

2021 ACF Regionals

Packet L by Duke A, Harvard A, Warwick A, Texas A

Edited by Jaimie Carlson, Annabelle Yang, Hari Parameswaran, Hasna Karim, Jonathan Tran, Jordan Brownstein, Michael Kearney, Natan Holtzman, Nick Dai, Stephen Eltinge, and Tim Morrison, with contributions from Olivia Murton and Jon Suh

Tossups

1. A member of this group describes “the party of the first part” while reading a contract that is gradually torn to shreds in a scene ending “there ain’t no sanity clause!” Margaret Dumont often collaborated with this group. Alvy Singer quotes a member of this group in his opening monologue in *Annie Hall*. A member of this group sings “Whatever it is, I’m against it” before another man chariot-races down a football field in a trashcan. A piano-playing member of this group had a fake Italian accent, and another was totally silent; those men originated a scene in which many people crowd into a stateroom, as well as a “mirror scene.” The films *A Night at the Opera*, *Horse Feathers*, and *Duck Soup* starred, for 10 points, what comedy team consisting of the brothers Zeppo, Harpo, Chico, and Groucho?

ANSWER: **Marx** Brothers [accept Groucho, Harpo, Chico, or Zeppo **Marx**]

<CE/Geo/Other/Pop Culture>

2. *Shibire* mutants of a GTPase (“G-T-P-ase”) protein in *Drosophila* prevent these structures’ reformation. Tumor-associated “micro” kinds of these structures can transfer oncogenic EGFR receptors and angiogenic microRNAs. Dynamin polymers are involved in scissioning off these structures that can be enclosed inside hexagonal barrels or soccer-ball-shaped-cages of a triskelion-shaped protein. T- and V- SNAREs mediate the fusion of these structures after their “docking” onto targets. These structures’ movement is classified depending on COPI (“cop-one”) or COPII (“cop-two”) coats, and clathrin is another coatomer of these structures as well. Neurotransmitters contained in these structures are released into the synaptic cleft via exocytosis. For 10 points, name these membrane-bound “bubbles” involved in cellular trafficking.

ANSWER: **vesicles** [accept micro**vesicles**, **exosomes**, **ectosomes**, extracellular **vesicles**, transport **vesicles**, secretory **vesicles**, or synaptic **vesicles**]

<Biology>

3. *Description acceptable*. In one of these works, a cop arrests a man for climbing in a window, only to learn that he was role-playing with his wife. In that one of these works, a sergeant hesitates to shoot a mute black man covered in cuts. In one of these works, a respected doctor attends his niece’s wedding and learns that she is pregnant with her brother’s child. In these works, a man vows to kill rats after they eat his sister, and a Jehovah’s Witness threatens to castrate himself in court. The last of these often anti-Argentine works kills off all their characters in a fire. The even chapters of a novel about a man’s romance with an older divorcée consist of these increasingly jumbled works, which Pedro Camacho writes at Panamerica. For 10 points, Mario Vargas Llosa titled a novel for *Aunt Julia and the* writer of what works?

ANSWER: Pedro Camacho’s radio **scripts** in *Aunt Julia and the Scriptwriter* [accept **serials** or **soap operas** or radio **novelas** in place of “scripts”; accept *Aunt Julia and the Scriptwriter*; prompt on **novels** by Mario Vargas Llosa]

<World/Other Literature>

4. This man unusually presented video testimony in a trial during which John Virga said “Sandy Koufax couldn’t have thrown a better pitch” after a woman hurled an apple at Dwayne Keyes. After saving this man, ex-Marine Oliver Sipple was unwillingly outed by the Lavender Panthers to create a gay rights icon. This man was attacked by a robe-wearing woman motivated by “ATWA” and an FBI informant obsessed with Patricia Hearst. Within three weeks, Sara Jane Moore and the Manson cultist Lynette “Squeaky” Fromme both failed to assassinate this president, who promised to “Whip Inflation Now.” This man replaced Spiro Agnew (“SPEE-roh AG-noo”) as Vice President,

and he was appointed after his predecessor resigned. For 10 points, name this US president who pardoned Richard Nixon.

ANSWER: Gerald **Ford** [or Gerald Rudolph **Ford**; or Leslie Lynch **King**, Jr.]

<American History>

5. A probability distribution is a random field named for this scientist if and only if it has the Markov property, according to the Hammersley–Clifford theorem. An algorithm named for this scientist selects a distribution that minimizes the average log-probability. Either Ludwig Boltzmann or this scientist names a distribution that is proportional to the negative exponential of thermodynamic beta times energy. That distribution describing the canonical ensemble is derived in this American’s 1902 textbook on statistical mechanics. Constant pressure is assumed when using a quantity named for this scientist that is equal to “ H minus TS ,” unlike a similar quantity named for Helmholtz. For 10 points, name this scientist who developed a kind of chemical “free energy.”

ANSWER: Josiah Willard **Gibbs** [accept **Gibbs** random field or **Gibbs** algorithm or **Gibbs** distribution or **Gibbs** free energy]

<Physics>

6. It’s not Tisha B’Av (“teesh-AH buh-AHV”), but this holiday often features reading of the poem “Eleh Ezkerah” (“AY-leh ez-KRAH”), which discusses the story of the Ten Martyrs. A verse recited and repeated three times on this holiday states “blessed be the name of His glorious kingdom for ever and ever.” That text is the second line of the Shema Yisrael (“sh’MAH yees-rah-EL”), is called the Baruch Shem (“ba-ROOK shem”), and is only read aloud on this holiday. A text read on this holiday states that “Our vows are no longer vows.” Another text fully read on this holiday discusses how its title figure spent three days and three nights in the belly of a fish. A text recited on this holiday contains 44 repentant statements and is the Al Chet (“all HATE”) prayer. For 10 points, the Kol Nidre (“COAL nee-DRAY”) and the entire Book of Jonah are read on what Jewish “Day of Atonement?”

ANSWER: **Yom Kippur** [or **Yom ha-Kipurim**]

<Religion>

7. A song by this composer describes a somber old castle using persistent dotted-quarter–eighth-note rhythms that start with a descending fifth. This man’s song “The Two Grenadiers” is adapted in the Suzuki method books. This man set poems by Adalbert von Chamisso in his cycle *A Woman’s Love and Life*. In a song by this man set in the woods, the speaker is confronted by the enchantress Lorelei. This man set poems by Heine (“HY-nuh”) and Eichendorff in two works titled *Liederkreis* during his “year of song.” To represent contrasting moods in his music, this man created the characters Eusebius and Florestan. For 10 points, name this composer of *Dichterliebe* who married Clara Wieck (“veeck”) and also wrote the piano suite *Carnaval* and the *Rhenish* Symphony.

ANSWER: Robert **Schumann**

<Classical Music>

8. Modern discussions of animal rationality often cite a thinker from this tradition who described how his dog used a disjunctive syllogism to decide which path to take. Susanne Bobzien’s book on “determinism and freedom” in this tradition discusses that thinker’s analogy of a cone and cylinder rolling differently after an initial push. Members of this tradition believed that every Great Year ends with an *ekpyrosis*, or great conflagration, destroying the cosmos. A member of this school claimed that the only thing fully in our power is our own volition, or *prohairesis*, in a work compiled by Arrian as the *Discourses*. This school’s ideal “sage” is discussed in the *Meditations*. For 10 points, Chrysippus, Epictetus, and Marcus Aurelius were part of what tradition that emphasizes control of emotion?

ANSWER: **Stoicism** [or **Stoics**; or the **Stoa**; accept Greek or Roman **Stoicism** or *Determinism and Freedom in Stoic Philosophy*]

<Philosophy>

9. In a novel by this author, a man who is distracted “between his cocoa and his newspaper” fails to notice that the protagonist burst into tears while reading a letter. In a novel by this author, a man writing a letter drops his pen as he strains to hear its addressee debating the loyalty of women. A man in one of this author’s novels is forced by his fiancée to copy a cruel letter in his own handwriting and to send it with a lock of the addressee’s hair. While walking near Rosings Park, the protagonist of one of this author’s novels is handed a letter detailing the duplicity of Mr. Wickham and explaining why its writer broke up Bingley’s engagement, causing her to reevaluate her opinion of Mr. Darcy. For 10 points, name this author who used the epistolary format for the first draft of her novel *Sense and Sensibility*.

ANSWER: Jane **Austen** (The first sentence is from *Northanger Abbey*, and the second is from *Persuasion*.)
<British Literature>

10. A member of this family, after showing his military prowess during the Early Nine Years’ War, was given the title “Son of Hachiman.” Kencho Suyematsu propounded the theory that, instead of committing suicide, a member of this family sailed to China and became Genghis Khan. That member of this family employed the trusted retainer Benkei, whom he had first met while training as a monk at Kyoto’s Kurama Monastery. This family’s head forced Go-Toba into retirement and would later pass down his territory to the Hojo Clan. This family, which included the samurai Yoshitsune, defeated the rival Taira clan at the Battle of Dan-no-ura. For 10 points, name this Japanese clan, whose head Yoritomo emerged victorious during the Genpei War and established the Kamakura Shogunate.

ANSWER: **Minamoto** clan [or **Genji** clan]
<World History>

11. *Description acceptable.* This [emphasize] *general* operation moves the beginning of the gap right by one in a gap buffer, which is often used for cursors in text editors. Calculating k separate hash functions and setting values at their indices to 1 performs this function for a Bloom filter. One algorithm for this *general* process always starts with a node colored red, then checks the color of an “uncle” before doing rotations. A sorting algorithm named for this process iterates a marker through a list and places the object at that marker into the sorted portion. After this process, an element may be swapped upwards in a heap. This process compares an element to an existing node and places it as the left or right leaf in a binary search tree. For 10 points, pushing an object onto a stack is what process of adding an object to a data structure?

ANSWER: **insertion** [or word forms like **inserting**; accept **insertion** sort; accept **adding** an element to a data structure until read; prompt on **rebalancing** or **rotating** or **heapifying** or **sorting** or word forms by asking “what change necessitated that?”]
<Other Science (Computer Science)>

12. A postmodern complex in this city has been ridiculed as the “Ceașescu (“chow-SHESS-koo”) Towers” due to alleged similarities between it and the Romanian Palace of the Parliament. Terry Farrell drew on Mesoamerican temples in designing that government building in this city. A national library built in 1998 in this city is clad in red brick that approximately matches the color of an ornate 1876 railway hotel across the street. Rafael Viñoly designed a skyscraper in this city whose reflective windows melted a car’s hood ornament. In this home of the “Walkie Talkie” building, Norman Foster designed a Swiss Re (“ree”) building that resembles a cucumber. For 10 points, name this city whose buildings include the Gherkin, the Shard, and Buckingham Palace.

ANSWER: **London** (The building in the first two clues is the Secret Intelligence Service building.)
<Other Arts (Visual)>

13. An attacker of this city declared “If I should destroy this city, who is going to build me one like it?” in explaining why he did not sack it following the Battle of Gavere (“KHA-vuh-ruh”). For rebelling against high taxes imposed by the Holy Roman Empire, citizens of this city were forced to wear nooses around their necks. An entrepreneur and spy from this city smuggled a copy of the Spinning Jenny to establish the first textile mill on continental Europe. Charles V destroyed this city’s St. Bavo’s Abbey in 1540. The founder of the House of

Lancaster was named for being born in this city. Albert Gallatin was one of the negotiators to sign an 1814 treaty in this city that did not prevent the Battle of New Orleans. For 10 points, name this Flemish city where the treaty ending the War of 1812 was signed.

ANSWER: **Ghent** [or **Gaunt**; accept John of **Gaunt**]

<European History>

14. In a story by this author, a poorly-dressed woman with a tic watches an audience like “the granite Ramses in a museum” after “a silence of thirty years.” In another story by this author, a boy sneaking in through the basement window of his own house fears that his father will mistake him for a burglar. Aunt Georgiana cries “I don’t want to go” after hearing a symphony in a story by this author. In a story from this author’s collection *The Troll Garden*, a boy angers his teachers by wearing a red carnation and works as an usher at Carnegie Hall. In “A Study in Temperament” by this author of “A Wagner Matinée,” a boy steals 1,000 dollars and spends it over a weekend in New York before jumping under a train. For 10 points, name this author of “Paul’s Case” who wrote about the Shimerdas in *My Ántonia*.

ANSWER: Willa **Cather**

<American Literature>

15. *Description acceptable.* An apparatus that performs this process is heated until its contents turn a deep blue color. That apparatus for this process contains a ketyl (“KEE-till”) radical generated *in situ* from benzophenone (“benzo-FEEN-own”) and sodium metal. This process can be carried out in the aforementioned THF still, or by adding a molecular sieve (“siv”) to a bulk solvent. Another apparatus performs this process via azeotropic distillation, often using toluene. This process is the typical goal when using a Dean–Stark apparatus. As a strong driver of this process, sulfuric acid promotes the elimination of alcohols to form ketones. Materials that perform this process in a reaction mixture, like anhydrous (“an-hydrous”) magnesium sulfate, are called hygroscopic (“hy-grow-SCOP-ick”). For 10 points, consumer goods are preserved by inedible silica gel packets that perform what process?

ANSWER: **desiccation** [or **dehydration**; or **drying**; or **removing water**; or equivalents; accept **removal** of **solvent** or equivalents until “elimination” is read; but prompt after; prompt on **adsorption** by asking “what compound is adsorbed?” and accept **water** in response; prompt on **reflux** until “sulfuric acid” is read by asking “what is the goal of those instances of reflux?”]

<Chemistry>

16. *Description acceptable.* Bacchus inflicts this fate upon the Thracian Maenads in punishment for the murder of Orpheus. This fate also befalls an Apulian shepherd who mockingly imitates the dance of nymphs. According to Apollonius, the Hesperides (“heh-SPAIR-id-eez”) experience this fate after receiving Orpheus’s desperate prayer for water. After he accidentally killed his pet deer, one lover of Apollo was granted this fate. The river Eridanus receives the amber tears of the Heliades, who experience this fate after their brother’s death. As a reward for their piety, Baucis (“BAW-siss”) and Philemon depart this life together through this fate. A daughter of Peneus suffers this fate after Cupid shoots the son of Leto in retaliation for his mockery. For 10 points, name this transformation that Daphne undergoes to escape from Apollo.

ANSWER: **turning into a tree** [or equivalents like **transforming** into a **tree** or **becoming** a **tree**; or word forms like **turns into a tree**; accept specific types of trees; prompt on **turning into a plant**] (The unnamed lover of Apollo is Cyparissus.)

<Mythology>

17. The application of this [emphasize] *jurisprudential* concept was restricted to cover practices “deeply rooted in the Nation’s history” in the 1997 case *Washington v. Glucksberg*. Critics argue that a form of this concept often invoked alongside the “right to privacy” was first applied in the *Dred Scott* case. Statutes (“STAT-choots”) can be declared “void for vagueness” under this doctrine, infringements of which are subject to “strict scrutiny.” An

analysis of a “substantive” form of this doctrine was applied in *Griswold* and *Roe*. The state may not infringe on the rights to life, liberty, and property without fulfilling this requirement. For 10 points, name this requirement for fair treatment under the law, which names clauses from the Fifth and Fourteenth Amendments.

ANSWER: **due process** [accept substantive **due process** or procedural **due process**]

<Social Science>

18. This artist painted three stacked novels in an oval-shaped still-life executed on wooden crates. This artist [emphasize] *received* a double self-portrait of his friends against a white-flowered yellow wallpaper, and sent in return a self-portrait with a “pale veronese green” background. A cover of *Paris illustré* inspired this friend of Émile Bernard to paint a work that depicts a courtesan among some cranes in a pond. A print of Mount Fuji appears above the central figure’s straw hat in this artist’s portrait of Julien Tanguy (“tawn-GHEE”). This artist left many Japanese prints to his brother, Theo, and his fascination with them can also be seen in a painting with a blue jug sitting on a table across from the artist’s bed in Arles (“arl”). For 10 points, name this artist, who painted vibrant sunflowers and a red-walled *Night Café*.

ANSWER: Vincent **van Gogh** (Inspired by Japanese printmakers, van Gogh orchestrated a painting exchange with Paul Gauguin and Émile Bernard; he received *Self-Portrait Dedicated to Vincent van Gogh* and sent *Self-Portrait Dedicated to Paul Gauguin*.)

<Painting/Sculpture>

19. In a play from this country, a man tests a variety of walks like the “palais glide,” the “wobbly knee,” and the “retired circus horse,” and he refers to Americans’ anger over the Vietnam War as a “liberatory burp.” In a play from this country, a man waits outside a school for a “flapper with plaits down her back.” An inspector gives his coworker “a smack in the gob” for “blowing a raspberry” at him in a play from this country. In that play from this country, a man dons a fake wooden leg and pretends to be a psychiatrist, a bishop, and a judge, before learning that the title character was defenestrated. Another play from this country ends with The Child drowning in a fountain. For 10 points, name this home country of the authors of *Accidental Death of an Anarchist* and *Six Characters in Search of an Author*, Dario Fo and Luigi Pirandello.

ANSWER: **Italy** [or **Italian** Republic; or **Italia**]

<European Literature>

20. An envoy of this man said that he had found “an assembly of kings” and that he feared the enemy “would prove a Lernaean Hydra to fight against.” The maxim “each man is the architect of his own fortune” derives from a speech delivered against this man’s ambassador Cineas. A town’s name was changed from one meaning “bad wind” to one meaning “good wind” after this man lost a battle near it. While dueling a man in a street-fight in Argos, this man supposedly died after that man’s mother dropped a roof-tile on his head. After victories at Heraclea and Asculum, this man declared that “if we win one more battle against the Romans, we will be ruined.” For 10 points, name this king of Epirus, whose name has become a byword for victories that are too costly.

ANSWER: **Pyrrhus** of Epirus

<Other History>

Bonuses

1. This artist included collages like “The Sword Swallower” and “The Clown” in a work made after he was confined to a wheelchair. For 10 points each:

[10e] Name this Fauvist painter who combined colorful cut-outs in the artist’s book *Jazz*. He also depicted five nudes dancing in *The Joy of Life*.

ANSWER: Henri **Matisse**

[10m] A winged man embracing a woman appears in *A Week of Kindness*, an artist’s book narrated by Loplop and collaged from Victorian novels by this artist. This Surrealist painted bird-headed figures in ruins in *Europe After the Rain*.

ANSWER: Max **Ernst**

[10h] This painter compiled photographs taken along Route 66 in the artist’s book *Twenty-Six Gasoline Stations*. He also created large paintings of words such as “The End” and “Dance?.”

ANSWER: Ed **Ruscha** (“roo-SHAY”)

<Painting/Sculpture>

2. This figure inhabits a “cave, into which one hundred wide entrances lead, one hundred doors, from which as many voices rush as answers.” For 10 points each:

[10h] Name this figure who declares “the descent to hell is easy, but to recall the path and to return to earthly breezes – this is the task, this is the work.” Soon after, this figure orders Misenus’s burial.

ANSWER: **Cumaean Sibyl** [or the **Sibyl** of **Cumae**; or **Deïphobe**; prompt on **Sibyl**]

[10e] The Cumaean Sibyl speaks those lines in Book 6 of this epic poem, which narrates the journey of its title hero to found the city of Rome.

ANSWER: **Aeneid** (by Vergil)

[10m] Later in Book 6, the Cumaean Sibyl guides Aeneas into the Underworld, where he thrice fails to embrace this man. This man, whose funeral games occupy Book 5 of the *Aeneid*, shows Aeneas a parade of future Roman heroes.

ANSWER: **Anchises** (“ann-KY-seez”) [prompt on Aeneas’s **father**]

<European Literature>

3. Answer the following about notable headlines run by the British tabloid *The Sun*, for 10 points each.

[10e] *The Sun* ran the headline “Crisis? What Crisis?” to parody the indifference of Jim Callaghan, this party’s leader, during the “Winter of Discontent.” This party thus lost the ensuing election to Margaret Thatcher’s party.

ANSWER: **Labour** Party

[10h] After British forces sank the ARA *General Belgrano* during the Falklands War, *The Sun* ran this emphatic one-word headline, which it soon retracted when the casualty list was revealed.

ANSWER: “**GOTCHA**”

[10m] *The Sun* boasted “It’s The Sun Wot Won It” after its headline “If [this politician] wins today, will the last person to leave Britain please turn out the lights?” This man succeeded Michael Foot as Leader of the Opposition in 1983.

ANSWER: Neil **Kinnock**

<Other History>

4. The surprise 2010 rediscovery of a Soviet rover allowed its reflector arrays to be used for a new measurement of this quantity. For 10 points each:

[10m] Name this quantity that is most commonly measured by firing lasers at retroreflectors that were installed by the Apollo program.

ANSWER: **lunar distance** [or **Earth–Moon distance**; or **Earth–Moon** characteristic **distance**; accept answers indicating the average **distance** to the **Moon**; prompt on **distance**]

[10e] In a laser ranging experiment, distance is measured by multiplying this value by half the round-trip time. Dividing the Earth–Sun distance by this constant gives a value of roughly eight minutes.

ANSWER: **speed of light** [accept **speed of light** in a vacuum; prompt on *c*]

[10h] Each cell in an Apollo retroreflector array is one of these objects. Light that touches each of the three mutually perpendicular surfaces of one of these reflectors has its direction perfectly inverted.

ANSWER: **corner** reflector [accept corner **cube** reflector or cube **corner** reflector]

<Other Science (Astronomy)>

5. In Ama Ata Aidoo's ("ah-MAH-tah EYE-doo's") play *Anowa*, the title woman marries a man who works in this industry named Kofi Ako, but his impotence drives her to suicide. For 10 points each:

[10e] Name this industry whose members are called "the Unmentionable" in Aidoo's play *The Dilemma of a Ghost*. This industry resulted in Phillis Wheatley's arrival in America.

ANSWER: **slave trade** [or **slavery**; accept descriptive answers mentioning the sale or transportation of **slaves**]

[10h] At a funeral in this novel, Akosua refuses to shake James's hand because his ancestors were slavers. This novel traces the lineages of the half-sisters Effia and Esi, only one of whom is sold into slavery.

ANSWER: **Homegoing** (by Yaa Gyasi)

[10m] Ayi Kweih Armah ("eye kway ar-MAH") depicted the slave trade in a novel titled for "Two Thousand" of these time periods. Tayeb Salih's postcolonial response to *Heart of Darkness* is titled for one of these time periods "of Migration to the North."

ANSWER: **season** [accept *Two Thousand Seasons* or *Season of Migration to the North* or *Mawsim al-Hijrah ilâ al-Shamâl*]

<World/Other Literature>

6. In a meeting in a Chambersburg quarry, one man refused to participate in this event, claiming that it was too risky. For 10 points each:

[10h] Name this event that led to the deaths of Shields Green, John Copeland, and Dangerfield Newby. Before this event, a man rented the Kennedy farmhouse in the guise of the mining engineer Isaac Smith.

ANSWER: raid on **Harpers Ferry** [accept, but DO NOT REVEAL, **John Brown's raid** on Harpers Ferry] (The quarry meeting was with Frederick Douglass.)

[10e] This abolitionist, who wrote "the crimes of this guilty land will never be purged away but with blood," raided Harpers Ferry in 1859.

ANSWER: John **Brown**

[10m] John Brown's raid on Harpers Ferry was funded by this group, whose members included Thomas Wentworth Higginson and Samuel Girdley Howe.

ANSWER: **Secret Six** [or **Secret Committee of Six**]

<American History>

7. Barbara Ferrier, who worked on the initial synthesis of this molecule, lends her name to a ketone intermediate in its production. For 10 points each:

[10h] Name this cage-like compound consisting of a cyclopropane molecule fused to three cycloheptadienyl ("cyclo-hepta-dy-EEN-ul") rings. This compound's three double bonds frequently move around, making it a widely-cited fluxional ("FLUCK-shuh-null") molecule.

ANSWER: **bullvalene**

[10m] Bullvalene constantly undergoes the [3,3] ("three-three") rearrangement named for this American chemist. Another reaction named for this chemist produces an alkene and a hydroxylamine ("hydroxyl-uh-MEEN") from an *N*-oxide.

ANSWER: Arthur C. **Cope** [accept **Cope** rearrangement or **Cope** reaction or **Cope** elimination]

[10e] Another widely-studied fluxional compound is the pentavalent ("penta-valent") carbonium ion, which is formed readily from the protonation of this simplest alkane.

ANSWER: **methane** [or **CH4**]

<Chemistry>

8. After he was asked to revise this piece, Wilhelm Fitzenhagen cut an entire movement from it. For 10 points each:
[10h] Name this Tchaikovsky showpiece in a title style. Among other drastic revisions that Tchaikovsky sanctioned, Fitzenhagen moved a demanding *Allegro vivo* portion of this piece to its finale for greater virtuosic display.

ANSWER: **Rococo Variations** [or **Variations on a Rococo Theme**, Op. 33; prompt on **Rococo**]

[10e] The *Rococo Variations* are the closest that Tchaikovsky came to writing a concerto for this instrument. Lynn Harrell, Mstislav (“MISS-tiss-lahv”) Rostropovich, and Yo-Yo Ma are known for playing this string instrument.

ANSWER: **cello** [or **violoncello**]

[10m] For orchestral auditions, cellists sometimes play an excerpt from a “limping waltz” within this Tchaikovsky work. Another movement of this work calls for the bassoon to play very soft notes indicated in the score by six *p*'s.

ANSWER: **Pathétique Symphony** [or **Symphony** No. **6** in B minor; or **Sixth Symphony**]

<Classical Music>

9. Uno Harva interprets the Sampo as a form of this symbol, and other guises of this symbol include ladders from Egyptian funerary texts. For 10 points each:

[10h] Give this mythological symbol, which Mircea Eliade (“meer-CHAY-uh el-ee-AH-duh”) identifies with the “point of intersection of [the three cosmic] regions,” where communication and passage between them are possible.

ANSWER: **axis mundi** [or **world tree**, **world mountain**, or **world pillar**; accept **cosmic** in place of “world”; prompt on **world navel** or **world center**; do not accept or prompt on “world mill”] (See “Symbolism of the Centre” from Eliade’s *Images and Symbols*.)

[10m] The Sampo can be viewed as belonging in this figure’s realm, because the world pillar in E. N. Setälä’s view is nailed to the North Star, and this witch rules the northern land of Pohjola (“PO-hyo-la”).

ANSWER: **Louhi** (“LOH-hee”) (See Clive Tolley’s “The Mill in Norse and Finnish Mythology” in the 24th volume of the *Saga-Book of the Viking Society*.)

[10e] The Sampo has also been identified with a world mill, as Elias Lönnrot described it grinding out flour, salt, and gold in this text. This Finnish national epic records the exploits of Väinämöinen (“VYE-na-moy-nen”) and Ilmarinen.

ANSWER: **Kalevala**

<Mythology>

10. In *The End of Poverty*, Jeffrey Sachs argues that using “clinical economics” to direct targeted aid that promotes this process could achieve the title goal. For 10 points each:

[10e] Sachs and Amartya Sen work in the field of economics that studies this process. This process describes still-industrializing countries like India, where this process leads to increases in per capita income and life expectancy.

ANSWER: **development** [accept **development** economics; or word forms like **developing**]

[10h] These authors of *Poor Economics* pioneered experimental approaches to reducing poverty. These authors found that immunization rates in India increased when parents received gifts like lentils in return. *Name either*.

ANSWER: Abhijit **Banerjee** OR Esther **Duflo**

[10m] Banerjee and Duflo also found that expanding this service in Hyderabad caused little benefit over 2 years. Muhammad Yunus’s Grameen Bank provides this service largely to impoverished women in Bangladesh.

ANSWER: **microfinance** [or **microloans**; or **microlending**; or **microcredit**; prompt on **finance**, **loans**, **lending**, or **credit**]

<Social Science>

11. Answer the following about the Baymen, the first European settlers of Belize. For 10 points each:

[10e] Upon landing in Belize, the Baymen came into contact with these indigenous people, who lived in present-day Orange Walk and Corozal. In nearby Guatemala, these people established the cities of Copan and Tikal.

ANSWER: **Mayans**

[10m] Many Baymen were involved in obtaining this good, and eventually the British gained a monopoly over this good in Belize. The country of Brazil gets its name from a reddish variety of this good harvested there.

ANSWER: **wood** [or **lumber**; or **trees**; accept **Brazilwood**]

[10h] Baymen clashed with Mayans in Orange Walk and Corozal in this 19th-century conflict of the Yucatán Peninsula. This conflict ended with the capture of Chan Santa Cruz, a Mayan religious site.

ANSWER: **Caste War**

<World History>

12. A poem by this author rejoices that milk on the title food “shall cool and temper thy superior heat / And save the pains of blowing while I eat.” For 10 points each:

[10h] Name this author who wrote a mock-epic poem that begins by tracing the history of corn in the Americas, titled “The Hasty Pudding.” He wrote a much less successful epic poem in *The Columbiad*.

ANSWER: Joel **Barlow**

[10e] This writer, who briefly lived off hasty-pudding while trying vegetarianism, responded to British criticism of American corn under the name “Homespun.” His other pseudonyms included Silence Dogood and “Poor Richard.”

ANSWER: Benjamin **Franklin**

[10m] This contemporary of Joel Barlow also wrote “Pictures of Columbus.” This poet, who wrote “the hunter still the deer pursues” in a poem about a graveyard, addressed another poem to a “fair flower, that dost so comely grow.”

ANSWER: Philip **Freneau** (The poems are “The Indian Burying Ground” and “The Wild Honeysuckle.”)

<American Literature>

13. An experiment measured mutations to FhuA (“F-H-U-A”), a gene that confers resistance to the T1 variety of these viruses. For 10 points each:

[10e] Name these predators of bacteria. These infectious agents facilitate horizontal gene transfer through transduction, and Esther Lederberg discovered their lambda variety.

ANSWER: bacteri**ophage** [accept lambda **phage**; prompt on **virus**]

[10m] This doubly eponymous experiment discovered that mutations spontaneously occur in bacterial populations. It names a distribution that describes mutation rate assuming a constant bacterial growth rate.

ANSWER: **Luria–Delbrück** distribution [prompt on **Luria** or **Delbrück**]

[10h] In the Luria–Delbrück distribution, this letter defines bacterial growth rate. TonB of *E. coli* activates FhuA by interacting with a motif named for this letter, which also names a phage that is necessary for diphtheria toxin production.

ANSWER: **beta** [accept **beta** barrel or **beta** strand or **beta** sheet or **beta** phage]

<Biology>

14. You are a jazz composer ending a piece with a “two-five-one” progression in C major. For 10 points each:

[10m] You usually use the minor, dominant, and major varieties of this numbered type of chord. The spooky-sounding minor-major form of this numbered type of chord is used in the *Psycho* soundtrack.

ANSWER: **seventh** chord [accept minor-major **seventh** chord]

[10e] You could employ a common jazz chord substitution to shift the G dominant seventh chord down by *this interval* to D-flat. This interval has been called the “devil in music.”

ANSWER: **tritone** [or **augmented fourth**; or **diminished fifth**; do not accept or prompt on “fourth” or “fifth”]

[10h] You could write down your work in this type of musical score. This format records the melody on one staff with lyrics, if any, and places chord symbols above the staff to indicate the harmony.

ANSWER: **lead sheet** [or **fake sheet**; accept **fake book**]

<Other Arts (Auditory)>

15. Answer the following about the philosopher Charles Sanders Peirce's ("purse's") apparent obsession with groupings of three, for 10 points each.

[10m] Peirce advanced a "triadic" theory of these concepts and divided them into icons, indexes, and symbols. In the field that studies these concepts, the idea of their "arbitrariness" originates in the work of Ferdinand de Saussure.

ANSWER: **signs** [or **sign** processes; or **semiosis**; accept **signifier**, **signified**, **semiotics**, **semiology**, **signifié**, or **signifiant**; accept arbitrariness of the **sign**]

[10e] Peirce theorized three grades of clearness in his article "How to Make Our Ideas Clear," an early statement of this school of thought. William James also promoted this philosophy, which focuses on practical applications.

ANSWER: **pragmatism** [or **pragmatic** philosophy; or **pragmaticism**]

[10h] "Firstness," "secondness," and "thirdness" are Peirce's "new list" of these concepts, which he called "cenopythagorean." Porphyry's *Isagoge* ("ICE-ah-go-jee") is an introduction to a book about these concepts.

ANSWER: **categories** [accept **Katēgoriai** or **Categoriae**; prompt on **predicates** or **praedicamenta**] (The book is Aristotle's *Categories*.)

<Philosophy>

16. The Sale ("sally") Rovers, who were led by Jan Janszoon ("YON YON-sown"), were among the most dreaded members of this profession. For 10 points each:

[10e] Name this profession whose members harassed European sailors along the Barbary Coast. Hayreddin Barbarossa was among the members of this profession employed by the Ottoman navy.

ANSWER: **piracy** [or **pirates**; or **corsairs**; or equivalents]

[10m] The aforementioned Sale Rovers ruled a Moroccan state founded by these people. They were Muslims who were forced by the Spanish Inquisition to convert to Christianity.

ANSWER: **Moriscos** [prompt on **crypto-Muslims** or **Moors**]

[10h] Janszoon led a 1631 raid against this Irish village, the only known instance of a post-Viking slave raid on Ireland. Some suggest that Sir Walter Coppinger organized the raid against this village to drive out the O'Driscolls.

ANSWER: **Baltimore**, Ireland

<European History>

17. Rosanna Spearman's suicide note accuses Franklin Blake of this novel's central crime, although a reenactment confirms that he was innocent and acting under the influence of opium. For 10 points each:

[10m] Name this novel in which Sergeant Cuff determines that Godfrey Ablewhite stole the title precious object.

ANSWER: *The **Moonstone*** (by Wilkie Collins)

[10e] In "The Adventure of the Mazarin Stone," this detective swaps places with his wax effigy to recover the title diamond from the thief Count Sylvius. Unusually, that story is not narrated by this man's companion, Dr. Watson.

ANSWER: **Sherlock** Holmes [or Sherlock **Holmes**]

[10h] This man recovers a stolen emerald necklace hidden between a church's ornately-carved cherubim ("CHAIR-oo-bim") in the novel *The Nine Tailors*. This employer of Mervyn Bunter stars in the novels *Whose Body?* and *Gaudy Night*.

ANSWER: Lord Peter **Wimsey** [or Lord **Peter** Wimsey] (created by Dorothy Sayers)

<British Literature>

18. The curious dip in the dispersion relation of certain quantum materials can be described in terms of quasiparticles called rotons. Answer the following about them, for 10 points each.

[10m] This physicist proposed the existence of rotons shortly after his release from a Soviet prison. Around the time he won the 1962 Nobel Prize in Physics, he promoted himself by half a point on his logarithmic scale of physics talent.

ANSWER: Lev **Landau** [or Lev Davidovich **Landau**]

[10e] Roton help describe superfluidity in the most common isotope of this element, which becomes liquid below a

temperature of about 4 kelvins.

ANSWER: **helium** [or **He**; accept **helium-4**]

[10h] Rotons were first observed using the inelastic form of this technique developed by Bertram Brockhouse and Clifford Shull. Advantages of this technique include its large penetration depth and sensitivity to magnetic structure.

ANSWER: **neutron scattering** [accept **neutron diffraction** or **neutron spectroscopy**; prompt on **scattering** or **diffraction** or **spectroscopy**]

<Physics>

19. One of these groups, Tenrikyō, aims to sweep away the “dust” of a self-centered mind, while another of them sparked a moral panic by driving around in white vans and attempting to kidnap a seal. For 10 points each:

[10m] Give this term for countercultural modern movements, often infamous for millenarian views, that might also be considered cults. Horace Neill McFarland’s *The Rush Hour of the Gods* examines these movements in Japan.

ANSWER: **New Religious Movements** [or **NRMs** or **New Religions** or **Alternative Spirituality**; or **shinshūkyō** or shin **shin shūkyō** or **shinkō shūkyō**] (See Benjamin Dorman’s “Pana Wave: The New Aum Shinrikyō or Another Moral Panic?”)

[10e] New Religious Movements can typically be described by this term, which refers to their mixing of elements from pre-existing religions.

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

[10h] This saying exemplifies the Japanese religious syncretism that many New Religious Movements capitalize upon, and refers to the different religions present at different stages of life.

ANSWER: “**Born Shinto, Die Buddhist**” [accept “**Born Shinto**, Marry Christian, **Die Buddhist**”]

<Religion>

20. The Arab Potash (“pot-ash”) Company and an Israeli “Works” named for this body of water extract millions of tons of potash from it each year through evaporation ponds. For 10 points each:

[10e] Name this hypersaline lake that draws visitors to health resorts at Ein Bokek (“ane bo-KEK”). Mud sourced from this lake on the Jordan–Israel border is a prized exfoliant.

ANSWER: **Dead Sea** [or **Salt Sea**; or **Yam ha-Melah**; or **al-Bahr al-Mayyit**]

[10m] The Red Sea–Dead Sea Conveyance project will pipe seawater from this Jordanian port to stabilize the falling water levels of the Dead Sea. The Yitzhak Rabin (“yeets-HOCK rah-BEEN”) terminal connects this popular resort town with Eilat (“ay-LOT”) in Israel.

ANSWER: **Aqaba** (“AH-kuh-buh”) [or **al-‘Aqaba**]

[10h] This tourist destination east of Aqaba was used to film *Lawrence of Arabia*, *The Martian*, and the 2021 adaptation of *Dune*. Like Petra to its north, this valley features several Nabatean ruins and rockface inscriptions.

ANSWER: **Wadi Rum** [or **Valley of the Moon**; or **Wādī al-Qamar**]

<CE/Geo/Other/Pop Culture>