Wall-Fountain” speculates that this person “might have seen in this / No trifle, but a shade of bliss.” A Galway Kinnell poem titled for this person imagines him putting his hand on the “creased forehead” of a sow.

ANSWER: Saint **Francis** of Assisi

<American Literature>

6. By interacting with ezrin, the actin cytoskeleton indirectly prevents these receptors from spontaneously forming into microclusters. For 10 points each:

[10] Identify this receptor which interacts with the kinases Lyn, Syk, and Btk as part of a signaling cascade that remodels the cell’s cytoskeleton. A tetrameric co-receptor consisting of CD19, CD21, CD85, and Leu13 assists this receptor in activating that cascade.

ANSWER: **B-cell** receptor [or **BCR**; prompt on, BUT DO NOT REVEAL, antibodies or immunoglobulins]

[10] The transmembrane portion of a B-cell receptor is essentially just one of these proteins of isotype IgA, IgE, IgG, IgD, or IgM. These Y-shaped proteins have two heavy and two light chains.

ANSWER: **antibodies** [or **immunoglobulins**]

[10] Like free-roaming antibodies, B-cell receptors exhibit incredible diversity, in part due to this process which randomizes gene segments in the heavy and light chain loci.

ANSWER: **V(D)J recombination** [or **VJ recombination**]

<Biology>



7. In a novel titled for this type of text, Timotéo vows to put violets on Nina's coffin if she dies first. For 10 points each:  
[10] Name this sort of text, which Lucio Cardoso used to title his novel about the "Murdered House" of the Meneses family. Another novel titled for this sort of text ends as a man with his entrails in his hands walks into his kitchen and dies.

ANSWER: **chronicles** [or **crônica**; accept *Chronicle of the Murdered House* or *Chronicle of a Death Foretold* (by Gabriel Garcia Marquez); accept *Crônica da Casa Assassinada* or *Crônica de uma morte anunciada*]

[10] After translating *Chronicle of the Murdered House* in 2016, Margaret Jull Costa and Robin Patterson put out a 2018 volume of this author's collected stories, which include "Midnight Mass" and "The Alienist."

ANSWER: Joaquim Maria **Machado de Assis**

[10] Lucio Cardoso was a close friend of another author writing in this country, Clarice Lispector, who claimed she would have married him if he weren't gay. Machado de Assis was also from this country.

ANSWER: **Brazil**

<World Literature>

8. Joseph E. Davies threatened to end production of this movie if the screenplay did not explicitly claim that Bukharin and Trotsky were saboteurs working with the Axis Powers. For 10 points each:

[10] Name this Michael Curtiz film, which was based on Davies' memoirs. It was criticized even at the time for its whitewashing of the Molotov-Ribbentrop Pact and Soviet invasion of Finland.

ANSWER: ***Mission to Moscow***

[10] *Mission to Moscow* was cited as evidence of Communist infiltration of Hollywood by this Congressional standing committee, whose first chair was Martin Dies.

ANSWER: **House Un-American Activities** Committee [or **HUAC**; or **House** Committee on **Un-American Activities**; or **HCUA**]

[10] During the 1947 HUAC hearings on Hollywood, this screenwriter testified that the film *Song of Russia* was Communist propaganda. This witness claimed that the film misrepresented life in the Soviet Union, where "human life is nothing, less than nothing."

ANSWER: Ayn **Rand** [or Alisa Zinovyevna **Rosenbaum**]

<American History>

9. A 1986 paper by Greg Mankiw and Michael Whinston models cases in which, in an unrestricted market, this action will occur more often than is socially optimal. For 10 points each:

[10] A market with high fixed costs is said to have a high "barrier" to what process?

ANSWER: firm **entry** [or firm **entering** a market; accept word forms or equivalents that indicate **entering** a market; accept barriers to **entry**]

[10] The free entry of firms leads to this consequence in perfect competition. In Chamberlinian monopolistic competition, firm entry causes this result even though firms retain some monopoly power.

ANSWER: **long-term** economic **profits are zero** [accept **zero-profit condition** or any answer indicating that firms make **no profits in the long run** or only **break even in the long run** or **profits go to zero**; accept answers indicating **marginal costs equal marginal revenues** or **MR = MC** in the **long run**; prompt on answers mentioning "zero profit" or "break even" by asking "in what time frame?"]

[10] This economist theorized that the threat of "hit and run" entry into a market with zero entry and exit costs would create competitive equilibria and drive down profits, even if the number of market participants was small and no new firms actually entered, in his theory of "contestable markets."

ANSWER: William J. **Baumol** [or William Jack **Baumol**]

<Social Science>

10. Fanny Burney's father, the music historian Charles, called an impressive orchestra from this city "an army of generals." For 10 points each:

[10] Name this city, where in the Classical era, composers popularized the practice of notating dynamics in music. This city lends its nickname to passages with fast ascending arpeggios.

ANSWER: Mannheim

[10] That Mannheim orchestra was conducted by this composer, who was also the first composer to consistently use the standard four-movement symphonic format, although his son Carl, an excellent alchemist, often omitted the minuet movement in his symphonies. Most of his symphonies are written for an octet of four strings, two oboes, and two horns.

ANSWER: Johann Stamitz

[10] The Mannheim school helped standardize this form as the typical format for the first movement of a classical symphony. Johann Stamitz's "Mannheim" *Symphony No. 3* skipped the primary theme in the recapitulation, which typically follows the exposition and development in this form.

ANSWER: sonata form [accept sonata-allegro form]

<Music>

11. When her husband says, "One must stop somewhere. After all, the question is, still where?", this woman replies, "At extermination." For 10 points each:

[10] Name this woman in *A Tale of Two Cities* who carries a grudge against Charles Darnay and his uncle, the Marquis St. Evrémonde, for crimes against her family. Her knitting encodes supposed enemies of the Revolution.

ANSWER: Madame Defarge [or Therese Defarge; accept Mrs. Defarge; prompt on just Defarge]

[10] The tenacity of this woman's love is contrasted with Madame Defarge's hatred in a fight that ends with Defarge's death. This thoroughly English woman is Lucie Manette's governess and friend.

ANSWER: Miss Pross

[10] This unnamed character declares she is not afraid to die if "the Republic which is to do so much good to us poor, will profit by my death." After this character's death, the knitting women "count Twenty-Two."

ANSWER: the seamstress

<British Literature>

12. One musical form from this country has three general sections: a slow introduction, an acceleration, and a fast conclusion in 8 and then 4 beats per measure. For 10 points each:

[10] Name this country, whose *jo-ha-kyu* musical structure was developed in its *gagaku* court music. Gagaku court music's instruments included the *sho* and *koto*.

ANSWER: Japan [accept Nippon-Koku]

[10] Those rhythmic patterns common in Japanese music are defined by striking this very large suspended drum at the same time as a small gong and a two-sided drum.

ANSWER: taiko drum

[10] The three most important Japanese modal systems each use two modes: the Dorian mode, and this mode. This mode is similar to a major scale with the exception of the flatted seventh scale degree. Playing the white keys of a piano from G to G plays a scale in this mode.

ANSWER: Mixolydian [do not accept or prompt on "Lydian"]

<Other Fine Arts>

13. This object was designed to generalize the positive Grassmanian. For 10 points each:

[10] Name this theoretical geometric object from particle physics introduced by Nima Arkani-Hamed in 2013. Scattering amplitudes can be calculated by finding the 'volume' of this object.

ANSWER: amplituhedron

[10] The amplituhedron was introduced as a simplified alternative to these other graphical tools, which represent scattering events using straight and squiggly lines. They are named for an American physicist.

ANSWER: Feynman diagrams

[10] Calculating the volume of the amplituhedron gives scattering amplitudes with this property. Real particles possess this property because they satisfy the classical equations of motion, while virtual ones do not.

ANSWER: they are on the mass shell

<Physics>

14. Every three years, the French society FISM puts on a series of competitions centering on this activity. For 10 points each:

[10] Name this kind of magic that has been historically called legerdemain. It is commonly used to manipulate cards and perform acts of "cardistry."

ANSWER: sleight of hand magic

[10] Many people seeking to master sleight of hand start by learning this trick, which is named for the two kinds of objects that it uses. Hieronymus Bosch's painting *The Conjuror* depicts a scumbag using this magic trick to run a shell game.

ANSWER: cups and balls [accept balls and cups]

[10] This 19th-century French magician, often called the "father of conjuring," got his start performing sleight of hand. This man, who was tasked by Louis Napoleon with humiliating Algerian sorcerers by showing them superior French magic, was honored by the stage name of the later illusionist Erik Weisz.

ANSWER: Jean-Eugène Robert-Houdin [or Jean-Eugène Robert; do not accept or prompt on "Houdin" as he is never referred to that by name alone; Erik Weisz changed his name to Harry Houdini because he "incorrectly believed that an i at the end of a name meant "like" in French."]

<Other Academic>

15. Pope Paul III honored returning soldier Jean Maynier for killing hundreds of followers of this sect in the Massacre at Merindol. For 10 points each:

[10] Name this religious sect that grew out of the 12th-century "Poor Men of Lyon," followers of a merchant who commissioned a Provencal translation of the Bible. Their ascetic values influenced Swiss leaders of the Reformation.

ANSWER: Waldensians [or Valdenses; or Vaudois; or Valdesi]

[10] Many Waldensians left Lyon and settled in this region, where in 1655 they were the victims of a series of massacres led by the Marquis de Pianezza and known as this region's "Easter."

ANSWER: Piedmont

[10] Waldensians had occasional contact with their English counterparts, the Lollards, followers of this creator of a Middle English vernacular Bible.

ANSWER: John Wycliffe

<European History>

16. Hermann Bahr's sojourn to Paris led to the importation of this genre into German-language newspapers. For 10 points each:

[10] Name this genre of light journalistic writing with a French name. Carl Schorske wrote of this type of writing that "the personal tint virtually obliterated the contours of the object of discourse."

ANSWER: feuilleton

[10] Karl Kraus blamed this German writer for the ascendance of the *feuilleton* and for the general tendency for German writers to imitate the French. While living in France, he wrote the collection *Romanzero*.

ANSWER: Heinrich Heine

[10] This Hermann Hesse novel derides the frivolity of its time by labeling it the "Age of the Feuilleton." In this novel, Joseph Knecht is among the many students at Waldzell who try to master the title intellectual activity.

ANSWER: *The Glass Bead Game* [or *Das Glasperlenspiel*; or *Magister Ludi*]

<European Literature>

17. A 1935 lecture claimed that the sentence "I feel his pain" and a made-up word like "abracadabra" are both examples of this concept. For 10 points each:

[10] Name this concept. A 1981 paper by Cora Diamond on "What [this] Might Be" argues against the "natural view" that would treat the sentence "Caesar as a prime number" as a category error.

ANSWER: nonsense [or senselessness]

[10] Diamond says the "Most Plausible View of Nonsense" is expressed by Frege and this philosopher, who also discussed nonsense in his *Tractatus Logico-Philosophicus*.

ANSWER: Ludwig Wittgenstein [the lecture in the leadin was also by Wittgenstein]

[10] Diamond cites "[This man] kept a runcible at Abbotsford" as an example of another "nonsense" sentence. An anecdote about George IV wishing to know if this man is the author of a certain novel appears in the essay "On Denoting."

ANSWER: Sir Walter Scott [prompt on the author of Waverley]

<Philosophy>

18. Elliptic curve-based schemes for this process rely on the difficulty of computing the discrete logarithm. For 10 points each:

[10] Name this process. RSA is an implementation of this process which relies on the difficulty of factoring the large products of prime numbers.

ANSWER: encryption [or public-key cryptology accept word forms of encryption such as encrypting data]

[10] In 1978, Ron Rivest and Leonard Adleman wondered if it was possible to construct an encryption scheme with this property, in which carrying out an operation on ciphertext followed by decryption is equivalent to performing the operation on plaintext.

ANSWER: (fully) homomorphic encryption [or homomorphism, do not accept or prompt on "homeomorphism"]

[10] Homomorphic encryption is also the basis for some implementations of this activity, which involves passing sensitive information to a group of designated participants. In Shamir's algorithm for this task, the information in question can be reconstructed if the threshold number of participants is reached.

ANSWER: secret sharing [or secret shares; prompt on sharing]

<Other Science>

19. SPH Engineering and PERGAM have developed a drone that fires lasers at a specific spectral range to measure these phenomena, which occur in a “hotspot” at 40,000 facilities in the Four Corners Area. For 10 points each:

[10] Identify these phenomena, which together with intentional venting and flaring constitute the major sources of emissions from a certain fossil fuel.

ANSWER: **methane leaks** [or natural **gas leaks**; or **fugitive** emissions; prompt on **leaks**]

[10] The rate of methane leakage is roughly 10% for this technique, in which pressurized liquid breaks open rock formations to facilitate extraction of petroleum and natural gas.

ANSWER: **fracking** [or **hydraulic fracturing**; or **hydrofracking**; or **hydrofracturing**]

[10] In February 2019, SoCalGas agreed to pay a \$120 million dollar settlement for the roughly 107,000 metric tons of methane that leaked over five months in 2015 and 2016 from this facility north of Los Angeles, creating a carbon footprint larger than that of the Deepwater Horizon oil spill.

ANSWER: **Aliso Canyon** [or **Porter Ranch**]

<Current Events>

20. A Tegart fort named Latrun was the site of fierce fighting during this war. For 10 points each:

[10] Name this war during which one side endured the “disaster,” or Nakba. Folke Bernadotte was assassinated during the peace process of this war, which began with the end of Mandatory Palestine.

ANSWER: **1948 Arab-Israeli War** [or the **Israeli War of Independence**; or **First Arab-Israeli War**]

[10] Along with the Israel Defense Forces, this paramilitary organization led by Menachem Begin also fought in the war. This organization conducted the King David Hotel bombing.

ANSWER: **Irgun** [or **Etzel**]

[10] During this incident in the war, the IDF shelled a boat that the Irgun had loaded with weapons after demanding that Irgun surrender its arms to the government.

ANSWER: **Altalena** Affair

<World History>