

ACF Regionals 2019

Packet by Penn State A, McGill A, Florida A, and Rutgers B

Tossups

1. David Sudarsky et al. classified these objects into five types based on albedo and reflection spectra. These objects usually radiate more energy than they receive, with a specific example radiating as much as 2.3 times the incoming energy; one explanation for that difference is the Kelvin–Helmholtz mechanism. Hydrodynamic escape is not prominent beyond the frost line, which allows these objects to form; however, “hot” examples inside the frost line, including 51 Pegasi b, have been observed. These planets, which experience differential rotation, are similar but distinct from Uranus and Neptune, which contain mostly elements heavier than hydrogen and helium, in contrast to these planets. For 10 points, what type of large planet has a small rocky core surrounded by a less dense phase of matter?

ANSWER: **gas giants** [or **Jovian planets**; accept hot **Jupiters**; prompt on giants, giant planets, exoplanets, outer planets, or other answers involving planets; prompt on Jupiter and Saturn]

<Other Science (Astronomy)>

2. A type of these objects is the subject of each of the 600-plus entries in a found-art “archive” by Saâdane Afif (“sah-DAH-n ah-FEEF”). They’re not photographs, but two of them given the subtitles “Buddha” and “Madonna” were included in Sherrie Levine’s exhibit *Mayhem*. The New York Guggenheim is home to a sculpture of one of these objects that was created as “one-percent art for the ninety-nine percent” and is titled *America*. *Psycho* was the first American feature film to depict one of these objects in operation. Maurizio Cattelan created an 18-karat gold version of these objects, another example of which was rejected by the New York Society of Independent Artists in 1917 and was signed “R. Mutt.” For 10 points, Marcel Duchamp’s readymade *Fountain* is an example of what kind of plumbing fixture?

ANSWER: **toilets** [or **urinals**; prompt on fountains or readymades until “one-percent”]

<Other Arts>

3. This party refuses to apologize for the murders of sixteen people known as the “Disappeared,” whose members included a widowed mother-of-ten whose body wasn’t found until 2003. This party was conceived in a 1904 book that used the dual monarchy of Austria-Hungary as a blueprint for a future model of governance. The revelation that MI5 (“M-I-five”) agent Denis Donaldson was secretly an informer for this party led to the Stormontgate scandal in 2002. This party, whose name translates to “We Ourselves,” was founded by Arthur Griffith. This party began employing the “Armalite and ballot box” strategy after Bobby Sands died of a hunger strike in prison in 1981. Eamon de Valera (“EH-min deh vuh-LEH-ruh”) and his supporters split off from this party in 1926 to form Fianna Fáil (“FEE-uh-nuh FALL”). For 10 points, name this party with historical ties to the Provisional IRA.

ANSWER: **Sinn Féin** (“shin fain”) [do not accept or prompt on “IRA” or “Provisional IRA”]

<British History>

4. This man became exceedingly wealthy by throwing peeled branches into watering troughs (“troffs”) to make sheep have spotted and striped offspring. This man condemned two of his sons after they murdered all the men of Shechem in retaliation for the rape of their sister. On his deathbed, he condemned his eldest son for defiling his bed by sleeping with his concubine. In Islamic tradition, since this man’s father was a prophet, his blessing was intentional, while in Christian tradition, he had to deceive his father by wearing goatskin on his arms. This man sold some red lentil soup to his older brother Esau in exchange for his birthright. Jews refuse to eat meat from the sciatic nerve in honor of an injury that this man acquired while wrestling an angel who then gave him the name Israel. For 10 points, name this son of Isaac and patriarch to the twelve tribes.

ANSWER: **Jacob** [or **Yaqub**; accept **Israel** or **Yisrael** until it is read]

<Religion>

5. Maize farmers in this country argue that its government should end its ban on the sale of the alcoholic beverage *ara*. This country's exiled People's Party represents a group of ethnic minorities known collectively as "Southerners," who were expelled in the 1990s. This country's Paro Valley is home to the cliffside Tiger's Nest Monastery as well as its difficult-to-access, single-runway international airport. Archery is the national sport of this country, whose 2003 ban on mountaineering has kept its mountain Gangkhar Puensum the tallest unclimbed peak in the world. This home of *dzong* architecture is led by the "dragon kings" of the Wangchuck dynasty. For 10 points, name this small Himalayan monarchy ruled from Thimphu ("tim-POO").

ANSWER: **Bhutan** [or Kingdom of **Bhutan**; or **Druk Yul**; or **Druk Gyal Khap**]

<Geography>

6. People with this condition were the subject of the STOP trial, which recommended yearly transcranial dopplers. Rivipansel ("RIV-uh-PAN-sell") and other selectin inhibitors are promising treatments for this disease. A treatment for this disease also functions as a ribonucleotide reductase inhibitor and is superior to anagrelide ("uh-NAG-ruh-lide") for treating ET. Avascular ("uh-VASS-kyoo-ler") necrosis of the femur and leg ulcers are common complications of this disease, whose other complications include stroke, acute chest syndrome, and painful vaso-occlusive crises. Hydroxyurea ("hydroxy-yoo-REE-uh") treats this disease by increasing the expression of the fetal form of a certain protein. This disease causes splenic sequestration. Its prevalence in certain populations is explained by a heterozygote advantage for malaria resistance. For 10 points, name this disease caused by a glutamic-acid-to-valine mutation in the beta chain of hemoglobin, which causes red blood cells to assume an unusual shape.

ANSWER: **sickle-cell** anemia [or **sickle-cell** disease or **SCD** or **SCA**]

<Biology>

7. This word precedes the phrase "I listen" before the statement that "for many a time I have been half in love with easeful Death" in John Keats's "Ode to a Nightingale." A poem with this adjective in its title describes how "the tangled bine-stems scored the sky like strings of broken lyres." An animal described by this adjective reminds the speaker of "some blessed Hope, whereof he knew and I was unaware" in a poem that begins with the line "I leant upon a coppice ("COP-iss") gate." A place described by this adjective is "swept with confused alarms of struggle and flight" and is "where ignorant armies clash by night." That place is a metaphorical plain mentioned in Matthew Arnold's "Dover Beach." For 10 points, name this adjective that describes the title thrush of a poem by Thomas Hardy.

ANSWER: **darkling**

<British Literature>

8. An essay by this thinker claimed that "no judgment of the deed" can be derived from the sixth commandment, which therefore makes it not a law but instead a guideline. That essay by this philosopher argues that whether a certain practice is "historically acknowledged" determines whether it takes on a "lawmaking" or "law-preserving" form, and was written in response to a book by George Sorel. The final section of an essay by this author of "Critique of Violence" argues that fascism seeks to give the masses "expression" while keeping property relations unchanged, therefore inevitably leading to the aestheticization of political life. In that essay, this thinker analyzed how the social function of art shifts from "ritual" to politics as the practice of copying removes the "aura" from artworks. For 10 points, name this Marxist author of "The Work of Art in the Age of Mechanical Reproduction."

ANSWER: Walter **Benjamin** ("BEN-ya-meen")

<Philosophy>

9. A ruler of this country banned the wearing of black shoes after retaking the city of Larache (“la-RAHSH”) and relied on black slave soldiers known as Guichs (“geesh”) to maintain power. The Wattasid dynasty succeeded the Marinid dynasty as the rulers of this modern-day country. The Saadi dynasty based in this modern-day country gained control of salt and gold trade routes after defeating the Songhai Empire. Portuguese king Sebastian I died in the Battle of Three Kings fought at this country’s city of Ksar el-Kebir. This country was reunified in 1631 by the Alaouite dynasty, which rules this country to this day. The Almohad and Almoravid dynasties were based in this modern-day country, from which they ruled parts of the Iberian Peninsula. For 10 points, name this North African country whose cities include Tangiers and Fez.

ANSWER: **Morocco** [or Kingdom of **Morocco**; or al-Mamlaka **al-Maghribia**]

<World History>

10. A character born in this country puts a kitten named Schwarz inside a drum and beats the drum to drown out the kitten’s cries. An American-born author who also lived in this country wrote about Camila and her mother, the real-life poet Salomé Ureña (“sah-loh-MAY oo-RAIN-yah”), in the novel *In the Name of Salomé*. In a novel set in this country, three sisters are killed along with their driver Rufino and their bodies are thrown off a cliff. Four sisters born in this country named Sofia, Sandra, Carla, and Yolanda have their lives narrated in reverse chronological order in the novel *How the García Girls Lost Their Accents* by Julia Alvarez. A science-fiction nerd from this country who lives in New Jersey is the protagonist of the novel *The Brief Wondrous Life of Oscar Wao*. For 10 points, name this birthplace of Junot Díaz (“JOO-noh DEE-azz”).

ANSWER: **Dominican Republic** [or **República Dominicana**; do not accept or prompt on “Dominica”]

<World Literature>

11. By allowing the sublime to become an “absolute of perfect sensations,” this artist failed in an attempt to “destroy the Renaissance picture,” according to an essay by Barnett Newman. The subtitle of Dan Flavin’s *greens crossing greens* notes that this artist “lacked green.” Harry Holtzman controversially transformed this artist’s idiosyncratic method of decorating his studio into a set of this man’s “wall works.” This painter rotated his standard style by 45 degrees to create his “lozenge” (“LAH-zinj”) paintings. This man’s rejection of diagonal lines led to a break with Theo van Doesburg (“TAY-oh von DOOZ-burk”), the publisher of a journal in which this artist advocated for “neo-plasticism.” Red, blue, and grey squares are interspersed along lines of yellow in a work that symbolized busy New York streets. For 10 points, name this prominent member of De Stijl (“duh style”) who painted *Broadway Boogie-Woogie*.

ANSWER: Piet **Mondrian** (“peet MON-dree-ahn”) [or Pieter Cornelius **Mondriaan**]

<Painting>

12. Carciplexes (“CAR-sih-plex-iz”) are used to prevent [4]annulene (“four ANN-yoo-leen”) from dimerizing via this reaction, which is used to trap benzyne (“BEN-zyne”) intermediates. A “retro-” version of this reaction can occur in mass spectrometry. A methyl vinyl ketone was used in this reaction by Breslow (“BRESS-loh”) to show that it undergoes hydrophobic acceleration. Dihydropyran (“dy-HY-dro-PIE-ran”) derivatives are synthesized by replacing one reactant in this reaction with an aldehyde. This reaction preferentially forms 1,2- or 1,4-products. The transition state of this reaction maximizes the overlap between HOMO and LUMO by pointing the electron-withdrawing groups of one reactant inward in the endo configuration. For 10 points, name this reaction in which cyclohexene derivatives are formed from a 4-plus-2 cycloaddition between dienes and dienophiles.

ANSWER: **Diels–Alder** reaction

<Chemistry>

13. In *Travels with Charley*, John Steinbeck spends Thanksgiving with a wealthy family in this US state, which he calls “a nation in every sense of the word.” This state’s unincorporated community of Thalia is the setting for novels like *Horseman, Pass By*. Characters like Woodrow Call and Gus McCrae work in a fictional town in this state. A

judge in this state orders the return of Jimmy Blevins's horse to John Grady Cole. A trip from this state to Montana is the subject of *Lonesome Dove* by Larry McMurtry, who set many of his novels in this state. In a 2005 novel, Carla Jean and Llewelyn Moss are killed in this state with a cattle gun by the insane hitman Anton Chigurh. For 10 points, Cormac McCarthy's *All the Pretty Horses* and *No Country for Old Men* are set in Mexico and what neighboring US state?

ANSWER: **Texas**

<American Literature>

14. A monster with this physical characteristic is killed by his half-brother, the hero Basat, in the Turkic Book of Dede Korkut. Though it has nothing to do with size, a character with this physical characteristic steals the abundance-granting cow Glas Gaibhnenn ("gloss gahv-len") and locks his daughter up in a tower on Tory Island. That leader of the Fomorians with this physical feature is eventually killed by his grandson Lugh ("loo") at the battle of Magh Tuireadh ("my TEER-ugh"). The giant Balor has this characteristic, which is also held by a figure who killed Acis with a boulder out of jealousy over the nymph Galatea. A god voluntarily gained this characteristic so that he could drink from Mimir's well. Argos, Brontes, and Steropes make up a trio of figures with this characteristic that crafted Hades's helmet and Zeus's thunderbolts. For 10 points, name this physical trait possessed by Polyphemus and all other cyclops.

ANSWER: having **one eye** [accept being a **cyclops** until read; prompt on having an **evil eye**]

<Mythology>

15. Historians George Morgenstern and Charles Tansill have argued that this event was intended as a "back door to war." Robert Stinnett argued that the McCollum memo proved that this event was not unexpected in his book *Day of Deceit*. Gordon Prange wrote the book *At Dawn We Slept* about this event. This event was investigated by the first Roberts Commission, which found Husband Kimmel and Walter Short guilty of "dereliction of duty." The planner of this event reportedly said that its result was merely "awakening a sleeping giant." A codeword used in this event inspired the title of the film *Tora! Tora! Tora!*. In an address to Congress the day after this event, it was described as "a day that will live in infamy." The USS *Arizona* was destroyed in, for 10 points, what event that caused the United States to enter World War II?

ANSWER: attack on **Pearl Harbor** [accept equivalents like the bombing of **Pearl Harbor**]

<American History>

16. A composer from this country omitted the Dies Irae ("DEE-ess EE-ray") from his 6-voice requiem *Officium Defunctorum*. In a piano suite from this country, a solemn religious song in F-sharp major notated with three staves ("stavz") interrupts a boisterous march celebrating Corpus Christi Day. A seven-movement work that is [emphasize] *set in* this country begins with the bell of the Ave Maria and ends with the retreat of a military night watch. A ballet from this country includes a "Dance of terror" and a "Song of the will-o'-the-wisp." While working in this country, Luigi Boccherini ("bo-care-REE-nee") wrote a string quintet called *Night Music of the Streets of* [a city in this country]. This country is home to Tomás Luis de Victoria and the composer of the ballet *Love, the Magician*. For 10 points, name this home country of Isaac Albéniz ("EE-sahk all-BAY-neese") and Manuel de Falla ("deh FAH-yah"), the origin of dances such as the seguidilla ("say-ghee-DEE-yah") and the fandango.

ANSWER: **Spain** [or Kingdom of **Spain**, or Reino de **España**] (The second sentence is about *Iberia* by Albéniz.)

<Music>

17. The genre of the bourgeois tragedy originated in this century, and is exemplified by a play from this century in which Mellefont leaves his mistress Marwood for the title character. In a play written in this century, the title character's adopted daughter Recha is saved from a house fire. The title character of a play written in this century responds "He can lick me in the arse" when asked to surrender. In this century, the author of *Miss Sara Sampson* wrote a play whose title character tells a parable about three indistinguishable rings bequeathed to three brothers;

that play is titled *Nathan the Wise*. A movement in this century took its name from a Friedrich Klinger play, and includes a novel whose protagonist is buried under a linden tree after shooting himself over his unrequited love for Charlotte. For 10 points, Goethe published *The Sorrows of Young Werther* (“VAIR-tur”) near the end of what century?

ANSWER: **18th** century [or **1700s**]

<European Literature>

18. UC Berkeley professor Otto Maenchen-Helfen documented many artifacts of these people, including 19 different types of bronze cauldrons. A leader of these people prepared a pyre of saddles on which he planned to self-immolate to avoid capture. These people have an unclear relationship to the similarly-named Central Asian people who invaded India around the turn of the 6th century AD, weakening the Gupta Empire. The Hephthalites are sometimes called the “white” variety of these people. In 1900, Wilhelm II asked German troops who were leaving to fight in the Boxer Rebellion to be as ruthless as these people in a speech often named after them. Pope Leo I persuaded these people to not sack Rome in 452 AD. For 10 points, identify this ethnic group once led by Attila.

ANSWER: the **Huns** [accept White **Huns**; accept **Huna** people; accept “**Hun** speech”] (The third sentence refers to the Xiongnu.)

<European History>

19. Building on the work of Peter Marris, a controversial 1960 paper characterized grief as the inability to fully exercise this phenomenon. Allan Schore (“shore”) argues that this phenomenon is a “regulation of synchrony” via the orbitofrontal systems of the people in which it occurs. Robert Hinde helped that thinker introduce the ethological work of Konrad Lorenz to a theory of this phenomenon in the 1950s. According to the original theorizer of this phenomenon, its “primary strategy” involves “proximity seeking” as a method of alleviating distress. This phenomenon was divided into “anxious-resistant,” “anxious-avoidant,” and “secure” forms in the Strange Situation experiments of Mary Ainsworth. Separation anxiety occurs when the namesake “figure” of this phenomenon is unavailable. For 10 points, John Bowlby theorized what phenomenon of bonding between infants and caregivers?

ANSWER: **attachment** [accept more specific forms, such as maternal **attachment**, paternal **attachment**, parent-child **attachment**; accept word forms, such as **attached** or **attaching**]

<Social Science>

20. Summations of this quantity can be represented graphically with arrows on the sides of triangles that correspond to 6j symbols, or hexagons that correspond to 9j symbols. Matrix elements of tensor operators in this quantity’s eigenbasis are proportional to a reduced matrix element. The cross product of p with this quantity is one term in the Runge–Lenz (“ROON-guh LENTS”) vector. Magnetic moment equals this vector quantity times the gyromagnetic ratio. If a system is rotationally invariant, then this quantity is conserved according to Noether’s (“NUR-tuh’s”) theorem, and it is likewise conserved in the absence of external torque. For 10 points, name this quantity defined as linear momentum cross r , or equivalently, moment of inertia times angular velocity.

ANSWER: **angular momentum** [accept **spin** angular momentum before “linear momentum”; prompt on **momentum**; do not accept or prompt on “linear momentum”]

<Physics>

21. At a 1990 convention for this party, delegates shouted “sellout” and “Judas” to a leader of it who joked that “he didn’t speak out of both sides of his mouth.” A leader of this party used an approach that he termed “sunny ways” to resolve a dispute over funding separate schools for Catholics in the 1890s. John Turner, a leader of this party, was told “you had an option, sir” while trying to defend patronage appointments by this party. A request to dissolve parliament by a leader of this party was refused by Governor-General Julian Byng in 1926. A leader of this party said “just watch me” when asked how far he would go to resolve the October Crisis. Wilfrid Laurier, William Lyon

Mackenzie King, and Pierre Trudeau belonged to, for 10 points, what Canadian party, which opposes the Conservative Party?

ANSWER: **Liberal** Party of Canada

<World History>

Bonuses

1. A poem that begins “The flower that smiles today tomorrow dies” is sometimes published under this title. For 10 points each:

[10] Name this title of an 1816 poem which declares that “man’s yesterday may ne’er be like his morrow” and that “nought may endure but” the title concept.

ANSWER: “**Mutability**”

[10] Half of Percy Bysshe Shelley’s poem “Mutability” is quoted in this novel by Percy’s wife Mary about a scientist who creates a monstrous creature.

ANSWER: ***Frankenstein; or, The Modern Prometheus***

[10] This other poem by Percy Bysshe Shelley addresses the “breath of Autumn’s being,” which it calls “destroyer and preserver.”

ANSWER: “**Ode to the West Wind**”

<British Literature>

2. An album named for this color opens with the line “I am on a lonely road and I am traveling, traveling, traveling, traveling.” For 10 points each:

[10] Name this color that titles an album containing the songs “All I Want” and “A Case of You.” Bill Evans plays piano on the track “So What” from a Miles Davis album with this color in its title.

ANSWER: **blue** [accept ***Kind of Blue***]

[10] A standard blues scale flattens the third, the seventh, and this major scale degree. In sonata form, if the exposition starts in a major key, then it usually modulates to the key of this scale degree.

ANSWER: **five** [or **fifth**; or **dominant**]

[10] Not to be confused with blues, the bluegrass genre is named for the Blue Grass Boys, a band led by this mandolinist and “Father of Bluegrass” until his death in 1996.

ANSWER: Bill **Monroe** [or William Smith **Monroe**]

<Other Arts>

3. Edward Paget put down this event, led by Bindee Tiwari, that led to the death of over 200 non-violent protesters. For 10 points each:

[10] Name this revolt of sepoys that occurred in 1824. It was triggered when sepoys were forced to carry their own supplies for the invasion of Burma because of a lack of cattle.

ANSWER: **Barrackpore Mutiny**

[10] The sepoys were employed by this organization that controlled India until the Sepoy Rebellion of 1857.

ANSWER: **British East India** Company [or **Honorable East India** Company; accept Company **Bahadur** or **John** Company; prompt on **East India** Company]

[10] Barrackpore is now part of this modern-day Indian city that was once called Fort William under British rule. In 1756, 164 prisoners of Siraj ud-Daulah were imprisoned in an overcrowded dungeon in this city for three days.

ANSWER: **Calcutta** [or **Kolkata**; accept Black Hole of **Calcutta**]

<World History>

4. This character notes that “when the doorbell rings, sometimes there is someone, other times there is no one,” settling an argument between Mr. and Mrs. Smith. For 10 points each:

[10] Name this character who is revealed to be the lover of the maid Mary. The play in which this man appears, *The Bald Soprano*, is named for a character whom this man mentions in passing.

ANSWER: the **Fire Chief** [or ***le capitaine des pompiers***]

[10] *The Bald Soprano* is by this Romanian absurdist playwright. His recurring character Béranger (“bay-ron-ZHAY”) appears in *Rhinoceros*.

ANSWER: Eugène **Ionesco** [or Eugen **Ionescu**]

[10] The opening paragraph describing the setting of *The Bald Soprano* uses this adjective 17 times. The armchair, slippers, pipe, newspaper, and fire used by Mr. Smith are all described by this adjective.

ANSWER: “**English**”

<European Literature>

5. This quantity is frequently used by investors to evaluate the profitability of corporate investments. For 10 points each:

[10] Name this quantity that is generally calculated using the weighted average of the rates that a company expects to pay in order to finance its stock and long-term debt.

ANSWER: weighted average **cost of capital** [or **WACC**]

[10] A theorem developed by Merton Miller and this economist suggests that in the absence of taxes and bankruptcy costs, the weighted average cost of capital is unaffected by a company’s sources of borrowing. This economist posited that people stabilize their consumption over time in his “life-cycle hypothesis.”

ANSWER: Franco **Modigliani** (“mo-deel-YAH-nee”) [or the **Modigliani**–Miller theorem]

[10] Modigliani introduced the concept of a “non-inflationary rate” of this phenomenon, below which inflation accelerates. This phenomenon’s “rate” is calculated by dividing the number of people without a job by the size of the labor force.

ANSWER: **unemployment** [or Non-Inflationary Rate of **Unemployment**; or **unemployment** rate]

<Social Science>

6. Answer the following about single-cell RNA sequencing, in which cells are individually suspended in droplets using microfluidics, for 10 points each.

[10] Before microfluidics, single cells were isolated using FACS (“fax” or “F-A-C-S”), which is a variant of this technique in which cells are labeled with fluorescent dyes, put in a stream, and characterized by their surface markers or other properties.

ANSWER: **flow cytometry**

[10] RainDance Technologies has created a “droplet digital” version of this technique, which is even more accurate than its real-time variant. The classical version of this technique uses taq polymerase (“TACK puh-LIM-uh-rays”) to amplify a segment of DNA.

ANSWER: **PCR** [or **polymerase chain reaction**]

[10] Single-cell technologies rely on adding one of these short sequences to each template from a given cell or sample. These sequences allow multiplexing several samples together in a single next-generation sequencing run.

ANSWER: **barcodes** [or **index** or **indices** or **UMI** or **unique molecular identifiers**]

<Biology>

7. More people subsist on products derived from this domesticated animal than any other. For 10 points each:

[10] Name this animal. The milk of its Italian Mediterranean breed is traditionally used to make mozzarella cheese.

ANSWER: water **buffalo** [or **bufala**; or **Bubalus bubalis**; do not accept or prompt on “bison”]

[10] Buffalo milk is used to prepare this dish, a hollow ball of mozzarella filled with either stracciatella (“strah-chah-TELL-ah”) and cream or butter and sugar.

ANSWER: **burrata**

[10] Mozzarella cheese is usually sold suspended in salt water, which is referred to by this term. Cucumbers are turned into pickles either by soaking in vinegar or fermenting in this liquid.

ANSWER: **brine**

<Other Academic>

8. A 2018 Vulture article that attempted to assemble a “21st-century literary canon” named this novel the best of the 21st century. For 10 points each:

[10] Name this novel about Sibylla and her child prodigy son Ludo, who repeatedly watch an Akira Kurosawa film as Ludo searches for his father’s identity.

ANSWER: *The **Last Samurai*** (by Helen DeWitt)

[10] Helen DeWitt followed up *The Last Samurai* with a novel named for these objects. A story from Melville’s *Piazza Tales* is named for a man who sells these objects, whom the narrator dubs “Mr. Jupiter Tonans.”

ANSWER: **lightning rods** [accept “The **Lightning-Rod** Man”]

[10] Patrick deWitt’s *The Sisters Brothers* is a novel in this genre, which is exemplified by Zane Grey’s *Riders of the Purple Sage* and most of Louis L’Amour’s books.

ANSWER: **Western** [prompt on historical fiction]

<American Literature>

9. This book advises you to begin learning the title activity around age six or seven, and that people older than that should have their fingers pulled in all directions to loosen them up before starting. For 10 points each:

[10] Name this instructional treatise from the early 1700s that contains a prescriptive table of two dozen ornaments. It ends with eight preludes and an allemande in D minor for the learner to practice on the title instrument.

ANSWER: *The **Art of Playing the Harpsichord*** [or *L’art de toucher le clavecin*] (by François Couperin)

[10] J. S. Bach wrote a set of thirty pieces of this type as keyboard exercises for his students. In the collection, these pieces came in two- or three-part varieties, the latter of which were also called *sinfonias*.

ANSWER: **inventions** [accept two-part **inventions** or three-part **inventions**; prompt on sinfonias]

[10] This Italian Baroque composer wrote a set of 30 *essercizi* (“ess-air-CHEET-see”), or “exercises,” which were among the 555 sonatas that he wrote for keyboard in total. His father Alessandro founded the Neapolitan school of opera.

ANSWER: Domenico **Scarlatti**

<Music>

10. These devices can be accidentally quenched if the field that they produce becomes too high or changes too fast. For 10 points each:

[10] Name these devices that require significant cooling. Typical materials used in these devices have a critical field of around 15 teslas, but a YBCO-based prototype at the National High Magnetic Field Laboratory can produce a field of 32 teslas.

ANSWER: **superconducting magnets** [prompt on magnets or electromagnets; prompt on type II superconductors by asking “what are the superconductors being used for?”]

[10] The helium-cooled superconducting magnets in this particle accelerator suffered a quench when it started up in 2008. In July 2012, the ATLAS and CMS experiments at this accelerator first observed a Higgs boson candidate.

ANSWER: **Large Hadron Collider** [or **LHC**; prompt on CERN]

[10] The ITER prototype tokamak will use superconducting magnets made from alloys of this transition metal with tin and titanium. Most superconducting nanowire single-photon detectors use the nitride of this metal with atomic number 41.

ANSWER: **niobium** [or **Nb**]

<Physics>

11. Mary Musgrove served as an interpreter between this man and Tomochichi, the chief of the Yamacraw Indians. For 10 points each:

[10] Name this man whose forces defeated the Spanish at the Battle of Bloody Marsh. Methodism founders John and Charles Wesley traveled to a colony that this man founded at his request.

ANSWER: James **Oglethorpe**

[10] Because of Oglethorpe's victory at the Battle of Bloody Marsh, this colony that he founded as an alternative to debtor's prisons would stay safe from Spanish raids from nearby Florida.

ANSWER: **Georgia**

[10] The Battle of Bloody Marsh was part of this larger conflict between England and Spain. In a larger battle in this conflict, the Spanish repulsed an English amphibious attack on the port city of Cartagena de Indias ("car-tah-HAY-nah day EEN-dee-ahss").

ANSWER: War of **Jenkins' Ear** [do not accept or prompt on "War of the Austrian Succession"]
<American History>

12. According to legend, this ruler from the House of Palaeologus was turned to marble and buried so that one day he could return and reconquer his city. For 10 points each:

[10] Name this last Byzantine emperor. Rather than being turned to marble, he probably actually died fighting the invading armies of Mehmed II.

ANSWER: **Constantine XI** ("the eleventh") [or **Constantine XI** Dragases; prompt on **Constantine**]

[10] Before becoming emperor, Constantine ruled this despotate that encompassed much of the Peloponnese peninsula whose capital was Mystras.

ANSWER: Despotate of the **Morea**

[10] Constantine's niece Zoe Palaeologus married a ruler with this name who confronted the Golden Horde at the Great Stand on the Ugra. That ruler's son of the same name was given the name *Grozny*, or "the Terrible."

ANSWER: **Ivan** [accept **Ivan** III; accept **Ivan** IV; accept **Ivan** the Great; accept **Ivan** the Terrible; accept **Ivan** Grozny]

<European History>

13. Answer the following aboutshintai, or earthly objects that a kami may reside in, for 10 points each.

[10] These comma-shaped jade beads were often used asshintai in ceremonies. The Yata mirror, the sword Kusanagi, and one of these objects together form Japan's imperial regalia.

ANSWER: **magatama** [prompt on **jewels**, **talismans**, **pendants**, etc. by asking "what's the Japanese term?"]

[10] Members of this profession who achieve the elite yokozuna ranking become livingshintai, and therefore always wear a heavy ceremonial rope around their waists.

ANSWER: **sumo** wrestlers [or **rikishi** or **sumotori**; prompt on **wrestlers**]

[10] The world's largestshintai is probably this landmark, a dormant volcano that is Japan's highest mountain.

ANSWER: Mount **Fuji** [or **Fujisan** or **Fujiyama**]

<Religion>

14. The first section of *Brideshead Revisited* is titled "Et in [this place] Ego," or "Even in [this place], there am I." For 10 points each:

[10] Name this term for a pastoral utopia. It titles a Tom Stoppard play that is set both in the early 1800s and the 1990s, as well as a pastoral romance by Sir Philip Sidney.

ANSWER: **Arcadia** [accept "Et in **Arcadia** Ego"]

[10] This two-word Latin phrase means "charming place," and is used in literary criticism to refer to an idyllic ("eye-DILL-ick") natural setting.

ANSWER: **locus amoenus** ("ah-MOY-nuss")

[10] Northrop Frye's Green World theory concerns the role of idyllic natural settings in Shakespeare's work, such as this location to which Duke Senior is exiled in *As You Like It*.

ANSWER: Forest of **Arden** [prompt on **forest**]

<Other Literature>

15. The Juan de Fuca example of these structures is currently subducting underneath the North American one at the Cascadia fault. For 10 points each:

[10] Name these sections of Earth's crust that shift around above the mantle.

ANSWER: tectonic **plates**

[10] Plate tectonics provides a mechanism for continental drift, which was theorized by this German meteorologist who coined the name "Pangaea" for the ancient supercontinent.

ANSWER: Alfred **Wegener** ("VAY-guh-ner") [or Alfred Lothar **Wegener**]

[10] The fossil record of this fern that went extinct in the Triassic period supports the theory of continental drift. Fossils from this genus, which is named for the Greek for "tongue," are found across South America, Africa, and Australia, the continental fragments of Gondwana.

ANSWER: **Glossopteris**

<Other Science (Earth Science)>

16. Answer the following about coupling reactions, for 10 points each.

[10] Many cross-coupling reactions involve reacting an organometallic compound with a compound that contains carbon bonded to one of these elements, which comprise group 17 of the periodic table. They include iodine and chlorine.

ANSWER: **halogens**

[10] This cross-coupling reaction involves an organozinc compound, and must be performed in an oxygen- and water-free environment.

ANSWER: **Negishi** ("neh-GEE-shee") coupling reaction

[10] Ei-ichi Negishi, Richard F. Heck, and Akira Suzuki jointly won the 2010 Nobel Prize in Chemistry for their work in cross-coupling reactions that are catalyzed by this transition metal whose atomic number is 46.

ANSWER: **palladium** [or **Pd**]

<Chemistry>

17. While being dragged away, a commander of this location reportedly kicked a pastry chef in the groin, prompting a mob to kill him. For 10 points each:

[10] Name this armory whose storming on July 14, 1789, set the French Revolution into motion.

ANSWER: the **Bastille**

[10] The day after the storming of the Bastille, this man was appointed head of the National Guard to try to restore order. This man's popularity took a downturn after he ordered his troops to fire on a large crowd gathered on the Champ de Mars ("shom duh marce").

ANSWER: Gilbert du **Motier**, Marquis de **Lafayette** [accept either underlined portion]

[10] Along with Lafayette, Jean Sylvain Bailly ("zhahn seel-VAN bah-YEE"), who held this position, was held responsible for the Champ de Mars massacre. This position was abolished from 1871 to 1977, which is when Jacques Chirac was chosen to fill this position.

ANSWER: **mayor** of **Paris** [or **Maire de Paris**; or **provost** of **Paris**]

<European History>

18. A black man emerges from the middle of a vertically oriented one of these objects in a Benny Andrews painting. For 10 points each:

[10] Name these objects, one of which includes a narrative about Memphis Cooly and another of which is shown "bleeding" in two artworks by Faith Ringgold.

ANSWER: **American flags** [or **United States flags** or **US flags**; prompt on **flags**]

[10] Harlem-based artist David Hammons designed an *African-American Flag* based on the American flag, but using these three colors instead. The Pan-African flag consists of these three colors, which are also the colors of the candles in a Kwanzaa *kinara*.

ANSWER: **red, green, AND black** [accept in any order]

[10] In 1989, George H. W. Bush criticized the work “What Is the Proper Way to Display a US Flag?” by Dread Scott as “disgraceful” while it was being displayed at the Art Institute of this Midwestern city.

ANSWER: **Chicago** [or The Art Institute of **Chicago**]

<Painting>

19. Holders of this position would don a war garb that included flayed skin and a rattle staff in emulation of Xipe Totec (“SHEEP-uh TOH-tek”). For 10 points each:

[10] Name this administrative position whose holders like Montezuma II often oversaw human sacrifice ceremonies in Tenochtitlan.

ANSWER: **king** of the **Aztec** [or **tlatoani**; or **emperor** of the **Aztec**; or king/emperor of the **Mexica**]

[10] Residents of Tenochtitlan were particularly enamored with this deity, the city’s patron. His mother was impregnated by a ball of feathers, and his weapon of choice was a flaming atlatl (“AHT-lah-tull”).

ANSWER: **Huitzilopochtli** (“weet-see-loh-POACHED-lee”) [accept translations like “**left-handed hummingbird**” or “**southern hummingbird**”]

[10] Members of the Aztec pantheon such as Huitzilopochtli are depicted as full-color drawings in the calendar section of this codex, which is named after a building in Paris.

ANSWER: Codex **Borbonicus**

<Mythology>

20. This man was nearly put to death for suggesting that the sun was a red hot lump of metal before Pericles intervened on his behalf. For 10 points each:

[10] Name this philosopher and physicist from Clazomenae who correctly surmised how eclipses work. He introduced the concept of *nous* (“noose”), or the cosmic mind.

ANSWER: **Anaxagoras** (“an-uck-SAG-uh-russ”) of Clazomenae

[10] Meletus accuses this man of believing that the sun and moon are rocks instead of gods, to which this man responds “Do you suppose you are accusing Anaxagoras?” in Plato’s *Apology*, in which this man is found guilty.

ANSWER: **Socrates**

[10] An incomplete work by this thinker ends by arguing that Anaxagoras’s *nous* configures people in the form of a game. He described how the “dying Socrates” became a Greek ideal in a book that outlines a dichotomy between the Dionysian and the Apollonian.

ANSWER: Friedrich **Nietzsche** [or Friedrich Wilhelm **Nietzsche**]

<Philosophy>

21. This quantity is useful for studying external forces in systems with links, cables, and other moving parts. For 10 points each:

[10] Name this scalar quantity, with units of joules (“jewels”), that occurs along a namesake displacement when the action is minimized. According to its namesake principle, it must equal zero for systems in equilibrium.

ANSWER: **virtual work** [or principle of **virtual work**; prompt on work]

[10] The virtual displacement that minimizes virtual work minimizes the action in this formulation of classical mechanics. This formulation extremizes the integral of a quantity defined as kinetic energy minus potential energy.

ANSWER: **Lagrangian** mechanics [accept Joseph Louis **Lagrange**]

[10] The Lagrangian is a function of the “generalized” form of these parameters that specify the state of the system. The derivative of the action with respect to these quantities is set to zero in Hamilton’s principle.

ANSWER: generalized **coordinates**

<Physics>