



**ACADEMIC
COMPETITION
FEDERATION**

2023 ACF NATIONALS

Playoffs Round 2

Packet By

The Editors (2)

Editors

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TOSSUPS

1. In one of this author's esoteric early stories, a character named after this writer dreams that he kisses a scarecrow and that one hundred orchards catch on fire, then goes on a journey in which the dream comes true. In another story by this author, the narrator's grandfather cries "Gee-up!" and imagines he's riding a horse when he's lying in bed. The narrator and his friend Jim wait for cats in the garden before being interrupted by Mrs. Prothero yelling "Fire!" in a story by this author whose narrator recalls receiving both "Useful Presents" and "Useless Presents." This author's home on a farm inspired the story "The Peaches" from his collection *Portrait of the Artist as a Young Dog* and a poem about a time when he was "young and easy under the apple boughs." For 10 points, name this author whose youth in Swansea inspired the story "A Child's Christmas in Wales" and the poem "Fern Hill."

ANSWER: Dylan **Thomas** [or Dylan Marlais **Thomas**] (The first two stories are "The Orchards" and "A Visit to Grandpa's.")

<British Literature>

2. Glycosylation ("gly-COSS-uh-LAY-shun") of this enzyme's serine-529 attenuates its activity, conferring a growth advantage to tumor cells with higher glycosylation rates. AKT ("act") stabilizes tetramers of overrepresented "platelet" subunits of this enzyme in tumors that upregulate its activity to adapt to hypoxia ("hy-POX-ee-uh"). In normal tissues, this enzyme contains varying numbers of platelet, muscle, and liver subunits. Insulin-activated protein phosphatase ("FOSS-fuh-tace") activates the second isoform of this enzyme to create an allosteric activator of this enzyme's first isoform. The reaction catalyzed by this enzyme is reversed by FBPase ("F-B-P-ace"). This enzyme's main isoform is allosterically activated by AMP and phosphate or inhibited by citrate and ATP to prevent a futile cycle with gluconeogenesis ("GLOO-ko-NEE-oh-JEN-uh-siss"). For 10 points, name this enzyme that catalyzes the first [emphasize] *committed* step of glycolysis by phosphorylating fructose-6-phosphate.

ANSWER: **phosphofruktokinase** [or **PFK**; accept **PFK-1** or **PFK-2**]

<Biology>

3. Per a 1979 book, migrants from this modern country clung to a "myth of return" that caused closed communities. After an attack led primarily by men with parents from this country, a politician said "whatever you do, however many you kill, you will fail." A 2022 *New York Times* podcast details an alleged plot led primarily by teachers with ancestry in this country to take over three public schools in "Operation Trojan Horse." In 2001, men with ancestry in this country rioted in Oldham and Bradford, where migrants worked in textile mills after fleeing dam-induced flooding. Three men with ancestry in this country plotted with Germaine Lindsay to attack a Tavistock Square bus and three subway trains in the 7/7 bombings. In 2016, a politician whose parents migrated from this country succeeded Boris Johnson as mayor of London. For 10 points, from what country did Sadiq Khan's parents migrate?

ANSWER: **Pakistan** [or Islamic Republic of **Pakistan**; or Islāmī Jumhūriyah **Pākistān**]

<European History>

4. Sandu Popescu ("po-PESS-koo") and Daniel Rohrlich ("ROR-lick") showed that theories in which relativistic causality and this property are axioms form a superset of quantum mechanics. Standard protocols in quantum information theory use operations that [emphasize] *do not* have this property along with classical communication. Realist theories that [emphasize] *do not* have this property are violated by the three-particle GHZ state. Theories with this property violate the upper bound of "two square root two" on the expression: "E of A, B" plus "E of A, B-prime" plus "E of A-prime, B" minus "E of A-prime, B-prime"; that expression is the CHSH inequality. Because quantum mechanics is causal and has this property, Einstein, Podolsky, and Rosen argued that the theory was incomplete. Hidden variable theories must have this property to be able to predict quantum results, as argued by John Bell. For 10 points, name this property of being influenced by distant systems.

ANSWER: **nonlocality** [prompt on entangled or entanglement or correlated or correlation; prompt on descriptions of having hidden variables until "Hidden variable theories" is read] (The second sentence refers to LOCC protocols.)

<Physics>

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5. To commemorate the 2010 bicentennial of its salt mines, a polluted tributary of this river was dyed Uruburu Green. It's not Tampa, but a city along this river created the longest continuous sidewalk in the world inspired by Barcelona's Rambla. A dialect named for this river is used by the poet Oscar Conde and includes terms named after "Lombard villainy." This river's estuary is bounded by a line that runs from Cabo San Antonio to Punta del Este. The *Admiral Graf Spee* was scuttled in this river after the first naval battle of World War II. The most spoken dialect to use "vos" in place of "tú" originated along this river in neighborhoods like Palermo. The Superclásico is played between a team named for this body of water and Boca Juniors. For 10 points, the tango developed in dance halls along what river whose estuary borders Montevideo and Buenos Aires?

ANSWER: Río de la **Plata** [or **Plate** River; accept **Rioplátense** Spanish]

<Geography>

6. As a narrator from this short story collection helps a lost Girl Scout return to her troop, she recalls the Brownie riddle "Twist me and turn me and show me the elf, / I looked in the water and I saw myself." A narrator from this collection dates a seamstress's daughter, who is one of many women to fade and become incorporeal. In a story from this collection, a lesbian writer descends into insanity at an artists' residency in the town of Devil's Throat. Ghost girls with bells for eyes possess one of the two protagonists of a story from this collection, who are both haunted by their Doppelgänger. This collection's first story ends with the narrator's head falling off after her husband removes her green neck ribbon. 272 reimagined synopses of episodes of *Law & Order: SVU* feature in this collection, which opens with "The Husband Stitch." For 10 points, name this short story collection by Carmen Maria Machado.

ANSWER: ***Her Body and Other Parties*** (The first two stories are "The Resident" and "Real Women Have Bodies.")

<American Literature>

7. A piece in this genre features a virtuosic xylophone solo in its "Seeker's Scherzo" and was commissioned from Zhōu Tiān by the Cincinnati Symphony Orchestra. Richard Danielpour's piece in this genre is subtitled "Zoroastrian Riddles." A piece in this genre originally ended its fifth-movement, fugal finale with an abrupt descent into B-flat major, before a revised ending on a C major chord. Dotted-quarter-note timpani strikes accompany contrapuntal melodies in the strings in a piece in this genre by Witold Lutosławski. A piece in this genre follows a "night music" elegy with a movement that simulates laughing in the trumpets after a quote from *The Merry Widow*. A side drum solo precedes a jaunty bassoon duet to open the second movement of a work of this type, which is titled "A Game of Pairs." For 10 points, Béla Bartók most famously wrote what type of virtuosic orchestral work?

ANSWER: **Concerto for Orchestra** [or **Concerto zenekarra**; prompt on **concerto**]

<Classical Music>

8. An eyewitness account of this event was anonymously published under the name of a famous author and was later combined with a Tim Shorrock essay that details American involvement in this event's repression. In the wake of this event, the uplifting song "Marching for Our Beloved" was composed. Footage of this event wrapped in a cookie tin made to look like a wedding gift was smuggled out by Jürgen Hinzpeter. The date of this event and the area code where it occurred are referenced in the lyric "everyone dial it, 062-518." This event followed the May 17 coup by the Hanahoe ("HA-nah-hweh"), who had capitalized on the KCIA's murder of a sitting president in the Blue House. Students and professors at Chonnam University began this event, although Kim Dae-jung was held responsible by the Chun Doo-hwan regime. For 10 points, identify this 1980 uprising named for a South Korean city.

ANSWER: **Gwangju** Uprising [or **Gwangju** Massacre; accept **Kwangju** in place of "Gwangju"; accept **May 18** Uprising or **Five One Eight** Uprising or **Oilpal** until "062-518" is read] (The eyewitness account was translated as *Kwangju Diary: Beyond Death, Beyond the Darkness of the Age*.)

<World History>

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9. A conceptualist philosopher with this first name argued that all acts of cognition place the cognized object into a state called *esse apparens* (“ESS-ay AH-pah-rents”), or “apparent existence.” A philosopher with this first name argued that it is not possible for God to undo the past, but it is possible for God to restore the virginity of a woman, in his treatise *De divina omnipotentia* (“day dee-VEE-nah ahm-nee-po-TEN-tee-ah”). Another philosopher with this first name is best known for a book that was divided into “distinctions” by Alexander of Hales (“hails”). That book by a 12th-century philosopher with this first name was the subject of commentaries by Duns Scotus, Bonaventure, and Aquinas (“uh-QUINE-us”), and many others, since it was a standard theological textbook during the Middle Ages. For 10 points, give this first name of the author of the *Four Books of Sentences*, whose last name was Lombard.

ANSWER: **Peter** [or **Petrus**; or **Pierre**; or **Pietro**; accept **Peter** Lombard or **Petrus** Lombardus or **Pierre** Lombard; accept **Peter** Damian or **Petrus** Damianus; accept **Peter** Auriol or **Petrus** Aureolus]
<Philosophy>

10. Gé Cháofǔ (“guh chow-foo”) may have written a set of “perfect writings” divided into this many sections, the first scripture in the Língbǎo Catalog. Dōnghuá Dìjūn (“dong-hwah dee-jwin”) is among this many patriarchs recognized by the Complete Perfection school, while the Numinous Treasure school centered on this many celestial talismans. The Daoist theory of embodiment recognizes this many yīn-organs and this many bodily tissues. In Foundational Daoist cosmogony, myriad beings arise from a set of this many xíng (“shing”), or “phases,” which in turn emanate from the Yīn-Yáng. Either Celestial Masters or a group of this number names a 2nd-century CE movement founded by Zhāng Líng (“jahng ling”). In Classical Chinese thought, wood and metal are among this many classical elements. For 10 points, the centrality of what number in Daoism influenced a movement named for how many pecks of rice?

ANSWER: **five** [or **wǔ**; accept **Five** Pecks of Rice or **Wǔ** Dǒu Mǐ Dào; accept **wǔxíng**]
<Religion>

11. These devices are added into plant designs during pinch analysis. One of these devices is the feed-forward element in a popular recuperation scheme that places it immediately before and after a compressor. Calculations involving these devices use log-means, rather than arithmetic or geometric means, between their inputs and outputs to estimate the average driving force. The effectiveness of these devices asymptotically approaches one as the NTU, or number of transfer units, increases. Corrugated plates are used in these devices to prevent fouling and maximize the Nusselt (“NOO-sult”) number. These devices are equipped with fins in the shell-and-tube configuration to increase surface area in the equation “Q equals U A delta T.” A distillation column’s reboiler is one of these devices that uses a countercurrent flow of steam. For 10 points, name these devices that transfer thermal energy between fluids in pipes.

ANSWER: **heat exchangers** [or **HEX** or **HX**; prompt on exchangers; prompt on heaters; prompt on coolers; prompt on condensers; prompt on reboilers until read]
<Chemistry>

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12. This politician expressed confoundment at the arrest of two itinerant Baptist preachers and anonymously paid bail to secure the release of John Weatherford. This politician's written "language of asperity" caused a draft to be assigned to Richard Henry Lee instead. George Clark visited this politician at Scotchtown to request 25 barrels of gunpowder. A governor denounced the "deluded followers" of this politician, who had demanded compensation for ammunition taken in the Gunpowder Incident. The opening of Daniel Webster's "Seventh of March" address resembles this politician's desire to be seen as "not a Virginian, but an American" in an earlier speech. This politician urged a jury to award one penny to James Maury ("MOR-ee") in the Parson's Cause. He began a speech with the line "If this be treason." For 10 points, name this orator who quipped "Give me liberty, or give me death!"
ANSWER: Patrick **Henry** (John Dickinson noted Henry's "language of asperity" in an early draft of the 1774 Petition to the King to repeal the Intolerable Acts. Scotchtown was Henry's plantation. Lord Dunmore was responsible for the Gunpowder Incident.)

<American History>

13. This standard is played between "I Want to Talk About You" and the artist's own "Impressions" on the live album *Newport '63*. An organ plays the main melody in a cover of this song that opens the album *World Galaxy*. "Ogunde" and a nearly 35-minute free-form version of this song were performed in *The Olatunji Concert*, its artist's final live recording. Steve Davis's raga-influenced bassline plays throughout a 14-minute-long recording of this standard that also features repeated piano vamps in E-minor and E-major sections played by McCoy Tyner. This song, Cole Porter's "Ev'ry Time We Say Goodbye," and the Gershwins' "Summertime" and "But Not For Me" appear on a 1961 album titled for this song that was its artist's first use of a soprano saxophone. For 10 points, name this standard that John Coltrane adapted from Rodgers and Hammerstein's *The Sound of Music*.

ANSWER: "**My Favorite Things**"

<Other Fine Arts>

14. This figure's name may derive from a folk song describing "jovial" men demanding beer at a time when "ale was new." According to *Webster's Second*, the enslaved Bube ("boo-bay") people of Fernando Po considered this figure a Bantu duppy ghost. *The Adventures of Peregrine Pickle* describes this figure with three rows of teeth and blue smoke emerging from his nostrils during hurricanes. Shellbacks dressed as a king, a queen, and this figure watch as "Pollywogs" drink hot sauce and aftershave "truth serums" in drag ceremonies celebrating the crossing of the equator. In some stories, this figure was a barkeep who kept drunkards in ale cases before selling them into slavery. Welsh pirates may have derived this figure's name from their patron saint and the name of a biblical prophet who spent three days in a fish. For 10 points, sailors feared dying and becoming trapped in what figure's underwater "locker"?

ANSWER: **Davy Jones** [accept **Davy Jones**'s locker; prompt on **Davy** or **Jones**] (The fourth sentence refers to the U.S. Navy's line-crossing ceremony.)

<Other Academic>

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15. A new mode of performing this activity led the “Besant phase” to be replaced by the “Old Women’s phase.” This activity names an ancient site found by the archaeologists Sigurd Olsen and Gerald Chubbuck. The former slave George McJunkin studied this activity at a site where he found the first example of “Folsom points.” This activity was conducted at a place whose name means “deep kettle of blood.” According to tradition, exceptional skill in this activity inspired the name of the leader “Poundmaker.” This activity, which was conducted at sites like Ulm Pishkun and Head-Smashed-In, furnished the material needed for the traditional preparation of pemmican. This activity declined when its target’s population fell from 60 million to less than one thousand in the late 1800s. For 10 points, name this activity that Plains Indians conducted at namesake “jumps” to acquire hides and meat.

ANSWER: **bison hunting** [or **buffalo hunting** or other equivalents; accept **bison jumps** or **buffalo jumps**; accept **killing**, **capturing**, **corralling**, **butchering**, **stalking**, **pursuing**, **pounding**, or equivalent answers in place of “hunting”; accept Olsen–Chubbuck **Bison Kill Site**; prompt on **hunting**, killing, capturing, corralling, butchering, stalking, pursuing, pounding, or equivalents by asking “what quarry?”] (The first sentence refers to the adoption of the bow and arrow.)

<Other History>

16. Mandarin ducks and these animals name a popular genre of early 20th-century Chinese entertainment fiction. “Judge Bao Thrice Investigates” an event regarding one of these animals in the title of a Guān Hànpīng play. A man is nicknamed for this animal after sending a letter that says, “I have already given you my shame.” These animals’ association with romance derives from a story in which a woman throws herself into her lover’s grave on her wedding day and their spirits emerge in the form of these animals. A play titled for one of these animals ends with the protagonist killing himself in his prison cell while dressed in his lover’s wig and kimono. In a play titled for one of these animals, René Gallimard falls in love with the opera singer Song Liling, who is revealed to be a man. For 10 points, name this animal that titles a David Henry Hwang play that was inspired by a Giacomo Puccini opera.

ANSWER: **butterflies** [or **butterfly**; accept *Madame **Butterfly*** or *Madama **Butterfly***; accept *M. **Butterfly***; accept **Butterfly Lovers**; accept **Butterfly Dream** or *Judge Bao Thrice Investigates the **Butterfly Dream*** or *Bǎo Dài Zhì Sān Kān **Húdié Mèng***; accept Yuānyāng **Húdié**; prompt on **insects** or **arthropods**; prompt on **lepidopterans**; reject “caterpillars”]

<World Literature>

17. The occurrence of this phenomenon “in the weave of life” is discussed in a Wittgenstein-influenced book of anthropology about this phenomenon “and the descent into the ordinary.” That book subtitled for this phenomenon, which explores historical instances of it in India, is Veena Das’s *Life and Words*. A type of this phenomenon that doesn’t involve an actor was theorized in a 1969 paper by Johan Galtung. The “monstrous double” is a target of this phenomenon according to a 1972 book partly titled for it that attempts to rehabilitate the reputation of Freud’s *Totem and Taboo*. This is the first title concept of a book about the “sacrificial crisis” and the scapegoating mechanism; the title of that René Girard (“zhee-RAR”) book pairs this concept with “the sacred.” For 10 points, institutionalized racism is often considered a “structural” form of what destructive phenomenon?

ANSWER: **violence** [accept structural **violence**; accept ***Violence and the Sacred*** or *La **violence** et le sacré*; accept *Life and Words: **Violence and the Descent into the Ordinary***]

<Social Science>

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18. In *The Book of Memory*, Mary Carruthers describes how this person recontextualized a speech Cornelia gave in Lucan's *Pharsalia*. This person imagined refusing an offer from Augustus in a passage in which they claim to prefer "love to wedlock and freedom to chains." This real-life person is mentioned in the title of a book whose protagonist's tranquil life in Clarens is disrupted after she and her cousin Claire meet Saint-Preux ("san-PRUH"). A set of 42 questions about scripture, known as this person's "problems," were written at the Paraclete ("PARE-uh-cleet"). This woman's uncle Fulbert stopped a correspondence that was collected in the *Historia Calamitatum*. This woman is compared to a once-virtuous girl in the full title of Jean-Jacques Rousseau's novel *Julie*. For 10 points, name this woman who joined a convent after her love affair with Peter Abelard.

ANSWER: **Héloïse** [or **Héloïse** d'Argenteuil or **Héloïse** du Paraclet; accept *Julie, or the New Héloïse*; reject "Julie"]
<European Literature>

19. The behavior of systems with this property is modeled using the pi-calculus, which Milner, Parrow, and Walker put on a more rigorous algebraic footing than Carl Hewitt's Actor formalism. Per Brinch Hansen developed a version of Pascal for writing programs with this property based on constructs called monitors that were first theorized by Hansen and Tony Hoare. When designing systems with this property, an MPI implementation, OpenMP, or some combination of the two are used for communication. Proving the correctness of programs with this property requires proving safety and liveness properties. To enable writing programs with this property, high-level languages provide atomic classes. The dining philosophers problem illustrates how systems with this property can enter deadlock. For 10 points, name this property possessed by systems that perform multiple computations at the same time.

ANSWER: **concurrent** systems [or **parallel** systems; accept **distributed** systems, **multi-processor** systems, **multi-core** systems, or **multi-threaded** systems; prompt on **mobile** systems; prompt on **communicating** systems until "communication" is read; reject "asynchronous systems"]
<Other Science>

20. This painting's restorer Ann Massing argued that it is heraldic rather than realistic by noting that it features only male animals. This painting, which appears on the cover of the most recent Penguin Classics edition of Alberti's *On Painting*, likely inspired the composition of the first panel of Botticelli's *Story of Nastagio degli Onesti* ("na-STAH-jo dell-yee oh-NEST-ee"). At the bottom of this painting, the color of a small pond filled with cattails matches the blue doublet of a "hornblower" in rear-facing contrapposto. Reins with crescent motifs echo the cloud-covered moon symbolizing Diana at the apex of this *spalliera* painting, which was painted over a grid to regularly space its pruned oak trees. Fallen logs litter the foreground in this painting housed in Oxford's Ashmolean Museum. Numerous men and hounds charge into this painting's central vanishing point in pursuit of roebucks. For 10 points, name this final painting by Paolo Uccello ("POW-loh oo-CHELL-oh").

ANSWER: *The **Hunt in the Forest*** [or *The **Hunt by Night***; or ***Caccia notturna***; prompt on *The **Hunt*** or *La **Caccia***]
<Painting & Sculpture>

BONUSES

1. In a book on this concept, Wade Roof and Robert Wuthnow discussed how individuals collect ideas meaningful to them in its “seeker” form. For 10 points each:

[10h] Name this concept that Philip Sheldrake defines as “the deepest [set of] values and meanings by which people seek to live” in a book that examines religious, esoteric, and secular varieties of it.

ANSWER: **spirituality** [or the **spiritual**; accept being **spiritual**; accept seeker **spirituality**]

[10e] Sheldrake notes the link between spirituality and mystical instances of these occurrences. The “healthy-minded” are discussed in a William James book titled for the “varieties of” these occurrences.

ANSWER: religious **experiences** [accept mystical **experiences**; accept *The Varieties of Religious Experience*]

[10m] Sheldrake cites this French priest and archaeologist as an example of an individual who formulated a spirituality of science. This formulator of the concepts of the Noosphere and the Omega Point co-discovered Peking Man.

ANSWER: Pierre **Teilhard de Chardin** (“tay-YAR duh shar-DAN”) [prompt on **Teilhard**; prompt on de **Chardin**]
<Religion>

2. In 2006, an adduct between a phosphine and a borane was shown to be the first metal-free catalyst to heterolyze this molecule. For 10 points each:

[10e] Name this elemental gas that must otherwise be activated by an expensive rare metal like platinum before it can convert alkenes to alkanes.

ANSWER: **hydrogen** gas [or molecular **hydrogen**; or **H2**]

[10m] The phosphine–borane catalyst is a sterically hindered Lewis pair described by this adjective. This term also describes crystals that can’t rearrange to a zero-entropy state because of geometric constraints.

ANSWER: **frustrated** [or geometrical **frustration**; accept **frustrated** Lewis pairs]

[10h] Frustrated Lewis pairs are particularly useful asymmetric catalysts for this common functional group interconversion, which is done without stereospecificity using the reagent NaBH₃CN. We’re looking for an answer like “converting ketones to enols.”

ANSWER: converting **imines** to **amines** [or reducing **imines** to **amines**; accept **Schiff bases** in place of “imines”; prompt on answers that only mention **imines**; prompt on **reduction** or **reducing**; prompt on **reductive** amination; reject “converting amines to imines”] (The formula is for sodium cyanoborohydride.)

<Chemistry>

3. The *Codex Mendoza* uses pictures, Spanish, and this language to describe events like Tenochtitlán’s foundation. For 10 points each:

[10e] Name this language that was also used alongside Spanish in the *Florentine Codex* and was widely spoken across the Aztec Empire.

ANSWER: **Nahuatl** [or **Nahua**; or **Nāhuatlahtōlli**; or **Mēxihcahtōlli** or **Mācēhuallahtōlli**; accept **Mexica**; prompt on Uto-Aztecan languages]

[10h] Nahuatl texts were the first focus of a school of Mesoamerican ethnohistory named for practicing a “new” form of this discipline. That school, founded by James Lockhart, uses this discipline as a method to reorient historiography around indigenous perspectives.

ANSWER: **philology** [accept New **Philology**]

[10m] Later work in New Philology focused on texts from this Mesoamerican civilization, which assumed control of Zapotec Monte Albán in the 14th century. The *Codex Zouche-Nuttall* describes this civilization’s ruler Eight Deer Jaguar Claw.

ANSWER: **Mixtecs** [or **Mixtecos**; accept **Ñuu savi**; accept “**people of the rain**” or “**cloud people**”]

<Other History>

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4. This instrument plays the countermelody to the trio sections of many of Karl King's marches. For 10 points each: [10m] Name this low, valved brass instrument, which King played. In an orchestra, it is usually played by a musician who doubles on bass trumpet.

ANSWER: **euphonium** [prompt on **baritone** horn]

[10h] Many of King's compositions are labeled with this term for particularly quick and virtuosic circus marches. A march by Fred Jewell is named for this term, which describes pieces like Henry Fillmore's *Rolling Thunder* and John Klover's *Billboard March*.

ANSWER: **screamers** [accept *The Screamer*]

[10e] *On Parade* is a rare example of a screamer by this "March King," who typically wrote slower marches such as *The Liberty Bell* and *The Stars and Stripes Forever*.

ANSWER: John Philip **Sousa**

<Classical Music>

5. The program GiveDirectly has used M-PESA ("em-PAY-sah") and MTN to implement one of these programs in Kenya. For 10 points each:

[10e] Name these programs in which an entire population is given equivalent grants, sometimes as a means to replace welfare programs.

ANSWER: universal **basic income** [or **UBI**; accept guaranteed **minimum income**; accept **citizens' dividend**, accept **demogrants**; prompt on **negative income tax**; prompt on **income** or **dividend**]

[10m] Plans to expand this country's Ingreso Solidario ("een-GRAY-so so-lee-DAH-ree-oh") basic income program fell short due to April 2021 protests about the expansion of value-added taxes suppressed by ESMAD ("ess-MAHD"). In 2020, over a third of environmental activist murders worldwide occurred in this country, whose 2019 protests supported the "peace process."

ANSWER: **Colombia** [or Republic of **Colombia**; or República de **Colombia**]

[10h] This man's casinos finance Macau's basic income, the Wealth Partaking Scheme. Gambling became Macau's central industry after this chair of the STDM was granted a government monopoly on casinos.

ANSWER: Stanley **Ho** [or Stanley **Ho** Hung-sun; or **Hé** Hóngshēn]

<Current Events>

6. Answer the following about linear response theory, for 10 points each.

[10m] The change in an operator's expectation value equals this operation applied to the product of the response function and a perturbation. In classical mechanics, the action equals this operation applied to the Lagrangian.

ANSWER: **time integral** [or **integration** with respect to **time**; accept word forms of **integrate** in place of "integration" or "integral"; prompt on **integral** or **integration** or word forms by asking "with respect to what variable?"]

[10e] The imaginary part of a response function corresponds to this phenomenon. This phenomenon is the release of energy or heat without performing any useful work.

ANSWER: **dissipation** [or **dissipative**; accept word forms of **dissipate**]

[10h] Response functions are calculated from retarded Green's functions, which are obtained by applying this mathematical procedure to time-ordered Green's functions. Calculations of the Casimir force either use this procedure or cancel divergences with an appropriate regulator function to obtain the factor of one over 120.

ANSWER: **analytic continuation** [accept **analytic continuation** of the Riemann zeta function or **analytic continuation** of zeta functions; prompt on **extending** a function's **domain**; prompt on **continuation**]

<Physics>

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7. In a story from this collection, Josephine visits her mother, who was imprisoned for supposedly turning into a child-killing creature with wings of flame at night. For 10 points each:

[10m] Name this short story collection that alternates between Haiti and New York. Celianne throws herself and her baby into the ocean in this collection's story "Children of the Sea."

ANSWER: **Krik? Krak!** (by Edwidge Danticat)

[10e] Carlos hears stories about the soucouyant, a shapeshifting woman who turns into fire, in Elizabeth Nunez's Caribbean retelling of this Shakespeare play. It was also adapted by Aimé Césaire.

ANSWER: **The Tempest** [accept **A Tempest** or **Une Tempête**] (Nunez's novel is *Prospero's Daughter*.)

[10h] In a Nalo Hopkinson novel, a woman named for this character dreams of a soucouyant devouring her baby. In a play, the ghost of a fetus helps this man, who captures a goat and burns down a sugarcane plantation.

ANSWER: **Ti-Jean** [or **Petit-Jean**; accept **Ti-Jeanne**; accept **Ti-Jean and His Brothers**; prompt on **Jean** or Little **John**] (The novel is *Brown Girl in the Ring*. The play is by Derek Walcott.)

<World Literature>

8. These round objects were said to sweat and change color near poison. For 10 points each:

[10h] Name these objects from European folklore used in treating poison or epilepsy. Though contemporary sources claimed that they were harvested from the heads of a certain animal, they are now known to be fossils of the extinct *Lepidotes* fish.

ANSWER: **toadstones** [or **bufonite**; accept **crepaidina**, accept **stelon**; accept **ruber**; prompt on **stone** or **rock**]

[10e] Edward Topsell claims that a toadstone can be extracted from the head of a toad by placing it on a cloth of this color. A fairy tale character who wears a cloak of this color says "Goodness, what big eyes you have!"

ANSWER: **red** [accept Little **Red** Riding Hood; accept shades of red like **scarlet**]

[10m] Toadstones were also used to detect these beings, who could be discovered by the presence of a caul or detected by cooking eggshells. Fairies were said to "swap" human babies with these deformed creatures.

ANSWER: **changelings** [accept **auf** or **oaf**; accept **stocks** or **fetches**; prompt on the **fey**]

<Mythology>

9. During the construction of Interstate 55, residents of the destroyed Pleasant View neighborhood were afforded vouchers to live at this site. For 10 points each:

[10m] Name this urban housing project north of the "Delmar Divide" in St. Louis. It was demolished within two decades in an event Charles Jencks described as the end of modernist architecture.

ANSWER: **Pruitt-Igoe** housing project [or Wendell O. **Pruitt** Homes and William **Igoe** Apartments]

[10e] The city of St. Louis made use of this two-word legal power to acquire private property for public use, first to construct Pruitt-Igoe in the 1950s, then to lure the National Geospatial Intelligence Agency to the site today.

ANSWER: **eminent domain**

[10h] This company convinced a different city's first African-American mayor to make use of eminent domain for a project termed Factory ZERO, which failed to revive the neighborhood of Poletown.

ANSWER: **General Motors** [or **GM**] (The mayor was Coleman Young.)

<American History>

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10. This phrase partly titles a book by Alice Jenkins about the treatment of space in Victorian literature. For 10 points each:

[10h] Name this three-word phrase used in early 19th-century Britain to refer to the progress of scientific knowledge and the spread of education. Either of two similar phrases is acceptable.

ANSWER: **march of mind** [or **march of intellect**; accept *Space and the 'March of Mind'*]

[10m] Dr. Folliot declares himself “all out of patience with this march of mind” in *Crotchet Castle*, a satirical novel by this author of *Nightmare Abbey*.

ANSWER: Thomas Love **Peacock**

[10e] The speaker imagines escaping from “this march of mind” and “the thoughts that shake mankind” in “Locksley Hall,” a poem by this author of “Crossing the Bar.”

ANSWER: Alfred, Lord **Tennyson**

<British Literature>

11. The magazine *Building Design* awarded a prize named for one of these things to the ugliest building built in the UK that year. For 10 points each:

[10h] Name this term coined in an architectural context by King Charles III, who called a proposed modernist extension to the National Gallery a “monstrous” one of these things.

ANSWER: **carbuncle** [accept “monstrous **carbuncle**”; accept **Carbuncle** Cup]

[10e] This architect’s plan for Mansion House Square, a London office tower, was never implemented after Charles called it a “giant glass stump.” This German architect coined the maxim “Less is more.”

ANSWER: Ludwig Mies **van der Rohe** (“meese van der roh”) [or Ludwig **Mies** van der Rohe]

[10m] Charles compared this architect’s plans for rebuilding Paternoster Square with buildings bombed by the Luftwaffe. This British architect of the costly Millennium Dome, now called the O2, co-designed a French museum with colored piping on the exterior.

ANSWER: Richard **Rogers** [or Richard George **Rogers**, Baron Rogers of Riverside] (King Charles said, “You have to give this much to the Luftwaffe: when it knocked down our buildings, it didn’t replace them with anything more offensive than rubble.”)

<Other Fine Arts>

12. Andrew Skumanich connected stellar age to this phenomenon, lithium depletion, and calcium emission. For 10 points each:

[10h] Name this phenomenon whose correlation with observed stellar X-ray activity was first quantified by Pallavicini (“PAH-lah-vee-CHEE-nee”) et al. in 1981 when they showed that X-ray luminosity scales as “ $v \text{ sine } i$ ” to the power of 1.9.

ANSWER: stellar **rotation** [accept descriptions of a star **rotating** or **revolving** about its axis; reject “orbiting” or “rotating/revolving around another star/object”]

[10m] Stars undergo this kind of rotation in which the rate of rotation varies across the star, usually with the equatorial region rotating more quickly. This kind of rotation occurs in the convective zone, but not the radiative zone.

ANSWER: **differential** rotation

[10e] Stellar rotation rates can be estimated by observing these surface features. The approximately 11-year solar cycle is tied to the change in the number and the distribution of these features.

ANSWER: **sunspots** [or **starspots**]

<Other Science>

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13. When a chief of Ndakaaru attempted to sell slaves to the French, they told him they only wanted this crop, so the chief used the slaves to produce it instead. For 10 points each:

[10h] Name this crop that titles a 2022 book by Jori Lewis. John Strachey backed the conversion of Sherman tanks into tractors called “shervicks” as part of a failed venture to produce this crop.

ANSWER: **peanuts** [or **groundnuts** or **Bambara nuts** or **ground peas**; or **goober** peas; or *Arachis hypogaea*; or *Vigna subterranea*; accept Tanganyika **groundnut** scheme or East African **groundnut** scheme; accept *Slaves for Peanuts*; prompt on **nuts** or **legumes** or *Vigna*]

[10m] Peanuts were exported from this island’s House of Slaves, where the “Door of No Return” symbolized the Atlantic slave trade.

ANSWER: **Gorée** Island [or Île de **Gorée**]

[10e] In the 1830s, the British freed slaves working on peanut plantations in the Bijagós (“bee-zha-GOSE”) Islands, which are now part of this modern-day country. Amílcar Cabral led independence movements in Cabo Verde and this country that borders a similarly-named former French colony.

ANSWER: **Guinea-Bissau** [or Republic of **Guinea-Bissau** or República da **Guiné-Bissau**; prompt on **Portuguese Guinea**; reject “Guinea,” “Guinea-Conakry,” or “French Guinea”]

<World History>

14. In the 1970s, some economists argued that federal environmental regulations were necessary so that interstate competition would not lead to this situation. For 10 points each:

[10h] Louis Brandeis (“BRAN-dice”) popularized what phrase for a situation in which competition drives jurisdictions to relax regulations or standards?

ANSWER: **race to the bottom**

[10e] The race to the bottom has been modeled as a form of this game. In this game’s only strong Nash equilibrium, both criminals betray their partner.

ANSWER: **prisoner’s dilemma** [or **PD**]

[10m] According to Oates and Schwab’s model, no race to the bottom exists because the national equilibrium value for this quantity is fixed. This quantity is related to growth in the central inequality of Piketty’s (“pee-keh-TEE’s”) *Capital in the Twenty-First Century*.

ANSWER: rate of **return** on **capital** [or **ROC**; prompt on **r** or “**r** is greater than **g**”; prompt on rate of **return** by asking “return on what?”]

<Social Science>

15. At a dinner party, a frail character who obsesses over these things is revealed to be the child of the Mummy and the wheelchair-bound Jacob Hummel. For 10 points each:

[10h] Name these things that fill a room where the Student asks Buddha to “grant us the purity of will” as the Young Lady slowly perishes in a 1907 play.

ANSWER: **hyacinths** [accept the **Hyacinth** Room or the **hyacinth** girl; prompt on **flowers** or **plants**]

[10e] Hyacinths are a recurring motif in an August Strindberg chamber play named after a “sonata” for one of these beings. These beings title a Henrik Ibsen play that ends with Mrs. Alving cradling her syphilitic son Oswald.

ANSWER: **ghosts** [or **specters**, **spirits**, **phantoms**, **phantasms**, or **spooks**; accept *The Ghost Sonata* or *Spöksönanen*; accept **Ghosts** or **Gengangere**]

[10m] In *The Ghost Sonata*, the Mummy foreshadows Hummel’s death by adjusting one of these objects. In Anton Chekhov’s play *Three Sisters*, Chebutykin smashes one of these objects that belonged to the mother of Olga, Masha, and Irina.

ANSWER: **clocks** [accept grandfather **clocks**; prompt on **timepieces** or **timekeeping** devices; reject “watches”]

<European Literature>

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16. In the absence of condensation, the latent heat flux from a leaf is the latent heat of vaporization times the rate of this process. For 10 points each:

[10e] Name this process of water loss from plant tissues to the atmosphere.

ANSWER: **transpiration** [accept ~~evapotranspiration~~; prompt on evaporation]

[10h] The rate of transpiration equals the vapor pressure deficit times this quantity. An optimality-based model of this quantity by Belinda Medlyn and colleagues has largely displaced the empirical Ball–Berry–Leuning model.

ANSWER: **stomatal conductance** [or **g-sub-s**]

[10m] This theory posits that transpiration and intermolecular attraction drive the ascent of sap through the xylem. This theory predicts that tissue conductances determine the evaporative flux via an analog of Ohm’s law.

ANSWER: **cohesion–tension** theory [or **C-T** theory]

<Biology>

17. Galbert of Bruges wrote a history called *On The Murder, Betrayal, and Slaughter of [this man], The Glorious One*. For 10 points each:

[10h] Name this beatified count of Flanders who was killed in the church of Saint Donatian by agents of the Erembalds, a powerful family that he tried to demote to serfdom. He was succeeded by William Clito, the grandson of William the Conqueror.

ANSWER: **Charles** the Good [or **Charles** the Good, Count of Flanders; or **Charles I**, Count of Flanders]

[10e] Charles was the son of Saint Canute IV, a ruler of this kingdom who was killed in a church in Odense (“OH-dun-suh”). Saxo Grammaticus described the “Gesta” of this kingdom in a history that ends with Canute VI.

ANSWER: **Denmark** [or **Danish** Kingdom; or Kingdom of **Denmark**; or Kongeriget **Denmark**; accept *Gesta Danorum*]

[10m] Canute VI’s successor, Valdemar II, largely conquered Estonia at the battle of Lyndanisse (“lin-duh-NISS-uh”), where this object supposedly fell from the sky to rally his faltering troops.

ANSWER: **flag** of Denmark [or *Dannebrog*; accept Danish **flag**; accept red **flag** with a white cross; accept **banner** in place of “flag”]

<European History>

18. This artist’s later works became increasingly three-dimensional and often included undulating curves protruding from the canvas, such as in a series whose entries were titled for the chapters of *Moby-Dick*. For 10 points each:

[10m] Name this artist whose “Black Paintings” feature regions of black paint separated by thin bands of unpainted canvas.

ANSWER: Frank **Stella** [or Frank Philip **Stella**]

[10h] Frank Stella is praised as one of the few painters able to create “unspatial” works in this 1964 essay by Donald Judd, which describes the emergence of the “new three-dimensional art.”

ANSWER: “**Specific Objects**”

[10e] While “Specific Objects” claims that three-dimensional art does not represent a movement, Judd and Stella are both considered to be members of this 20th-century movement whose artists sought to eliminate all non-essential forms and ornament.

ANSWER: **minimalism** [or **minimalist** art]

<Painting & Sculpture>

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19. In his poem responding to American soldiers in Iceland who killed a hundred whales, Michael McClure invokes this artist before lamenting the “Cursed Christ of mammals.” For 10 points each:

[10h] Name this artist. A poem claims that in this artist’s work, there are people who “writhe upon the page / in a veritable rage / of adversity” and that “Only the landscape is changed.”

ANSWER: Francisco de **Goya** [or Francisco José de **Goya** y Lucientes; accept “In **Goya’s** Greatest Scenes We Seem to See”]

[10m] Lawrence Ferlinghetti’s poem “In Goya’s Greatest Scenes We Seem to See” ends with “strange license plates / and engines / that devour” this word. This word titles a poem that declares, “Go fuck yourself with your atom bomb.”

ANSWER: **America** [reject synonyms like “United States”]

[10e] McClure read “For the Death of 100 Whales” at the Six Gallery Reading, where Allen Ginsberg read this long poem that Ferlinghetti faced an obscenity trial for publishing.

ANSWER: “**Howl**”

<American Literature>

20. A study by Rhodes et al. involved statements of this type about fictional people called “zarpies.” For 10 points each:

[10h] Name these statements exemplified by the sentence “Mosquitoes carry the West Nile virus,” which is true even though 99 percent of mosquitoes do not carry the West Nile virus.

ANSWER: **generic** [or base plural **generics**; or **generic** generalizations; prompt on **generalizations** or **gnomic** statements]

[10e] The “zarpies” study showed that generic statements can promote this attitude. This attitude is the belief that categories like gender are defined in terms of fixed, intrinsic qualities.

ANSWER: **essentialism** [or being **essentialist**]

[10m] Rachel Sterken argues that *Gen* (“jen”), an unpronounced operator used in generics, is one of these expressions. These expressions, such as “you” and “here,” have references that change based on their context of utterance.

ANSWER: **indexicals** [or **deictics**; accept **indexes** or **indices**]

<Philosophy>