

2021 ACF Regionals

Packet K by Brown A, Cambridge A, UBC A, UVA A, Toronto J

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Tossups

1. The narrator of a novel by this author sees an ancient tablet that says “history is a lie” and hears a legend about a nun who cut open her stomach when bathing. In a novel by this author, the narrator meets a frog incarnation of God, who claims there are no miracles left. The Crowd kills Woman after she teaches them to talk in a play by this author that opens with a “rope game.” In a play by this man, Glasses realizes that a line has waited ten years in the title place. In a novel by this author of *The Other Shore*, a character hears about Wild Men and listens to folk songs while traveling into the countryside on a rickety bus, and another man is falsely diagnosed with lung cancer; those characters are “You” and “I.” For 10 points, name this Chinese Nobel Laureate who wrote *Bus Stop* and *Soul Mountain*.

ANSWER: **Gao** Xingjian
<World/Other Literature>

2. Demis Hassibis leads a team that models this process by using von Mises (“MEE-ziss”) distributions and the Rosetta software to create a distogram. The “template-based” and more difficult “free” approaches to modeling this process produce inputs for docking that are assessed on their RMSD. In November 2020, the CASP contest for modeling this process was won by a DeepMind neural network that scored over 90 on the global distance test. If done by brute force, this process would outlast the age of the universe, according to Levinthal’s paradox. This process ends in a native state at the bottom of a free-energy funnel according to Anfinsen’s dogma, and it is aided by chaperones like Hsp (“H-S-P”). For 10 points, secondary and tertiary structure arise from what process, which gives proteins their three-dimensional shape?

ANSWER: **protein folding** [accept **folding** after “proteins” is read; prompt formation of protein structure or similar; prompt on homology modeling by asking “what physical process does that technique model?”] (DeepMind’s AI is AlphaFold.)
<Chemistry>

3. Two philosophers from this country titled works for the “love of God” in a debate touched off in part by the notion of the “sensible congruity” between mind and body. The three “species” of God, Christ, and “creature” make up the vitalist system that a thinker from this country described in *Principles of the Most Ancient and Modern Philosophy*. A philosopher from this country advocated for education of women in the treatise *A Serious Proposal to the Ladies*. In this country home to Damaris Masham (“DAM-uh-riss MASS-um”), some posthumous “Memoirs” made a reviled figure of a philosopher who titled her magnum opus to parallel her earlier defense of the French Revolution. For 10 points, name this country of Mary Astell, Ann Conway, and the author of *Vindication of the Rights of Women*, Mary Wolstonecraft.

ANSWER: **England** [or Great **Britain**; or the **United Kingdom**; or the **UK**]
<Philosophy>

4. Aboriginal *Paakantji* artists create silhouettes on these objects in an art form known as *Kalti paarti*. In a Bosnian tradition, blacksmiths demonstrate their skill by nailing horseshoes to these objects. A golden example of these objects is patterned with black enamel double-headed eagles, referencing its recipient’s Cloth of Gold robe. To create elaborately decorated forms of these objects called *pysanky*, Ukrainians apply beeswax to resist dye. An artisan paired these objects with automata and other “surprises.” Greek Orthodox Christians color these objects red

on Holy Thursday. These objects must be blown out to remove their contents before they are decorated. Peter Carl Fabergé created jeweled variants of, for 10 points, what objects that are often dyed at Easter?

ANSWER: **eggs** [accept emu **eggs** or Imperial Coronation **egg**; accept Fabergé **egg** or Easter **egg**]

<Other Arts (Visual)>

5. Yamuna's joy upon seeing a person with this relation to her is emulated by women who apply yogurt, sandalwood, and *kajal* to these people's foreheads. An *aarti* might be performed for the moon in the absence of one of these people, who would normally be the recipient. The last days of both Shraavana and Diwali celebrate these people. After defeating Narakasura, a figure with this relation to Subhadra visited her, and she greeted him by placing a *tilak* on his forehead. On a holiday, women pray to Yama to protect these people after travelling back to their ancestral homes and receiving gifts from them. Women tie red strings symbolizing protection around these people's wrists during *Raksha Bandhan*. For 10 points, name this familial relation that all five Pandavas have to each other.

ANSWER: **brothers** [accept **Bhai** Dooj or **Bhau** Dooj or **Anna** Chelli Pandaga; accept **Bhai**, **Bhaiyya**, **Bhau**, or **Anna** ("UN-na"); prompt on siblings; prompt on men or boys]

<Religion>

6. Some novelty items made to satirize this event featured an image of the president with a sword popping out of a safe, while others had the XYZ Affair slogan "Millions for defense, not one cent for tribute." During this event, which was the subject of "Hard Times" tokens and the cartoon "The Modern Balaam and his Ass," Lewis Tappan created an early credit scoring system. During this event, the Deposit Act transferred precious metals away from coastal banks, and the Divorce Bill created sub-treasuries. Higher interest rates in Britain, the rapid opening of "pet banks" and "wildcat banks," and a Levi Woodbury act requiring that land be bought with gold or silver, triggered this event. For 10 points, Andrew Jackson's Specie Circular order triggered what financial crisis in the late 1830s?

ANSWER: **Panic of 1837**

<American History>

7. In a novel by this author, a boy who appears to stop breathing during class passes a note saying "The bird is struggling out of the egg... whoever wants to be born must first destroy a world." In another novel by this author, boarding schools are set up to overthrow the pop-history lectures of the "Age of the Feuilleton ("fuh-ee-TAWN")," and a boy learns to play a fugue when the Music Master gives him a private test. A schoolboy who has "the mark of Cain" describes the god Abraxas to Emil Sinclair in a novel by this author. The school Waldzell teaches a pursuit combining math and music, in which experts receive the title "Magister Ludi," in this author's novel about Joseph Knecht. For 10 points, what author of *Demian* and *The Glass Bead Game* wrote about a man who studies under the Buddha in *Siddhartha*?

ANSWER: Hermann **Hesse**

<European Literature>

8. The largest facility in China for studying these particles, the JUNO experiment, is a planned follow-up to the earlier Daya Bay experiment. Detectors for these particles, such as RENO in South Korea and Double Chooz in France, are often situated near nuclear reactors. All the aforementioned facilities measure θ_{13} ("theta-one-three"), the smallest mixing angle of a theory proposed by Bruno Pontecorvo to link the flavor and mass eigenstates of these particles. Though all known types of these particles feel the weak interaction, their proposed "sterile" type is only subject to gravity. These particles, which "oscillate" between flavors as they travel, were proposed by Wolfgang Pauli to conserve energy in beta decay. For 10 points, name these extremely light, neutral fermions that have tau, muon, and electron types.

ANSWER: **neutrinos** [accept **antineutrinos**; accept electron **neutrinos** or muon **neutrinos** or tau **neutrinos** or sterile **neutrinos**; do not accept or prompt on "neutrons"]

<Physics>

9. The St. Magnus-the-Martyr church marks the original location of this structure before it was moved in 1831. This structure codenames the series of events that will take place in the United Kingdom after the death of Queen Elizabeth. A chef used a narwhal tusk to fight off a terrorist attack at Fishmongers' Hall to the north of this structure in 2019. This structure's Southwark Gateway Needle apocryphally alludes to spikes on this structure that would display traitors' decapitated heads. Upon the replacement of a version of this structure in 1968, Robert McCulloch purchased that version and relocated it to Lake Havasu City, Arizona. For 10 points, name this bridge spanning the Thames ("temz") River that, in a nursery rhyme, is said to be "falling down."

ANSWER: **London Bridge**

<CE/Geo/Other/Pop Culture>

10. A propaganda song created during this conflict extols the martyrdom of a 13-year-old cowherd. One country celebrates Dwarknath Kotnis's birthday for his medical service in this conflict, while Norman Bethune's service with the Eighth Route Army during it was eulogized in a 1960s essay. One side in this conflict vowed to "kill all, loot all, burn all" as part of a scorched-earth policy termed the "Three Alls." The Second United Front formed during this conflict, in which Joseph Stilwell organized flights over The Hump to get supplies to one side in it. Historians often consider a skirmish on the Marco Polo Bridge to be this conflict's starting point. For 10 points, name this conflict, a theater of World War II that pitted two Asian powers against each other.

ANSWER: Second **Sino-Japanese** War [or the **Japanese** invasion of **China**; prompt on Asian theater of **World War II** until read; do not accept or prompt on "First Sino-Japanese War"]

<World History>

11. The protagonist of one of this author's novels loses her voice for a week every year starting on August 12th. In that novel by this author, a girl accidentally reveals details about a hidden cave that she had been told by her mute nursemaid. A woman in one of this author's novels takes sleeping pills for several days instead of signing divorce papers sent by her husband. After her mother's death, a woman in one of this author's novels learns that "Perfectly Contented" is the second half of the song "Pleading Child," which she butchered at a childhood talent show. The chess prodigy Waverly appears in that novel by this author about four mothers who form a mah-jongg group. For 10 points, name this Chinese-American author of the novels *The Bonesetter's Daughter* and *The Joy Luck Club*.

ANSWER: Amy **Tan**

<American Literature>

12. White-edged black circles in the upper left of a work in this genre refer to a comparison of hair to "clusters of black grapes." In another work in this genre, a red-draped horse bears a knight in green raising his sword back over his shoulder in a motion mirrored by another knight. A pair of nudes hunch over at the bottom of a pink-toned work in this genre with curving tendrils of flame stretching across. A figure with snake-like hair floats in the center of a black-and-white ink drawing in this genre. A crouching old man holds a golden compass in a William Blake print in this genre. A girl tries on a shoe in an engraving in this genre by Gustave Doré. Aubrey Beardsley made plates in this genre for Oscar Wilde's *Salome*. For 10 points, what artistic genre accompanies fairy tales like *Cinderella*?

ANSWER: **illustrations** [accept **illustrations** for *Salome* or *The Boy's King Arthur*; or equivalents; accept book cover **illustrations** or **frontispieces**; prompt on **title pages** by asking "what aspect of the title page?"; prompt on **books** by asking "what aspect of the book?"] (The second clue is N. C. Wyeth's cover for *The Boy's King Arthur*. The third clue is William Blake's title page for *Songs of Innocence and Experience*.)

<Painting/Sculpture>

13. A system designed to automatically perform this task used "detachment" and "chaining" procedures and was created by Newell, Simon, and Shaw. To perform this task, trees can be created with introduction and elimination rules. Programs such as Lean and Coq, which is spelled with a "Q," assist in this task, which can be done with an Arthur-Merlin protocol. This task is equivalent to running a program by the Curry-Howard correspondence.

Cryptocurrencies use the Hashcash system to perform a zero-knowledge version of this task. In an interactive version of this task, a program with unlimited resources performs this task and sends a certificate to a verifier. For 10 points, Appel and Haken first used a computer to perform what task on the four-color theorem?

ANSWER: **proving** a statement [or word forms like **proof**; accept zero-knowledge **proof** or **ZKP**; accept interactive **proof**; prompt on verification or word forms like verifier until read]

<Other Science (Computer Science)>

14. For a time, this kingdom was governed by the Uzeda family, whose members were fictionalized in *The Viceroy*s. A 1693 earthquake led this kingdom to develop an architectural style known as its namesake “Baroque.” Prior to becoming King of Sardinia, Victor Amadeus II was awarded this kingdom for his military prowess in the War of the Spanish Succession. This kingdom adopted a symbol featuring a Gorgon, three curved legs, and three ears of corn, known as the *trinacria*. Protection rackets begun by the *gabellotti* in this kingdom eventually transformed into the *Cosa Nostra*. This kingdom’s last ruler, the Bourbon Francis II, was deposed after Giuseppe Garibaldi’s Expedition of a Thousand. For 10 points, name this island kingdom that was once united with Naples.

ANSWER: Kingdom of **Sicily** [accept Kingdom of the **Two Sicilies**; accept **Sicilian** Baroque; prompt on Kingdom of Naples]

<European History>

15. A critique of a film shot in this place questions why no one believes that the depicted people could be inhabited by gods, concluding that the film represents “anthropological imperialist blindness.” In that film, people reenact the conflict of the witch and dragon by dancing with *kris* daggers that they turn against their own chests. The creators of the film *Trance and Dance* took over 25,000 photos to describe the “character” of this place, which they determined to be “schizoid” (“SKITS-oid”). A book contrasts “hydraulic bureaucracy” with the “theatre state” of *Negara* found on this island. Police disperse a “superorganism” formed around a ring used for a high-stakes bloodsport in an essay set on this island. For 10 points, Clifford Geertz’s “Deep Play” discusses the cockfight from what Indonesian island?

ANSWER: **Bali** [prompt on Indonesia or Southeast Asia until “island” is read; accept *Trance and Dance* in **Bali** or **Balinese** *Character* or *Negara: The Theatre State in Nineteenth-Century Bali* or “Deep Play: Notes on the **Balinese** Cockfight”] (The essay in the first clue is “The Photogenic Cannot Be Tamed: Margaret Mead and Gregory Bateson’s ‘Trance and Dance in Bali’” by Fatimah Tobin Rony.)

<Social Science>

16. Isozyme analysis of G6PD and PGM was used to detect these cells by Stanley Gartler. Later, a unique pattern of Giemsa (“GEEM-za”)-stained bands on chromosomes was added as a criterion for identifying these cells. Canine distemper virus induces apoptosis in these cells, which express E6 and E7; work in these cells also helped elucidate two separate mechanisms of p53-mediated apoptosis. The first human–mouse hybrids were generated with mouse embryos and these cells. A withheld 2013 Lars Steinmetz paper was blasted for publishing the chromothripsis (“chromo-thrip-siss”)-ridden genome of these cells. George Gey first propagated this hyper-triploid cell line, which contaminates 20 percent of research cell lines. For 10 points, name this immortal cell line derived from a cervical cancer sample taken from its namesake woman.

ANSWER: **HeLa** cells [prompt on Henrietta Lacks cells; prompt on clones, cloned cells, epithelial cells, cancer cells, malignant cells, HPV-infected cells, koilocytes, adenocarcinoma cells, transformed cells, immortal cells (until read) or cervical cells (until read) by asking “from what source?”]

<Biology>

17. This poet wrote a satire of an old woman who in the afterlife “firmly believes she will go to the Moon!” This 19th-century poet parodied Juvenal’s first satire with a work that begins “Still must I hear? – shall hoarse Fitzgerald bawl.” This poet accidentally directed that satire at Francis Jeffrey rather than the actual critics of his debut collection, *Hours of Idleness*. A work by this poet, which claims “truth is always strange; stranger than fiction,” mockingly begins a dedication “Bob Southey! You’re a poet.” This poet of *English Bards and Scotch Reviewers*

wrote about a man who is sent to Constantinople after impregnating Haidée in an *ottava rima* satire in which that easily-seduced man's name is rhymed with "true one." For 10 points, name this Romantic poet of *Don Juan* ("JOO-un").

ANSWER: Lord **Byron** [or Lord George Gordon **Byron**]
<British Literature>

18. *Composer and genre required.* Joseph Kerman wrote a popular 1967 book about these post-1750 works by this composer. Several of these works by this composer include the slow and detached chromatic motif: [read slowly] "G, G-sharp, high F, high E, G-sharp, A, high F-sharp, high G." That theme is loudly stated in unison to begin a 24-bar overture section within one of these works. On his deathbed, Schubert asked to hear a C-sharp minor one of these pieces that uniquely has seven movements. The Opus 59 subset of these works was commissioned by Count Razumovsky. A movement intended as the finale for one of these works was deemed by Stravinsky to be "contemporary forever." For 10 points, the Grosse Fuge was originally written for the 13th of what pieces, a type of chamber work by the composer of the Eroica Symphony?

ANSWER: **string quartets** by Ludwig van **Beethoven** [accept **Beethoven**'s late **string quartets**; prompt on partial answer; prompt on **fugues** by **Beethoven** by asking "what type of work was that originally intended for?"]
<Classical Music>

19. A statue of a horned deity made from this material was found in the town of Enkomi. Scroll 3Q15 of the Dead Sea Scrolls, which describes the location of buried treasures, is the only one made from this material. Some of the Amarna letters describe how the kingdom of Alashiya exported large quantities of this material to Egypt. The cargo of the Uluburun shipwreck [emphasize] *primarily* contained large amounts of this material in the shape of oxhides. This material was mixed with a different material, which was commonly mined in Brittany and Cornwall, to sculpt figures using the lost wax method. This material was exported in large quantities from the island of Cyprus, from which it takes its name. For 10 points, name this material that is mixed with tin to create bronze.

ANSWER: **copper** [accept the "**Copper** Scroll"; do not accept or prompt on "bronze"]
<Other History>

20. *Description acceptable.* In a Nez Perce ("nezz purse") story, Coyote fails to complete this action by crossing five mountains. Bata places an object required for this action atop the flower of a pine tree in the *Tale of the Two Brothers*. During an attempt to perform this action, one figure lights his comb against another's wishes and repels his pursuers with three peaches. In the second branch of the Mabinogion ("ma-bin-OH-gyon"), Efnisien sacrifices himself to destroy a cauldron used to perform this action. An oxyrhynchus ("ox-ee-RINK-us") fish prevents one goddess from completely performing this action. The birth of Kagutsuchi prompts Izanagi to attempt to perform this action. Thökk thwarts another attempt at this action by refusing to cry for Baldr. Upon looking back, Orpheus fails to perform, for 10 points, what action after a snake bites Eurydice?

ANSWER: **bringing back** the **dead** [or **bringing** someone **back from the underworld**; or **resurrection**; accept **bringing back** Izanami or Osiris or Baldr or Eurydice from the **dead**; prompt on **visiting** or **returning** from the **underworld** or the **land of the dead** by asking "for what purpose?"; prompt on **reassembling** Osiris's **body** or equivalents by asking "for what purpose?"]
<Mythology>

Bonuses

1. This philosopher declared that “The revolutionist is a doomed man” in a tract he wrote with Sergey Nechayev, *Catechism of a Revolutionist*. For 10 points each:

[10m] Name this philosopher who outlined his beliefs in works such as *Statism and Anarchy*. Due to his feuds with Karl Marx, this philosopher was expelled from the International Workingmen’s Association in 1872.

ANSWER: Mikhail **Bakunin**

[10h] Bakunin’s writings hugely influenced this clandestine organization, which was led by Mark Natanson and called for the Russian Empire’s dissolution. It later split into the People’s Will and Black Repartition over tactics.

ANSWER: **Land and Liberty** League [or **Zemlya i Volya**]

[10e] Bakunin died in exile in this country, where he helped found the splinter Jura Federation among watchmakers. In 1917, Vladimir Lenin boarded a “sealed train” from this country’s city of Zurich.

ANSWER: **Switzerland** [or **Swiss** Federation]

<European History>

2. This creature is illegally exported from Mexico for use in “honey jars” that serve as love charms. For 10 points each:

[10h] Name this animal that, in a Quechua tale, attempts to put out a forest fire one drop of water at a time. The Pueblo invoke this non-serpent animal with a Kachina wearing a green mask and moccasins in rain dances.

ANSWER: **hummingbird** [accept **Dukdukdiya**]

[10e] The Purépecha people of Mexico believe that a hummingbird first taught a woman how to perform this action to craft baskets. Arachne is turned into a spider after challenging Athena to a contest of this action.

ANSWER: **weaving** [or word forms]

[10m] Huitzilopochtli, “Hummingbird of the South,” guided the Mexica to Lake Texcoco, marked by this sign atop a stone where Copil’s heart landed. Give any two components of this sign, which indicated the site for Tenochtitlán.

ANSWER: **eagle** eating a **snake** perched on a **prickly pear** [accept **cactus** or **nopal** in place of “prickly pear”; accept holding a **snake** or a **war glyph** or a **battle glyph** or a **teoatl-tlachinolli** in place of “eating a snake”]

<Mythology>

3. An artist learned how to manipulate this material from villagers in Toluca, Mexico, and used it to create works with “interior spheres.” For 10 points each:

[10h] Identify this material used in many sculptures by Ruth Asawa. The artist who is usually considered to have pioneered this material’s use in sculpture used it for *Hi (Two Acrobats)*, part of his namesake “circus.”

ANSWER: **wire** [or galvanized **wire** or electroplated **wire**; accept specific materials like copper, brass, or iron **wire**; prompt on specific materials like **copper**, **brass**, or **iron** by asking “what form is that material in?”; prompt on **mesh** by asking “what material is the mesh made out of?”]

[10e] *Hi (Two Acrobats)* is part of the sculptural “circus” created by this sculptor, who pioneered wire sculpture. Marcel Duchamp coined the name for this sculptor’s “mobiles,” which include *Lobster Trap and Fish Tail*.

ANSWER: Alexander **Calder**

[10m] An unidentified outsider artist known as this city’s “wireman” abandoned many intricate wire sculptures in the early 1980s. This US city hosts a Rodin Museum, and its Museum of Art houses *Nude Descending a Staircase*.

ANSWER: **Philadelphia** [or **Philly**]

<Painting/Sculpture>

4. A man in this work is exiled for attempting to rape his wife Alima. For 10 points each:

[10h] Name this novel in which the sociology student Vandyck Jennings and his friends Terry and Jeff travel by biplane to an uncharted region whose inhabitants reproduce by parthenogenesis.

ANSWER: **Herland**

[10m] *Herland* is a novel by this proto-feminist American author. She published a story directed against her doctor Silas Weir Mitchell that ends with a character “creeping” around a room.

ANSWER: Charlotte Perkins **Gilman**

[10e] This aforementioned Gilman story centers on a character who is prescribed a rest-cure by her husband John and begins to see a woman moving behind the title decoration with a “sprawling flamboyant pattern.”

ANSWER: “**The Yellow Wallpaper**”

<American Literature>

5. The apparent lack of internal awareness of characters in the *Iliad* is cited as evidence for this state, which Michael Persinger hypothesized as the mechanism for Koren’s “God Helmet.” For 10 points each:

[10h] Name this hypothesis posed by Julian Jaynes in *The Origin of Consciousness in the Breakdown of this* concept. It states that one half of the human brain once interpreted the other half’s thoughts as external commands.

ANSWER: **bicameral** mind [or **bicameralism**; accept *The Origin of Consciousness in the Breakdown of the Bicameral Mind*]

[10e] Jaynes hypothesizes that a bicameral person would have similar experiences to a person with this disorder who hallucinates auditory commands. This disorder often includes flat affect.

ANSWER: **schizophrenia**

[10m] Jaynes believes that bicameral “voices of the gods” came from the right-brain counterparts of this left-brain area, which assists in language comprehension. Damage to this region of the temporal lobe causes fluent aphasia.

ANSWER: **Wernicke**’s area [prompt on left brain or temporal lobe; do not accept or prompt on “Broca’s area”]

<Social Science>

6. Suzanne Simard’s finding that carbon isotopes transfer between Douglas fir trees and paper birch trees was the first evidence for resource exchange through underground networks of these structures in the wild. For 10 points each:

[10m] Name these symbiotic associations between fungi and plant roots. Underground networks of these structures can transfer water or even defensive enzymes between plants in forests, prairies, and chaparrals.

ANSWER: ecto**mycorrhizae** [or **mycorrhizal networks**]

[10h] Simard observed summertime flow of excess carbon from birch trees to fir trees because the firs’ carbon intake during summer was limited by this phenomenon. Plants detect this phenomenon using the R-to-FR ratio.

ANSWER: **shade** [or word forms like **shading**; prompt on light or low light or receiving less light or similar]

[10e] Simard’s findings of cooperation between plants have challenged the Darwinian view of the primacy of this phenomenon, in which individuals vie for limited resources.

ANSWER: **competition** [or word forms like **competing**]

<Biology>

7. Lord Liverpool passed a 1712 Act that required the use of these objects, leading many newspapers to be driven out of business that year. For 10 points each:

[10e] Name these objects that were used to enforce so-called “taxes on knowledge.” George Grenville passed a 1765 act requiring the use of these objects, causing dissent in the American colonies.

ANSWER: **stamps** [accept **Stamp** Act or **stamp** duty]

[10m] Henry Hetherington, who took part in the “war of the unstamped,” was a prominent leader of this movement. Feargus O’Connor founded this movement’s newspaper *Northern Star*.

ANSWER: **Chartism** [or **Chartists**]

[10h] This man, a Chartist backer, published his newspaper *The Republican* unstamped to defy the act. A different man with the same phonetic surname coined the phrase “Condition of England Question” in his pamphlet *Chartism*.

ANSWER: Richard **Carlile** [accept Thomas **Carlyle**]

<Other History>

8. Marin Marais (“mah-RAN mah-RAY”) wrote over 500 compositions for this instrument. For 10 points each:
[10h] Name this instrument for which Antoine and Jean-Baptiste Forqueray wrote a collection of suites that have been recorded by Paolo Pandolfo. Jordi Savall is another modern player of this fretted instrument.

ANSWER: **viol** (“vile”) [or **viola da gamba**; or **gamba**; do not accept or prompt on “viola” or “viola da braccio”]

[10m] This composer wrote a follow-up to his *Pièces de clavecin* (“p’YES duh clav-SAN”) that uses a viol in addition to the solo harpsichord. This composer succeeded Lully as the leading French opera composer.

ANSWER: Jean-Philippe **Rameau**

[10e] Forqueray and Rameau were composers from this era of music, which introduced many innovations following the Renaissance period. This era’s other composers included Antonio Vivaldi and J. S. Bach.

ANSWER: **Baroque** era

<Classical Music>

9. In 2009, Ana Aguiar and coworkers simulated this feature by generating a profile with a zonal wavenumber of six in a differentially rotating water drum. For 10 points each:

[10h] Name this planetary feature that was first observed by the Voyager program in 1981, but was not imaged in visible light again until 2009. This feature changed colors from blue in 2013 to gold in 2016.

ANSWER: **Saturn**’s North Polar **hexagon** [prompt on **Saturn**’s North **Pole**; prompt on **Saturn**’s **storm** or **cyclone** or polar **vortex**; do not accept or prompt on “Great White Spot” or any “spot”; do not accept or prompt on any answer mentioning “South Pole”]

[10e] The hexagon’s color change was noted by this craft that orbited Saturn from 2004 to 2017. Named for the Italian discoverer of a “Division” in Saturn’s rings, this craft fired the *Huygens* (“HOY-guns”) probe at Titan in 2004.

ANSWER: **Cassini** [or **Cassini–Huygens**; accept Giovanni Domenico **Cassini**]

[10m] Early theories proposed that Saturn’s hexagon is a stationary one of these waves. On Earth, these planetary-scale waves cause meanders in the atmospheric jet stream and transport water across ocean basins.

ANSWER: **Rossby** waves [prompt on **planetary** waves]

<Other Science (Astronomy)>

10. This author describes a woman who surrendered with the words “the vixen seeks the dragon’s wing” before she “dedicated her slow old age to opium smuggling” in “The Widow Ching – Pirate.” For 10 points each:

[10m] Name this author who described various scoundrels in the collection *A Universal History of Infamy*. In a story by this author, a spy tells a man “But I am your friend” before shooting him in the back.

ANSWER: Jorge Luis **Borges**

[10e] In this Borges short story, Yu Tsun murders Stephen Albert in order to communicate the name of a city to bomb. This story is named for a labyrinth in a novel created by Ts’ui Pen.

ANSWER: “The **Garden of Forking Paths**” [or “El **jardín de senderos que se bifurcan**”]

[10h] This title woman of a Borges story shoots Aaron Loewenthal and claims that he raped her, after he drives her father to suicide by accusing him of embezzlement.

ANSWER: Emma **Zunz** [or **Emma** Zunz]

<World/Other Literature>

11. The book *The Bezels of Wisdom* describes how a figure with this attribute confronts the “reality of realities” at the “station of no station.” For 10 points each:

[10h] Identify this attribute of a “man” who is compared to a “polished mirror” in the mystical philosophy of Ibn ‘Arabi. Stanley Cavell has developed an “Emersonian” philosophy named for the moral type of this attribute.

ANSWER: **perfection** [or word forms like **perfect** or **perfectionism**; or al-insān al-**kāmil**]

[10m] Ibn ‘Arabi’s “perfect man” understands the unity, or *wahdat* (“wa-hid-DOT”), of this concept, whose “univocity” was theorized by Duns Scotus. Medieval philosophers often discussed the “great chain of” this concept.

ANSWER: **being** [or **existence**; or *al-wujūd*; accept Great Chain of **Being**]

[10e] Toshihiko Izutsu linked the “perfect man” with this tradition’s sages in a book titled for “Sufism and” this tradition. Laozi (“LAO-tzuh”) is credited with founding this school of Chinese thought.

ANSWER: **Daoism** [or **Taoism**; accept *Sufism and Taoism*]

<Philosophy>

12. During the Civil War, Union and Confederate troops often crossed lines to swap these objects for Northern coffee. For 10 points each:

[10h] Name these objects. Special Order 191 was found wrapped around some of these objects, enabling a Union victory at the bloodiest single-day battle in American history.

ANSWER: **cigars**

[10e] As part of Operation Mongoose, the CIA supposedly tried to assassinate this cigar aficionado with an exploding cigar after failing to overthrow him in the Bay of Pigs invasion.

ANSWER: Fidel **Castro**

[10m] This general supposedly popularized cigars in the US by bringing a supply of Havana cigars during the Seven Years’ War. He allegedly said not to fire “until you see the whites of their eyes” at Bunker Hill.

ANSWER: Israel **Putnam**

<American History>

13. An oft-excerpted dance from a dream sequence in this ballet centers on a crowd of women in a “living garden.”

For 10 points each:

[10h] Name this ballet with music by Adolphe Adam (“ah-DOM”). Marius Petipa’s four revivals of it introduced several frequently-excerpted parts of this ballet, including its Pas d’esclave and an iconic dance set in a grotto.

ANSWER: **Le Corsaire** [or **The Corsair**]

[10m] That iconic dance from *Le Corsaire* is one of these dances with Medora and the slave Ali. An entrée (“on-TRAY”), an adagio, two solo variations, and a coda make up the “grand” type of this two-person dance, which has 32 fouettés (“fwet-TAYS”) in *Swan Lake*.

ANSWER: **pas de deux** [accept grand **pas de deux**]

[10e] In addition to Adam’s (“ah-DOM’s”) original score, the 1912 Bolshoi Theatre revival of *Le Corsaire* included music by several other composers, including this Russian composer of the ballets *Swan Lake* and *The Nutcracker*.

ANSWER: Peter Ilyich **Tchaikovsky**

<Other Arts (Auditory)>

14. Answer the following about the work of Brown University chemistry professor Lai-Sheng Wang, for 10 points each.

[10e] Wang has discovered several nanoclusters of this element, including a 36-atom sheet with a hexagonal vacancy. This element’s three valence electrons make its bonding more complex than that of its neighbor, carbon.

ANSWER: **boron** [or **B**]

[10m] Wang’s research makes extensive use of this technique, which determines core energy levels by firing lasers or X-rays at a sample and measuring the kinetic energy of ejected electrons.

ANSWER: **photoelectron** spectroscopy [or **PES**; or **photoemission** spectroscopy; accept **XPS** or **UPS** or **ESCA** or X-ray **photoelectron** spectroscopy or ultraviolet **photoelectron** spectroscopy or **electron spectroscopy for chemical analysis**; prompt on **electron** spectroscopy; do not accept or prompt on “Auger electron spectroscopy”]

[10h] Wang’s lab pioneered the use of this technique before PES, often pairing it with cooling in a Paul trap. Before a different procedure, the capillary flow in this technique produces high-Z, low-fragmentation samples.

ANSWER: **electrospray** ionization [or **ESI**; accept **ESI-PES** or **electrospray** photoelectron spectroscopy or **electrospray** ionization photoelectron spectroscopy; prompt on **ionization**]

<Chemistry>

15. In a story by Helen Oyeyemi, a Czech widow named Dornička makes a promise to one of these animals, after which she develops a growth on her hip that she feeds to a goose. For 10 points each:

[10h] Name this type of animal. A collection that ends with three stories featuring these animals includes one in which an old woman is stoned to death by her neighbors after they discover that a severed hand has a wart on it.

ANSWER: **wolf** [or **wolves**; or **werewolf**] (All the stories are based in part on “Little Red Riding Hood.”)

[10m] The latter story, “The Werewolf,” appears in the fairy-tale-inspired collection *The Bloody Chamber*, which is by this author of *Nights at the Circus*.

ANSWER: Angela **Carter** [or Angela Olive **Pearce**; or Angela Olive **Stalker**]

[10e] The shortest story in *The Bloody Chamber* is titled for a “Child” of this substance. Both that story and a 2014 Oyeyemi novel draw on a fairy tale character who bites into a poisoned apple and is partly named for this substance.

ANSWER: **snow** [or “The **Snow** Child”; or “**Snow** White”; or *Boy, **Snow**, Bird*]

<British Literature>

16. These brothers devised a “haunted bottle,” into which two different liquids can be poured without mixing. For 10 points each:

[10h] Name these three Persian brothers – Mohammed, Ahmed, and al-Hasan – who made great scientific advancements under the patronage of Al-Ma’mun. They authored the *Book of Ingenious Devices*.

ANSWER: **Banū Mūsā** brothers

[10e] The Banū Mūsā brothers worked in this caliphate’s House of Wisdom, whose library was once managed by Al-Khwarizmi. Its founder, Abu Muslim, defeated the Umayyads at the Battle of the Zab.

ANSWER: **Abbasid** caliphate

[10m] The House of Wisdom was destroyed during this Mongol ruler’s invasion of Baghdad, causing the Tigris to run black with ink. His conquests for the Ilkhanate in the Middle East were halted at the Battle of Ain Jalut.

ANSWER: **Hulagu** Khan [or **Hulegu** Khan; prompt on **Khan**]

<World History>

17. This player’s well-timed use of Quicksilver Sash prompted the lines “Look at the cleanse, look at the moves... WHAT. WAS. THAT!” For 10 points each:

[10h] Name this SK Telecom T1 mid-laner who outplayed Ryu in that Zed vs. Zed matchup. This *League of Legends* player and his former teammate Bengi are the only two players to have won three world championships.

ANSWER: SKT T1 **Faker** [or **Lee Sang-hyeok**]

[10e] *League of Legends* is among the most watched games on this livestreaming site, where it is played by personalities like tyler1 (“tyler-one”).

ANSWER: **Twitch** [or **twitch.tv**]

[10m] This video game developer, which produced *League of Legends*, was acquired by the Chinese firm Tencent in 2011. In 2020, this developer released the first-person shooter *Valorant* and the card game *Legends of Runeterra*.

ANSWER: **Riot** Games

<CE/Geo/Other/Pop Culture>

18. The surviving novels in this language were mainly re-popularized by Jacques Amyot’s French translations. For 10 points each:

[10e] Name this language whose five fully surviving novels include Chariton's *Callirhoe* ("kal-ih-ROH-ee"). Its prose fiction includes *A True Story*, by Lucian, and a romance on the life of Aesop, who wrote in this language.

ANSWER: Ancient **Greek**

[10h] An ancient Greek novel by Longus, presented as the author's explanation of a painting on Lesbos, is titled for these two characters. These characters grow up together and fall in love after two goatherds find them abandoned.

ANSWER: **Daphnis** AND **Chloe**

[10m] An author of this name wrote the Ancient Greek novel *Ephesiaca*. Another author of this name wrote the *Cyropaedia*, a proto-novel fictionalizing Cyrus's youth, as well as an account of the retreat of the "Ten Thousand."

ANSWER: **Xenophon** [accept **Xenophon** of Ephesus or **Xenophon** of Athens]

<European Literature>

19. This term can refer to the passages across *samsāra* first trod by a group of spiritual leaders whose name refers to their creation of these passages. For 10 points each:

[10m] Name these places. Physical locations called by this name refer to holy places where "makers" of them achieved *moksha*. Either the original-language term or a translation is fine.

ANSWER: **tirtha** [or **ford** or **crossing**-place; accept **tirthankara**]

[10e] In this religion, pilgrimages to *tirthas* can be replaced with studying *tirth pat* maps. Mahavira was the 24th *tirthankara* of this religion.

ANSWER: **Jainism** [or **Jains**; or **Jain** Dharma]

[10h] One of Jainism's five most sacred *tirthas* is Palitana, which is dedicated to this first *tirthankara*. This father of Bahubali and Bharata visited Palitana 99 times during his life, inspiring many pilgrims to do the same.

ANSWER: **Rishabha** [or **Rishabha** Dev; or **Rishabhanatha**; or **Rushabhdev** or **Ādinātha**; or **Adishvara**; or **Yugadeva**; or **Prathamaraaja**; or **Nabheya**]

<Religion>

20. *Two answers required.* The process of normal ordering separates the operators corresponding to these two processes, so that one appears to the right of the other. For 10 points each:

[10m] Name these two processes, whose operators are denoted "*a*-dagger" and "*a*." They respectively represent the addition and removal of a particle in a quantum system.

ANSWER: **creation** AND **annihilation** [or **raising** AND **lowering**; accept in either order; accept **destruction** in place of "annihilation"; prompt on **ladder** operators]

[10h] This theorem named for an Italian physicist of Swiss descent allows for the expansion of a product of creation and annihilation operators into a sum of normal-ordered terms, effectively reducing messy calculus to combinatorics.

ANSWER: **Wick's** theorem

[10e] Each term in Wick's theorem can be represented by one of these diagrams. Named for an American physicist, these diagrams represent subatomic interactions using straight lines for electrons and wavy lines for photons.

ANSWER: **Feynman** diagrams

<Physics>