



**ACADEMIC  
COMPETITION  
FEDERATION**

**2023 ACF NATIONALS**

**Prelims 2**

**Packet By**

**Northwestern A, Texas A, Virginia A**

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## TOSSUPS

1. When these phenomena are induced by a co-rotating interaction region, HILDCAA (“hild-kah”) events can occur during their recovery phase. The SWPC forecasts these phenomena using data from DSCOVR (“discover”), which replaced ACE (“ace”) in 2015. These phenomena’s Ap (“A-P”) index is an eight-point running average of their Kp index, which is a quasi-logarithmic value reported every three hours. Some of these phenomena are preceded by so-called “sudden commencements.” During the main phase of these phenomena, the Dst (“D-S-T”) index takes on large, negative values. These phenomena occur when the ring current is intensified past a threshold value. Detections of coronal mass ejections are used to forecast these phenomena and the resulting disruption to GPS satellites and power grids. For 10 points, auroras at unusual latitudes are caused by what phenomena in which the solar wind disturbs the magnetosphere?

ANSWER: geomagnetic storms [prompt on storms; until “solar wind” is read, prompt on solar particle events, SPEs, solar energetic particle events, SEP events, solar radiation storms, or solar storms by asking “what phenomena are associated with that event in this case?”; reject “substorms” or “geomagnetic reversals” or “geomagnetic excursion(s)”]

<Other Science>

2. In March 2023, this company was denied a request to be removed from Daniel Motaung’s lawsuit against it and its Kenyan subcontractor Sama over employees with post-traumatic stress disorder. Samidh Chakrabarti led this company’s Civic Integrity Unit until its dissolution in 2020. The phrase “Early Response Secondary Review” was used to guide this company’s “cross check” program. A data leak discovering that this company held user passwords in plaintext files resulted in it incurring the largest fine in FTC history. Noah Feldman inspired this company’s self-governing Oversight Board. Frances Haugen leaked this company’s MSI algorithm. This company’s Reality Labs posted a massive 13.7-billion-dollar loss from a service that added legs to user models in October 2022. For 10 points, name this company that changed its name in 2021 to advertise its “Web3” commitments under Mark Zuckerberg.

ANSWER: Meta [or Meta Platforms, Inc.; accept Facebook or Facebook, Inc.; prompt on Instagram by asking “what company owns it?”]

<Current Events>

*Note to moderator: Read the answerline carefully.*

3. In the Kibble–Zurek mechanism, causally disconnected domains undergo this process independently, and the resulting defect density scales with some power of the quench rate. A type of this process occurs when the probability distribution of overlap between different equilibrium configurations is no longer a delta function. In the 2D XY model, this process does [emphasize] *not* occur as pairs of topological defects unbind and free defects proliferate, because the spin-spin correlations vanish algebraically. This process is forbidden in low-dimensional systems by the Mermin–Wagner theorem. Phase transitions from a fluid to a solid are accompanied by this process, since the system is no longer translation-invariant. A form of this process is accompanied by the creation of Nambu–Goldstone bosons. For 10 points, in the Higgs mechanism, particles acquire mass when what process occurs spontaneously?

ANSWER: symmetry breaking [or equivalents that use a word form of “break,” like a system experiencing broken symmetries; accept explicit, spontaneous, continuous, global, or local symmetry breaking; after “overlap” is read; accept replica symmetry breaking; prompt on phase transitions until “not” is read; until “defect density” is read, prompt on descriptions of the formation of topological defects or creation of topological defects by asking “defects form at the boundaries of domains for which what process has had a different outcome?”] (The second sentence refers to replica symmetry breaking. The third sentence refers to the Berezinskii–Kosterlitz–Thouless transition.)

<Physics>

4. A little girl in a story by this author taunts two classmates for their father being in prison and ostracizes them for wearing clothes made out of a tablecloth and curtains. In a story by this author, two women stand together “caught in that circle of unearthly light, understanding each other perfectly,” with metaphorical “silver flowers” dropping from their hair and hands. Else whispers “I seen the little lamp” after Kezia lets her see the title object in her backyard at the end of a story by this author about the old Mrs. Hay’s gift to the Burnell family. Eddie claims “Tomato soup is so *dreadfully* eternal” in a story by this author that ends with the protagonist seeing her husband in a secret embrace with a woman with whom she had earlier gazed at a pear tree. For 10 points, name this author of “The Doll’s House” who wrote about Bertha Young’s realization her husband is having an affair with Pearl Fulton in her story “Bliss.”  
ANSWER: Katherine **Mansfield** [or Kathleen Mansfield **Beauchamp**; or Kathleen Mansfield **Murry**]

<World Literature>

5. A film by this director opens with long-distance shots of a Land Rover traveling to a village where a film crew hopes to document funeral rites. After an earthquake, this director searched for the stars of a film about a boy who accidentally takes his classmate’s notebook. A film by this director ends with a shot of the camera crew filming as a character lies in his grave during a rainstorm. Near the end of a film by this director, the sound cuts out as two men talk as they buy pink flowers and ride a motorcycle. In a film by this director, a man picks up three different people in his car and asks them to bury him after his suicide. In a 1990 film, this director of *The Wind Will Carry Us* and *Where Is the Friend’s House?* re-enacted the trial of a man who posed as the filmmaker Mohsen Makhmalbaf. For 10 points, name this director who set *Taste of Cherry* and *Close-Up* in his home country of Iran.

ANSWER: Abbas **Kiarostami**

<Other Fine Arts>

6. This economist and an alphabetically later collaborator introduced the variables SOPEN (“SOH-pin”) and SXP (“S-X-P”), denoting openness to trade and resource intensity, in a 1995 paper attempting to explain slow economic growth in certain countries in the 1970s and ’80s. After writing a *Vanity Fair* profile on this economist, Nina Munk spent six years following his work, which she criticized in the book *The Idealist*. A book by this former director of the Earth Institute includes a seven-part checklist for making a “differential diagnosis” of the state of an economy. This economist advised Hugo Banzer (“OO-go bahn-SAIR”) to use price deregulation to combat hyperinflation in Bolivia. A 2005 book by this economist argues that “clinical economics,” including strategic development aid, could eliminate the “dollar-a-day” form of the title phenomenon by 2025. For 10 points, name this Columbia economist who wrote *The End of Poverty*.

ANSWER: Jeffrey **Sachs** [or Jeffrey David **Sachs**] (The collaborator in the first line was Andrew Warner.)

<Social Science>

7. A book by this person quotes a Russell Kelfer poem before a recommendation to perform a daily meditation on “points to ponder” like “it’s not about me” and “I am not an accident.” This founder of the humanitarian P.E.A.C.E. (“peace”) Plan advocated making “chapter summaries” and “book surveys” as two of 12 methods for Bible study. This person popularized the “crowd to core” model of congregation growth and a 40-day water and vegetable diet based on the biblical story of Daniel. This pastor, who delivered the invocation at Barack Obama’s first inauguration, wrote a devotional bestseller with sections on Fellowship, Discipleship, and Mission in an attempt to answer the question “What On Earth Am I Here For?” For 10 points name this Southern Baptist leader of the Saddleback megachurch who wrote *The Purpose Driven Life*.

ANSWER: Rick **Warren** [or Richard Duane **Warren**]

<Religion>

8. A person of this sort advocated a new social policy in the three-part newspaper essay “Left Turn” and ran for parliament while jailed, which he described in the book *My Fellow Prisoners*. These people were forced to accept “new rules of the game” by a leader whose PhD thesis proposed “national champions” as an alternative to them. One of these people sued another of them after saying he coerced him into selling Sibneft shares. These people, who included a group called the “Seven Bankers,” first fully emerged after buying into the “loans-for-shares” scheme formed by Anatoly Chubais (“choo-BICE”). In 2022, one of these people sold a sports club to a consortium led by Todd Boehly (“bo-AY-lee”) when the Premier League disqualified him as a director of Chelsea. For 10 points, Mikhail Khodorkovsky and Roman Abramovich are what sort of businessmen who made fortunes when Russia’s economy was privatized?

ANSWER: Russian **oligarchs** [or **oligarkhi**; prompt on **Russians**; prompt on **businessmen**, **entrepreneurs**, **investors**, or similar answers until “businessmen” is read] (Mikhail Khodorkovsky was the jailed writer. Vladimir Putin was the author of the PhD thesis. Boris Berezovsky sued Roman Abramovich over Sibneft.)

<European History>

9. In this novel, two identical white dresses with ornamental red buttons and no fastenings are worn by a woman who bloodies her hands breaking open the door of a bathroom that the protagonist had locked her in. This novel summarizes a nine-volume monograph on “extensors” and “symmetriads” by a victim of the “Eruption of the 106” and also excerpts the account of a life-sized model of a garden and a giant baby from the “Minor Apocrypha.” Bill Johnston’s 2011 translation of this novel restores the name “Harey” for a 19-year-old woman who gave herself a lethal injection 10 years before this novel opens. In this novel, Snaut and Dr. Sartorius try to use an X-ray encoding of an EEG readout to contact an entity that uses the protagonist’s memories to create a replica of his deceased lover. For 10 points, Kris Kelvin visits the title sentient planet in what novel by Stanisław (“stah-NEECE-waff”) Lem?

ANSWER: **Solaris**

<European Literature>

10. The system of *bidān* elites consolidated in response to one of these events in the 17th century called the Sharr Bubba. A book by Lamin Sanneh documents opposition to these events among Jakhanke followers of the Suwarian tradition and in the letters of the patriarch of the Kanemi family. *The Song of Wandering* narrates one of these events, after which the author founded the *yan-taru* movement to oppose the *bori* cult and to educate women. One of these events began after King Yunfa of Gobir tried to use a malfunctioning pistol to assassinate a popular *shehu*. Several of these events were started by “flag-bearers” like Seku Amadu, whose Massina Empire supplanted the Bambara. The father of Nana Asma’u and Muhammad Bello led one of these events that pitted pastoralists against local Hausa rulers. For 10 points, the Fulani leader Usman dan Fodio formed his Sokoto Caliphate via what sort of religious war?

ANSWER: **jihad**s [accept more specific answers like Fula(ni) **jihad**s or Fulbe **jihad**s; accept *Beyond Jihad*; prompt on answers like **wars**, **conflicts**, military **campaigns**, or **rebellions**; prompt on Islamic **revival**, **tajdīd**, Islamic **awakening**, or descriptions of religious **revivals**]

<World History>

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11. A character from this family loves “some concept of” this family’s honor “precariously and temporarily supported by [a] minute fragile membrane.” When a boy asks a girl from this family, “*did you love them ... did you love them,*” she responds, “*When they touched me I died.*” A character from this family is told to hold his hand to his sister’s throat and repeat her former lover’s name. An appendix on this family’s servants ends with the phrase “They endured.” A boy in this family thinks variations of the phrase “*Father I have committed,*” while reflecting on his false confession that he impregnated his sister, who was actually impregnated by Dalton Ames. Shreve is the roommate of a member of this family who drowns himself in the Charles River. For 10 points, name this fictional family that includes Jason, Benjy, Quentin, and Caddy, who are the center of *The Sound and the Fury*.

ANSWER: **Compson** family [accept Caddy **Compson** or Candace **Compson**; accept Quentin **Compson**; accept Benjy **Compson** or Benjamin **Compson**; accept Jason **Compson**]

<American Literature>

12. One Christmas, the founder of this institution gifted local boys copies of Carl Schurz’s “Appreciation of Abraham Lincoln” according to a set of “autobiographical notes” from “twenty years” at this institution. The first Black graduate of Wellesley College, Harriet Rice, worked at this institution after obtaining an M.D. since no hospitals would employ a Black woman. The National Consumers League was created after its founder left this institution, where she worked as a “factory inspector”; that activist was Florence Kelley. In 1961, this institution’s campus was transformed into a state university by Mayor Richard Daley. Ellen Gates Starr was inspired by the Settlement Movement and Toynbee Hall to co-found this institution, which operated a public library and a nursery on the Near West Side. For 10 points, name this social service center established in Chicago by Jane Addams.

ANSWER: **Hull House** [accept **Hull House** neighborhood; accept “Autobiographical Notes Upon Twenty Years at **Hull-House**”]

<American History>

13. On this building, Primo Carnera is shown punching an opponent as part of a sculptural group of boxers on the *falconatura* of the central terrace. This building houses a Marco d’Agrate sculpture of a flayed Saint Bartholomew and the nine-foot-tall Trivulzio Candelabrum. A visit to this building inspired Masanori Waragai’s design of Anor Londo. János Hajnal (“YAH-nohsh HYE-nall”) included Jewish iconography on one of the ogival (“oh-jive-ull”) windows of this building, which John Ruskin decried for mixing the “Perpendicular with Flamboyant” due to a mishmash of styles added over its 600-year construction time. Francesco Croce (“frah-n-CHESS-ko CRO-chay”) designed the tallest of this building’s 135 spires, which is topped by a gilded sculpture of Mary called the Madonnina. This largest church outside the Vatican in Italy lies south of the Pinacoteca di Brera and east of the Santa Maria delle Grazie. For 10 points, name this largest church located in the city where Leonardo da Vinci painted *The Last Supper*.

ANSWER: **Milan Cathedral** [or **Duomo** di **Milano**, **Duomo** of **Milan**, **Metropolitan Cathedral-Basilica of the Nativity of Saint Mary**, or **Basilica cattedrale metropolitana di Santa Maria Nascente**; prompt on Basilica of the **Nativity of Saint Mary** or Basilica di **Santa Maria Nascente**; reject “Mary” or “Saint Mary”]

<Painting & Sculpture>

*Note to moderator: Read the answerline carefully.*

14. The extent of a push-pull mechanism in this type of reaction causes the rotation-inversion controversy. A kinked methyl group allows this reaction to occur through one bond flip and a triplet biradical (“bi-radical”) at a conical intersection. This type of reaction alternates with helix inversions on a crowded rotaxane (“ro-TAX-ane”) to power Ben Feringa’s first unidirectional molecular motor. This reaction turns the square planar compound bistrisphenylphosphine platinum chloride yellow. The large change in molecular volume required for this reaction is accommodated by a hula twist. Azobenzene and stilbene act as molecular switches because they undergo this reaction under UV light. When a conjugated aldehyde undergoes this reaction, an opsin is triggered in the retina. This reaction temporarily breaks a stiff pi bond, allowing its substituents to rotate 180 degrees. For 10 points, name this reaction that interconverts alkene isomers.

ANSWER: **cis–trans** isomerization [or **cis–trans** interconversion; or **E–Z** isomerization or **E–Z** interconversion; or **geometrical isomerization** or conversion between **geometrical isomers**; accept descriptions of switching between **cis** and **trans** or **E** and **Z** alkenes; prompt on **double bond** isomerization or **alkene** isomerization or **olefin** isomerization; prompt on **isomerization** or **photoisomerization** by asking “what is the chemical outcome of the isomerization?”; reject “rearrangement”]  
<Chemistry>

15. This composer created a microtonal metallophone named for the first three letters of his name and the word “six” for use in a percussion sextet with movements titled “Skins” and “Metals.” This composer named a series of pieces after their number of performers, iteration numbers, and the date, leading to titles like *ST/48-1,240162*. A term for offerings to Chthonic gods titles a technically demanding harpsichord piece by this composer that includes many passages of rapid repetitions of single notes. This composer’s book *Formalized Music* includes passages of his FORTRAN code for GENDY, a tool he later developed into the computer music program UPIC (“YOO-pick”). An orchestral piece by this composer that uses sound masses produced by 61 musicians, each playing different parts, drew on his training in mathematics and architecture. For 10 points, *Khoai* and *Metastaseis* are pieces by what modernist Greek composer?

ANSWER: Iannis **Xenakis** [or Giannis Klearchou **Xenakis**] (The first line refers to the sixxen.)  
<Classical Music>

16. This book describes “naïve monism,” in which no distinction is made between natural and normative laws, as the first step in a process that ends with “critical dualism.” This book presents Alfred North Whitehead and Arnold J. Toynbee as exponents of irrationalism, as opposed to the rationalism that is compatible with the “piecemeal social engineering” that this book defends. This book’s first volume critiques a philosopher for posing the problem of politics as the question “Who should rule?” and for defining justice as that which is good for the state. This book’s chapter title “Has History Any Meaning?” is answered in the negative as a rebuke to thinkers like Hegel and Marx. This book warns about the risk of totalitarianism inherent in the historicism of those who fall under the “spell of Plato.” For 10 points, name this defense of liberal democracy by Karl Popper.

ANSWER: *The **Open Society and Its Enemies***  
<Philosophy>

17. Revisionist archaeologists claim that a sycamore-wood bird statue found at this site gives early evidence of flight, as it roughly resembles a toy glider. Jean-Philippe Lauer spent his career excavating a complex at this site, which is the location of a building with a destroyed superstructure that has been dubbed “headless.” The “House of the North” and the “House of the South” are found at this site, where Cecil Firth found a limestone statue in a hidden chamber called a *serdab*. Religious texts were carved on the subterranean walls of structures in this site, including one dedicated to the ruler Unas (“YOO-niss”). At this site, a designer created a new type of structure by building a single square *mastaba* (“MAH-stah-bah”) and then adding five successively smaller *mastabas* on top of it. This site was the royal necropolis of Memphis. For 10 points, name this site where Imhotep designed a step pyramid to bury the pharaoh Djoser (“JOH-sur”).

ANSWER: **Saqqara** (“suh-CAH-ruh”) [or **Saqqara** necropolis; or Sakkara; prompt on **Memphis**, **Men-nefer**, **Manf**, or **Mit Rahina** until “Memphis” is read; until “step pyramid” is read, prompt on step **pyramid of Djoser** or equivalents by asking “what broader site is the structure part of?”]

<Other History>

18. *Common or scientific name acceptable.* Kathleen Pryer’s lab showed that a chimeric photoreceptor entered into this lineage via horizontal gene transfer. The 2021 discovery that colonies of an organism in this lineage subdivide water capture and storage was the first evidence of eusociality among plants. The neochrome receptor underlies this mostly terrestrial lineage’s strong red phototropism, which enabled its diverse order *Polypodiales* to thrive under angiosperm canopies during this lineage’s Cretaceous-era radiation. “Allies” of this lineage include lycophytes and horntails. This is the most speciose plant lineage to have separate, free-living sporophyte and gametophyte generations. These plants may show dimorphism between sterile and fertile leaves, the latter of which display brown clumps called sori on their undersides. For 10 points, name these seedless vascular plants that reproduce by releasing spores from their fronds.

ANSWER: **ferns** [accept **Polypodiopsida** or **Polypodiophyta** until “*Polypodiales*” is read; accept staghorn **fern** or elkhorn **fern** or **Platycerium bifurcatum**; accept **Pteridophyta**; accept **Pteridopsida** or **Polypodiidae** or leptosporangiate **ferns**; accept **Polypodioides** or **Polypodiaceae** until “*Polypodiales*” is read; accept **Monilophyta**; accept eusporangiate **ferns**; prompt on **cryptogams**]

<Biology>

19. A proverb that light brings this quality is illustrated by a folktale about a boon granted to Sugunî for returning an object dropped by a kite. In Penang, a sworn brotherhood venerates a god of this quality who transforms into a tiger and is named Tua Pek Kong. In a fable from the *Panchatantra*, a man’s idle thoughts about this quality lead him to break a jar of oil. A god of this quality who holds a vomiting mongoose is conflated with a guardian of the north named Kubera. The four goals considered puruṣārtha (“poo-roo-SHAR-tha”) are dharma, kāma, moksha, and this quality, which is represented by elephants spraying water at the “Gaja” aspect of a goddess who restores it after Durvāsā curses Indra. In Bengal, white owls are good omens of this quality because they are ridden by a member of the Tridevī who emerges from the milk ocean. For 10 points, beauty and what quality are the main attributes of Lakshmī?

ANSWER: **wealth** [or **prosperity**; or being **rich**; or **profits**, **income**, **economic** success, or equivalents; accept **money** or **gold**; accept **plenty**; accept **artha** until “puruṣārtha” is read; accept **Dhana** Lakshmī or **Vaibhava** Lakshmī; prompt on **luck**, **fortune**, **success**, **enterprise**, **happiness**, or equivalents of each] (The fourth line refers to Kubera and Jambhala.)

<Mythology>

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20. This place is called a metaphor for art's "Scene of Instruction" in a chapter that argues that the "poet-as-hero" triumphs at this place by failing just as his precursors, especially Shelley, failed. That chapter in Harold Bloom's *A Map of Misreading* quotes a description of this place that "burningly" came upon the speaker "all at once." A poem begins with the speaker questioning a description of an "ominous tract" containing this location given to the speaker by a "hoary cripple." A quest for this "round squat" structure, which is "without a counterpart in the whole world," is the subject of a poem from the collection *Men and Women*. A man blows his "slug-horn" after reaching this place in that poem titled for a nonsense line spoken by "Tom O'Bedlam" in *King Lear*. For 10 points, what mysterious place appears in the title of a poem by Robert Browning about the journey of Childe Roland?

ANSWER: the **Dark Tower** [accept "Childe Roland to the **Dark Tower** Came"; prompt on Tower]

<British Literature>



## BONUSES

1. Thomas Dermer took this person from the care of John Slanie to serve as an interpreter during the colonization of New England. For 10 points each:

[10e] Name this native Patuxet who legendarily taught the settlers of Plymouth Colony how to plant corn, which became the basis for Thanksgiving.

ANSWER: **Squanto** [or **Tisquantum**]

[10m] Squanto normalized relations with the colonists and this Wampanoag (“WOMP-uh-nog”) *sachem* (“SAY-chum”). King Philip’s War was named for this ruler’s son Metacom (“MET-uh-kom”).

ANSWER: **Massasoit** (“mass-uh-SOY-it”) [or **Ousamequin**]

[10h] Massasoit told the colonists of an impending raid by the Massachusett people after this person nursed him back to health. This person, who is not George Morton, detailed the first Thanksgiving in the *Mourt’s Relation* written with William Bradford.

ANSWER: **Edward Winslow** [prompt on **Winslow**]

<American History>

2. An essay from Roxane Gay’s *Bad Feminist* compares Kate Zambreno’s novel *Green Girl* to this novel, whose protagonist is “the green girl... as she tires of playing the part of girl.” For 10 points each:

[10m] Name this Joan Didion novel about the Hollywood actress Maria (“muh-RYE-uh”) Wyeth, who descends into madness and is eventually institutionalized.

ANSWER: ***Play It as It Lays***

[10e] Didion analyzes the “romantic vision” of Hollywood in an essay from this collection, which is titled for a phrase from W. B. Yeats’s poem “The Second Coming.”

ANSWER: ***Slouching Towards Bethlehem*** (The essay is “I Can’t Get That Monster Out of My Mind.”)

[10h] A Didion essay titled for one of these objects explains the role of the Santa Ana winds in Los Angeles’s identity. A Didion essay about keeping one of these objects associates it with a woman at a hotel bar explaining why she separated from George Sharp.

ANSWER: a **notebook** [accept **notes**; accept “Los Angeles **Notebook**”; accept “On Keeping a **Notebook**”; prompt on **books** or **journals**]

<American Literature>

3. A paper by Liza Comita et al. argues that tropical tree species that experienced a form of this phenomenon were less common. For 10 points each:

[10m] Name this ecological phenomenon whose conspecific negative form promotes coexistence in Janzen–Connell effects. In contrast, Allee effects are a positive form of this phenomenon.

ANSWER: **density-dependence** [or **density-dependent**; accept **frequency-dependence** or **frequency-dependent**]

[10h] Comita’s findings are based on data from the Forest Dynamics Plot on this island in Panama. Stephen Hubbell and Robin Foster established that plot administered by the Smithsonian Tropical Research Institute on this island.

ANSWER: **Barro Colorado** Island [or **BCI**]

[10e] Based on work at BCI, Hubell proposed a theory named for this adjective in which trophically similar species are considered equivalent. Motoo (“mo-to-oh”) Kimura proposed a theory of molecular evolution described by this term.

ANSWER: **neutral** theory [accept **neutral** theory of molecular evolution; accept unified **neutral** theory of biodiversity; prompt on **UNTB** by asking “what does that stand for?”]

<Biology>

4. This figure is depicted in a series of nine silver plates produced during the reign of Emperor Heraclius, possibly to celebrate his victory over the Sasanians. For 10 points each:

[10h] Name this figure who is surrounded by goats and sheep with Melodia in a Macedonian dynasty illuminated manuscript named for Paris. Scenes from this figure's life decorate the ivory cover of a manuscript nicknamed for Queen Melisende ("meh-lee-SAHN-deh").

ANSWER: King **David** [or **Dāwīd**] (The manuscripts are the Paris Psalter and Melisende Psalter.)

[10m] David plays his harp in a 6th-century artwork in this medium created at the Gaza synagogue. Artists from the Macedonian dynasty period produced gold-ground artworks in this form at the Daphni Monastery.

ANSWER: **mosaics** [accept floor **mosaics**; accept gold-ground **mosaics**]

[10e] The Macedonian "Romanos Group" may have created the Harbaville ("ar-ba-VEEL") and Borradaile ("bore-ah-DIE") ivories sculpted in this three-paneled form.

ANSWER: **trptychs** [accept Harbaville **Triptych**; accept Borradaile **Triptych**; prompt on **polyptychs**]

<Painting & Sculpture>

5. While translating a treatise by José Norberto Allende, the narrator of this short story becomes overwhelmed by the slow stirring of a woman's hands. For 10 points each:

[10m] Name this short story in which the narrator does not realize until later that he had inadvertently rescued a young boy who was being propositioned by an older woman by the Seine, angering a previously unnoticed man in a grey hat.

ANSWER: "**Blow-Up**" [or "Las **babas del diablo**" or "**Devil's Spit**" or similar translations]

[10e] "Blow-Up" is by this Argentine author, who included 99 "expendable" chapters in the novel *Hopscotch*.

ANSWER: Julio **Cortázar** ("cor-TAH-sar") [or Julio Florencio **Cortázar**]

[10h] The narrator of a Cortázar story is disturbed by the photos he takes of local peasants during his visit to this author. This poet-priest, who founded an artists' colony in the Solentiname Islands, wrote *Zero Hour* and *Cosmic Canticle*.

ANSWER: Ernesto **Cardenal** [or Ernesto **Cardenal** Martínez; prompt on **Martínez**]

<World Literature>

6. William Rothstein's book *Phrase Rhythm in Tonal Music* popularized the use of Arabic numerals between the staves to label the beat of this concept. For 10 points each:

[10h] Name this concept from rhythmic analysis that often refers to the perception of groupings of beats as strong or weak beats themselves. This rhythmic "feel" operates on the scale of several measures rather than within one measure.

ANSWER: **hypermeter** [accept **hypermeasure**]

[10m] Though explicit score markings indicating hypermeter are rare, one example is the markings *ritmo di tre battute* and *ritmo di quattro battute* in the Scherzo movement of this symphony, which is marked *molto vivace* and features a prominent timpani solo.

ANSWER: **Beethoven's** Symphony No. **9** in D minor [or **Beethoven's Ninth** Symphony; or **Choral** Symphony; accept **Beethoven** Op. **125**; accept Ludwig van **Beethoven** in place of "Beethoven"]

[10e] This composer used Arabic numerals to mark quadruple hypermeter in the first of his *Mephisto Waltzes*.

ANSWER: Franz **Liszt** [or **Liszt** Ferenc; or Franz Ritter von **Liszt**]

<Classical Music>

7. To gain control over parts of this modern-day country, Wallace Groves negotiated the Hawksbill Creek Agreement with the British Crown. For 10 points each:

[10h] Name this country where Lynden Pindling challenged a party led by Roland Symonette that was known for pandering to the interests of a white oligarchy termed the Bay Street Boys.

ANSWER: The **Bahamas** [or Commonwealth of The **Bahamas**]

[10m] The Hawksbill Creek Agreement created a Bay Street Boys-run city named for this policy. Errol Barrow and Forbes Burnham promoted a Caribbean association named for this policy after the breakup of the West Indies Federation.

ANSWER: **free trade** [accept **free trade** zone; prompt on **CARIFTA**; prompt on **free** or **Freeport**]

[10e] The Bay Street Boys pushed through “The Contract” allowing for Bahamians to seasonally labor in this country. A socialite born in this country resided at the Sigrist House in the Bahamas following her husband’s abdication.

ANSWER: **United States** [or **US**; or United States of **America**; or **USA**]

<World History>

8. Japanese philologist Nanjō Bun’yū made major contributions to the study of this system by translating the *Saddharmapundarika* (“sahd-dharma-poon-da-ree-kuh”) and *Lankkavatara* sutras from it. For 10 points each:

[10h] Name this scholarly term coined by Franklin Edgerton to describe the suite of complex languages used to write many of the Perfection of Wisdom Sutras.

ANSWER: **Buddhist Hybrid Sanskrit** [or **BHS**; accept **Mixed Sanskrit**; prompt on **Sanskrit** or **samskr̥tam**]

[10e] One of the oldest Buddhist Hybrid Sanskrit texts is an anthology whose title prepends this prefix to “vastu.” This Sanskrit prefix, meaning “great,” precedes the word for “vehicle” in the name of one of the main schools of Buddhism.

ANSWER: **mahā** [accept **Mahāyāna**; accept **Mahāvastu**]

[10m] The *Mahāvastu* is considered a “historical preface” to this group of texts, one of the three “baskets” of the *Tripitaka*. This text deals with monastic rules and procedures for the Sangha.

ANSWER: **Vinaya** Piṭaka [prompt on **discipline**]

<Religion>

9. This principle was first proven by William of Soissons in the 12th century. For 10 points each:

[10m] Name this principle that says that any statement can be derived from a contradiction.

ANSWER: principle of **explosion** [or principle of **Pseudo-Scotus**; or **ex contradictione quodlibet**]

[10h] Francisco Miró Quesada Canturias coined this term for any logic that rejects the principle of explosion. This type of logic is often confused with dialetheism (“dye-uh-LETH-ee-ism”).

ANSWER: **paraconsistent** logic [or **paraconsistency**]

[10e] Some philosophers have used paraconsistent logic to try to overcome the limitations of arithmetic that are thought to follow from this logician’s two incompleteness theorems.

ANSWER: Kurt **Gödel** [or Kurt Friedrich **Gödel**; accept **Gödel**’s incompleteness theorems]

<Philosophy>

10. Because titanocene changes color when exposed to oxygen, it can be used to test the integrity of these pieces of equipment. For 10 points each:

[10m] Name these containers that provide an inert environment for sensitive laboratory work. Organometallics are bagged into these devices before a user enters them through a rubber port.

ANSWER: **glove boxes**

[10e] Oxygen is purged from a glove box using nitrogen or this inexpensive inert gas that makes up about one percent of Earth's atmosphere.

ANSWER: **argon** [or **Ar**]

[10h] This other chemical probe of glove box integrity, which smokes in the presence of oxygen, was the first covalent organometallic compound to be discovered. This pyrophoric four-carbon compound is a popular chain-shuttling agent for making block copolymers.

ANSWER: **diethylzinc** [or **DEZ**]

<Chemistry>

11. *Description acceptable.* Artemis's aid to these people was honored in an annual festival where 500 goats were sacrificed. For 10 points each:

[10h] Name these people, such as Cynaegirus ("sin-uh-JYE-russ"), who were buried in the *soros* and honored as cultic heroes. Panaenus painted a mural of these people being aided by the Twelve Olympians and Theseus in the Stoa Poikile ("poi-KEE-leh").

ANSWER: **Marathonomachoi** [accept descriptions of the Athenian **veterans** of the Battle of **Marathon** or Athenians who **fought** at the Battle of **Marathon**; accept descriptions of the Athenian **dead** from the Battle of **Marathon**; accept **Greeks** or **Hellenes** or **Éllines** in place of "Athenians"; prompt on **Athenians** or **Greeks**; prompt **soldiers** or **veterans** or **hoplites** or similar answers]

[10e] According to legend, the god Pan appeared to this man to say he would help the Athenians at Marathon. In a later story, this man ran 26 miles from Marathon to announce the victory at Athens, then died.

ANSWER: **Pheidippides** [or **Philippides**]

[10m] Troops from this city were the only ones to help Athens at the Battle of Marathon. According to Herodotus, Aristides ("air-ih-STY-deez") the Just led Athenian forces at a battle near this city that was honored with the "Serpent Column."

ANSWER: **Plataea** [accept Battle of **Plataea**]

<Other History>

12. The dash in the phrase "Then—the officer" implies that a woman with this title was violated by the Russian officer Count F-. For 10 points each:

[10e] Name this noble title belonging to a widow in a novella by Heinrich von Kleist. A French libertine with the male version of this noble title wrote sexually explicit novels like *Justine* and *The 120 Days of Sodom*.

ANSWER: **marquise** [or **marquis**; or **marquess**; accept the **Marquis** de Sade; accept *The **Marquise** of O—* or *Die **Marquise** von O...*]

[10m] In this novel, the Marquise de Merteuil ("mair-TUH-ee") becomes jealous after challenging her former lover, the Vicomte ("vee-KONT") de Valmont, to write a letter detailing his conquest of the chaste Madame de Tourvel.

ANSWER: **Dangerous Liaisons** [or *Les **Liaisons dangereuses***] (by Pierre Choderlos de Laclos)

[10h] This novel's character of Mirzoza was based on Madame du Pompadour, who had the title of Marquise. In this Denis Diderot ("duh-NEE deed-ROH") novel, a genie gives a sultan a ring that grants vaginas the power of speech.

ANSWER: *The **Indiscreet Jewels*** [or *The **Indiscreet Toys***; or *The **Talking Jewels***; or *Les **Bijoux indiscrets***]

<European Literature>

13. During a ghost hunt at a Vermont farmhouse, this movement's founder met Henry Steel Olcott. For 10 points each:

[10m] Name this mystical movement based out of Adyar, India. Koot Hoomi was one of the mahatmas, or Ascended Masters, of this esoteric movement.

ANSWER: **Theosophy** [or **Theosophical** Society]

[10h] Theosophy founder Helena Blavatsky believed in this idea that a fluid aether consisting of astral light contained all memories and knowledge and could be accessed through clairvoyance.

ANSWER: **Akashic records**

[10e] Theosophy inspired this synesthetic Russian composer's *Prometheus: Poem of Fire*. His *Mysterium* was intended to be played in the Himalayas to signal the dawn of a new world.

ANSWER: Alexander **Scriabin** [or Alexander Nikolayevich **Scriabin**]

<Other Academic>

14. Ursula Keller invented a type of these objects that adds a layer of saturable absorber on top of alternating layers of materials with different indices of refraction. For 10 points each:

[10e] Interferometers often use the "half-silvered" type of what objects as beam splitters? In Cassegrain and Newtonian telescopes, these objects have a parabola shape.

ANSWER: **mirrors** [accept **reflector** or distributed Bragg **reflector** or (semiconductor) saturable absorber **mirrors**; prompt on **SESAMs** or **SAMs** by asking "what does that stand for?"]

[10m] Passive mode locking replaces one of the mirrors in these devices with a saturable absorber mirror. These devices can use a ring-like arrangement of mirrors to avoid creating standing waves.

ANSWER: optical **resonators** [or optical **cavities** or resonating **cavity** or **cavity** resonator; prompt on **lasers**]

[10h] On the other hand, active mode locking uses one of these devices to periodically vary the intracavity loss. These devices usually operate by either an electro-optic or an acousto-optic physical mechanism.

ANSWER: **modulators**

<Physics>

15. Robert Gifford refers to the psychological barriers that limit climate change mitigation as "dragons of inaction." For 10 points each:

[10e] One category of dragons of inaction involves these irrecoverable investments that have already been made. A fallacy named for these investments often leads to people refusing to abandon failed ventures.

ANSWER: **sunk costs** [accept **sunk cost** fallacy]

[10h] Another dragon is this phenomenon first theorized by Jack Brehm. Reverse psychology often exploits this phenomenon, in which an individual perceives a threat to their behavioral freedom and thus resists persuasion.

ANSWER: **reactance**

[10m] Gifford also cites this psychologist's work on social comparison theory. With two collaborators, this psychologist infiltrated a UFO religion called the Seekers.

ANSWER: Leon **Festinger** (Henry Riecken and Stanley Schachter collaborated with him on *When Prophecy Fails*.)

<Social Science>

16. Margaret Hamilton recounts how her experience with these things led her to develop the Universal Systems Language, or USL, in “What [these things] Tell Us.” For 10 points each:

[10m] Name these things that were manually identified by the Augekugel (“OW-gheh-koo-gull”) method.

Historically, a specific type of these things was identified by DEADBEEF (“dead-beef”) appearing in a memory dump.

ANSWER: software **bugs** [or software **errors**, software **faults**, software **defects**, **problems** in software, **flaws** in software, or any other synonyms for software errors; accept **crashes**] (Augekugel means “eyeballing” in German, so the Augekugel method was just a computer operator looking at the code.)

[10h] USL specifies systems to eliminate errors before-the-fact, in contrast with this approach to software development. This approach to software development uses the “red, green, refactor” cycle.

ANSWER: **test-driven** development [or **TDD**]

[10e] Nowadays, errors are identified more easily thanks to syntax highlighters and debuggers built into these all-encompassing programs for software development. Visual Studio is one of these programs.

ANSWER: **integrated development environments** [or **IDEs** (“I-D-eez”); prompt on code **editors**; reject “environments”]

<Other Science>

17. Sergeant Match searches for the missing penis from a statue of a politician with this last name in Joe Orton’s play *What the Butler Saw*. For 10 points each:

[10m] Identify this surname of the author who wrote a play in which Marlene meets historical and literary figures like Isabella Bird and Patient Griselda.

ANSWER: **Churchill** [accept Winston **Churchill** or Winston Leonard Spencer **Churchill**; accept Caryl **Churchill** or Caryl Lesley **Churchill**]

[10h] A 1974 dystopian play by this author is set in an internment camp named for Winston Churchill. Mary Whitehouse tried to prosecute the director of this playwright’s *The Romans in Britain* for “gross indecency.”

ANSWER: Howard **Brenton** [or Howard John **Brenton**]

[10e] Churchill personally stopped George VI from knighting this author of *Blithe Spirit* and *Hay Fever*, since he disapproved of this playwright’s flamboyant lifestyle.

ANSWER: Noël **Coward** [or Noël Peirce **Coward**]

<British Literature>

18. This family’s works were imprinted with the colophon (“CALL-uh-fon”) of an anchor encircled by a dolphin. For 10 points each:

[10m] Name this Italian family that ran the Aldine Press, which introduced italic print. A member of this family invented a book format called the *enchiridion* (“en-kye-RID-ee-on”) that he used to publish a 1501 edition of Virgil.

ANSWER: **Manutius** (“ma-NOO-shuss”) family [or **Manuzio** family; accept Aldus **Manutius**, Aldus **Manutius** the Elder, Aldus Pius **Manutius**, or Aldo Pio **Manuzio**]

[10e] Aldus Manutius ran his press in this Italian city, which printed the most books in the world in the early 16th century. The Lion of Saint Mark decorates the gate to this city’s shipyard, the “Arsenal.”

ANSWER: **Venice** [or **Venezia**; accept Most Serene Republic of **Venice** or Serenissima Repùblega de **Venèsia**]

[10h] Johann (“YO-hahn”) and Wendelin (“VEN-duh-lin”), brothers from this German city, opened Venice’s first press. The Edict of Worms (“vurmz”) was suspended by a 1526 diet in this city, where a 1570 diet restricted printing presses to certain towns to stop the spread of Protestantism.

ANSWER: **Speyer** (“SHPYE-er”) [or **Spire** or **Spires**; accept Diet of **Speyer**; accept Johann and Wendelin of **Speyer**, Johann and Wendelin von **Speyer**, Johann and Wendelin de **Speier**, or Giovanni and Vindelino da **Spira** accept **Speyer** I; accept **Speyer** V]

<European History>

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Editors: Harvey, Apte, Evans, Golden, Karim, Kearney, Mao, Nediger, Peet, Settle, Silverman

19. This nickname may have been inspired by people fleeing to cities like Carbondale during the 1830-to-1831 Winter of Deep Snow. For 10 points each:

[10m] Give this two-word nickname for Southern Illinois that residents have embraced through local mascots like the Saluki and Falcon.

ANSWER: **Little Egypt**

[10h] A Little Egyptian town takes its name from this city that names a style of regatta racing in England. A Christian kingdom that signed the Baqt was based in the “reach” of this city in Northern Sudan, which is named for its brick industry.

ANSWER: **Dongola** [or **Dunqulā**; accept **Dongola** Reach; accept **Dongola** racing] (The kingdom was Makuria.)

[10e] Instead of the Iraqi city, this US state’s city of Bagdad supposedly came from a copper miner asking “Do you have a bag, dad?” Other mining towns in this state include Kingman, Flagstaff, and Tombstone.

ANSWER: **Arizona** [or **AZ**]

<Geography>

20. While working at one of these institutions in Tallahassee, William P. Foster led “The 100” for more than 50 years. For 10 points each:

[10m] Name these institutions, one of which names a group of “Jubilee Singers.” The “Human Jukebox” is part of one of these institutions that compete in the Honda Battle of the Bands.

ANSWER: **HBCUs** [or **Historically Black Colleges and Universities**; prompt on colleges or universities or schools] (“The 100” is a nickname for Florida A&M’s marching band.)

[10e] Original Fisk Jubilee Singer Ella Sheppard’s story about her mother almost drowning her to prevent a life of slavery inspired the name of a spiritual about one of these vehicles “coming forth to carry me home.”

ANSWER: **chariots** [accept “Swing Low, Sweet **Chariot**”]

[10h] This graduate of Shaw University is a pastor nicknamed the “First Lady of Gospel Music.” She recorded songs like “Hold My Mule” and “Jesus, I Love Calling Your Name” during her career of over 70 years.

ANSWER: Shirley **Caesar** [or Shirley Ann **Caesar**-Williams]

<Other Fine Arts>