



**ACADEMIC
COMPETITION
FEDERATION**

ACF NATIONALS 2022

PACKET 11

Packet by

The Editors (2)

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TOSSUPS

1. After fleeing a temple that she just entered, this play's prologist declares that old women become like children when scared. This play's final chorus urges a group of characters to "exult in the blazing torch" of a procession and "to cry, cry in triumph, carry on the dancing on and on!" Characters in this play sing a song that is meant to "[rip] cross the lyre, withering the lives of men" and "[bind] the senses." The chorus's entrance, in which each member appears on stage after waking from slumber, supposedly so frightened this play's debut audience that women miscarried. This play argues that "the man is the source of life," while the mother is not a parent "just a nurse to the seed." This play ends with the protagonist's acquittal for matricide after Athena breaks a tied jury vote. For 10 points, name this final play in Aeschylus's ("ESS-kih-luss's") *Oresteia* trilogy.

ANSWER: The Eumenides ("yoo-MEN-ih-deez")

<World Literature>

2. This enzyme is inactivated via ADP-ribosylation ("A-D-P-rye-boh-sil-AY-shun") by DraT ("D-R-A-T"), which is reversed by DraG ("D-R-A-G"). A co-factor of this enzyme is delivered by the chaperone NafY ("N-A-F-Y"). A method of measuring this enzyme's activity involves mixing calcium carbide with water, and measuring ethylene production. Lowe and Thornley name the kinetic scheme for this enzyme, which has intermediates E-sub-0 through E-sub-8; of these, E-sub-4 has two metal-bridging hydrides ("HIGH-drydes") and is called the Janus intermediate. *Rhodo-pseudo-monas* has a version of this enzyme with vanadium in its active site. This enzyme contains a P-cluster with eight iron and seven sulfur atoms, and a homo-citrate-bound iron-molybdenum cluster. This enzyme uses sixteen ATPs, eight hydrogens, and eight electrons to break a triple bond. For 10 points, name this enzyme expressed by di-azo-trophic bacteria like *Rhizobia* in the root nodules of legumes, which breaks down N₂.

ANSWER: nitrogenase ("nye-TRAH-jun-ace")

<Biology>

3. A hadith attributed to Abu Huraira ("hoo-RYE-ruh") says that he who performs generous acts for Muslim examples of these people will have "all parts of his body" saved from the fire, and is found in the Kitab al-'Itq ("al-ITT-uck"). The Qur'an often refers to these people as "those in your right hands." Under most forms of *shari'a*, these people can enter into contracts in which they pay installments called *mukataba*; giving them money to help do so is one of the eight canonical forms of *zakāt*. A quote from Surat al-Mulk opens the autobiography of a Muslim scholar who became one of these people, Omar ibn Said ("sah-EED"). The fourth convert to Islam, Zayd ibn Harithah ("ZEID ibben HAH-rith-uh"), was one of these people before Muhammad legally adopted him as his son. A former example of them from the clan of Banu Jumah, Bilal ibn Rabah, became the first muezzin ("MOO-eh-zin"). For 10 points, identify these people who can benefit from manumission.

ANSWER: slaves [or enslaved people or abeed; accept people in bondage; accept slave women or slave girls or sex slaves or concubines; prompt on captives]

<Religion>

4. *Two answers required.* One of these men wrote that the other's "strict beat is his sign of authority over time" in an essay on "The Dance Element" in that man's music. To showcase Tamara Toumanova, who was one of his "Baby Ballerinas," one of these men adapted the other's violin concerto into the ballet *Balustrade*. Matisse's ("mah-TEESS's") first time designing ballet costumes was for a collaboration between this composer and this choreographer, adapting a Hans Christian Andersen tale set in China. Fifty elephants, including Modoc, danced in a ballet that these two men created for Ringling Bros. One of them used the other's *Capriccio for Piano and Orchestra* as the basis for the "Rubies" section of his ballet *Jewels*. One of them choreographed the other's first twelve-tone work and both of his "neoclassical" ballets. For 10 points, what two men collaborated on the ballets *Orpheus* and *Agon* ("aggon")?

ANSWER: George **Balanchine** ("bah-lan-CHEEN") and Igor (Fyodorovich) **Stravinsky** [accept Georgiy Melitonovich **Balanchivadze** for "Balanchine"]

<Other Fine Arts>

5. This person met a key mentor, Frances Gage, while recovering from smallpox in a Hilton Head hospital and later returned to assist reconstruction efforts after the Sea Islands hurricane. This person commandeered the Cambria Iron Company to create "hotels" for merchants who were then expected to pay for shelters after the Johnstown Flood; the flood produced the timber used to build this person's retirement home in Glen Echo, Maryland. On account of her friendship with Louis Appia, she lobbied the U.S. to attend the first Geneva Convention, and she read the book *A Memory of Solferino*. After being fired from the U.S. Patent Office for her abolitionist views, she bought supplies for the Massachusetts 6th Infantry for medical aid. For 10 points, name this founder of the American Red Cross, who earned the nickname the "Angel of the Battlefield" as a Civil War nurse.

ANSWER: Clara **Barton** [or Clarissa Harlowe **Barton**]

<American History>

6. This state was home to a Deaf outsider artist who, though illiterate, copied lettering from objects like Challenge Butter tins in decades of daily drawings which are stored in the James Castle House. Wayne Carlson started the first large-scale American farm to grow the Ethiopian grain teff in this state, where the ultra-spicy "triple Habanero pizza" is a summer tradition. A restaurant in this state's capital invented a dish of deep-fried strips of sirloin called "finger steaks." You can pick huckleberries in this state's Sawtooth mountains. In this state, Turkey-born executive Hamdi Ulukaya employs hundreds of refugees at a Chobani Yogurt factory in Twin Falls, which is southwest of the Craters of the Moon National Monument. For 10 points, name this U.S. state which is cut through by the Snake River and produces more potatoes than any other state.

ANSWER: **Idaho**

<Geography>

7. *Description acceptable.* Plutarch writes that this campaign was opposed by a speech flattering its central general which asked "Whom else will you have if you lose him?" to which the entire audience replied "thysself" to the speaker, Catulus ("KAH-too-luss"). The jealous consul Gaius Calpurnius Piso tried to bribe soldiers to stop this campaign, which included a decisive battle at Coracesium ("KO-rah-KESS-ium"). Its leader assigned legates with authority over thirteen designated regions, but overrode the authority of Metellus to accept the surrender of enemies on Crete. This campaign ended the power of a group which earlier abducted a young Julius Caesar who was off to study oratory. The Lex Gabinia gave this campaign's leader authority over coasts, empowering him to stop disruptions of Rome's grain supply. For 10 points, identify this 66 B.C.E. campaign against a group of rogues based in Cilicia.

ANSWER: **Pompey**'s campaign against the Cilician ("sill-ISH-ian") **pirates** [accept any answer indicating an attempt by Gnaeus ("guh-NAI-us") **Pompeius** or **Pompey** to eradicate **pirates** and/or **piracy** from the Mediterranean; prompt on answers indicating an anti-pirate campaign by asking "Led by whom?"]

<Ancient History>

8. A 13th-century Dominican friar with this first name produced the first Latin translations of Aristotle's *Politics* and *Poetics*. Another thinker with this first name pioneered a form of realism in which individuals, minus their accidents, are universal and yet numerically distinct, called "indifference realism." That thinker with this name taught Peter Abelard and hailed from Champeaux ("shom-POH"). A thinker with this first name argued against Pope John XXII ("the-twenty-second") that there were natural rights, but no property rights, in the Garden of Eden. That thinker with this name wrote that universals are actually concepts, which are acts of intellection, a theory meant to supersede his earlier *fictum* theory. For 10 points, give the first name of the nominalist author of *Summa Logicae*, the conventional namesake of the statement that "Entities are not to be multiplied without necessity."

ANSWER: **William** [or **Guillaume**; accept **William** of Moerbeke; accept **William** of Champeaux; accept **William** of Ockham]

<Philosophy>

9. A formula for this quantity was tested in 2010 by Gregor Weihs's ("VICE's") group, who found no third-order fringes in a three-slit experiment. Assignments of this quantity must be basis-independent and non-contextual, according to Gleason's theorem. In the phase-space formulation, the Wigner ("VEEG-ner") function computes a possibly-negative "quasi-" analogue of this quantity. For a particle, this quantity's current equals the following: " \hbar bar over m ," times the imaginary part of " ψ -star-times-grad- ψ ." This quantity is calculated for the i th ("eye'th") eigenvalue ("EYE-gun-value") of an operator by placing the i th eigenspace ("EYE-gun-space") projection operator between the bra and ket of a wave-function, often simplifying to this quantity's namesake amplitude times its complex conjugate. For 10 points, during a quantum measurement, what quantity equals the squared norm of the wave-function according to the Born rule?

ANSWER: **probability** [or **probability** distribution or **probability** density of results from a quantum measurement; or **probability** of an observable or quantity having a particular value; accept Wigner **quasiprobability** distribution or **probability** current; accept answers indicating the **probability** (distribution) of particular quantities, such as position or energy]

<Physics>

10. In a story titled for this kind of person, the protagonist is granted the power to turn oak leaves into coins and straw into soldiers by imps who disappear when he says, "God be with you." Another story titled for this kind of person ends with the declaration that our world is an imaginary one once removed from the real world, which will lack ridicule and deception. The brother of Simon the Soldier and Taras the Stout is this kind of person in the title of a Tolstoy story. A man with this epithet is told that some women can bear children as quickly as Eve because all women are granddaughters of Eve. This epithet is given to that resident of Frampol, who is married to the unfaithful Elka and is convinced by a Spirit of Evil to urinate in bread that he has baked. For 10 points, according to the title of an Isaac Bashevis Singer story, what kind of person is Gimpel?

ANSWER: the **fool** [or **ninny**; accept Ivan the **Fool**; accept Gimpel the **Fool**; accept Ivan-**durak**; accept Gimpel **tam**]

<European Literature>

11. The attendants of this figure's wife are former kings who went to her *svayamvara* ("s'vie-YAHM-va-ra") but were transformed into women because they looked upon her with lust. During a battle, Mayadevi briefly freezes this figure's army before merging with him, bringing him victory. This figure's gifts from Shiva include a sword, a horse, and the all-knowing parrot Shuka, who serves as a messenger as he woos his wife. In this figure's namesake Purana, he defeats a Buddhist army and a band of *mleccha* ("muh-LETCH-ah") women at Kikatapura before killing the demons Koka and Vikoka. This pupil of Parashurama ("PAR-uh-shoo-ram") travels to Simhala to marry Padmavati ("PAHD-muh-VUH-tee"), a reincarnation of Lakshmi. This figure, who is born in Shambhala, wields a flaming sword and rides Devadatta ("day-vuh-DAHT-tuh"), a manifestation of Garuda in the form of a white horse. For 10 points, name this tenth and last avatar of Vishnu who is prophesied to end the Kali Yuga ("KAH-lee yoog").

ANSWER: **Kalki** [or **Kalkin**; prompt on **Vishnu** before "Vishnu" is read]

<Mythology/Legends>

12. Since the P term representing these compounds cancels out of the $Q-e$ (“Q-E”) scheme, co-polymer product distribution is independent of their stability. The long chain approximation assumes the total number of these compounds is at pseudo-steady-state, but they can inter-convert through degenerative chain transfer. Emulsion polymerizations sequester these compounds within a latex micelle (“my-SELL”) to avoid their gel effect. The initial formation of these compounds usually has a reaction order of one-half. These compounds are the intermediates of poly-styrene synthesis and living polymerizations like RAFT (“raft”) and ATRP (“A-T-R-P”). Disproportionation and recombination terminate these intermediates, which propagate by hydrogen abstraction and are generated by UV light, peroxides, or other initiators that homolyze (“HOH-muh-lyze”) single bonds. For 10 points, name these molecules that have unpaired electrons.

ANSWER: free **radicals** [prompt on intermediates or polymers by asking “What type of species are the intermediates of these specific polymerizations?”; reject “monomer”; reject “initiator” or “radical initiator”]
<Chemistry>

13. A series of military successes in this year began with the Battle of Groenlo (“GROON-loh”), in which 600 defenders were defeated by 100,000 troops led by Prince-Bishop Bernhard von Galen. Alexandre Dumas (“d’yoo-MAH”) fictionalized an incident during this year in which a mob sold slices of the flesh of hanging victims at ten *sous* (“soo”) each. One faction suffered a brief setback during this year when it lost the Battle of Solebay (“SOLL-bay”) and the Vicomte de Turenne’s (“vee-KONT duh t’yoo-REN’s”) advance was blocked when the Water Line was used to flood the countryside. A saying about this year calls the people as “irrational,” the government “distracted,” and the country “irretrievable,” or *redeloos* (“RAY-duh-lohss”), *radeloos* (“RAH-duh-lohss”), and *reddeloos* (“RED-duh-lohss”), as Cornelis and Johann De Witt were lynched amidst the chaos of an Anglo-French invasion. For 10 points, give the common name or the date of this year of the 17th century which was terrible for the Netherlands.

ANSWER: The **Disaster** Year [or Het **Rampjaar** (“RAMP-yarr”), or Year of **Pants**, or **1672**] (The Dumas novel is *The Black Tulip*.)
<European History>

14. In a novel, a man describes this action as including a “wonderful deepness of blue” coming from a “twinkling succession of darkness and light.” A “muser” performs this action after hearing a man complain that the English never erected a monument to Lady Mary Wortley Montagu, in a novel in the collection *Camperdown*. Edgar Hastings performs this action in the beginning of that Mary Griffith novel, whose title includes the number 300. A man describes finding a “monstrous crab-like creature” on a desolate beach, while narrating his experiences with this action, during a dinner attended by “the Journalist,” “the Medical Man,” and Filby. Falling asleep is the mechanism of performing this action in Bellamy’s *Looking Backward*. For 10 points, name this action that allows a man to see the Eloi (“EE-loy”) and the Morlocks in a novel by H. G. Wells.

ANSWER: **time travel** [accept answers descriptive of falling asleep and waking up in the **future** or **past**; accept using a **time machine**]
<American Literature>

15. *Description acceptable.* A 1958 recording of this movement, conducted by Hermann Scherchen (“SHARE-kin”), was the first to come close to its eighth note = 80 (“equals eighty”) metronome marking, and to the infamous dotted half note = 60 (“equals sixty”) marking of the previous movement. The middle section of this movement begins with an oboe playing ascending quarter notes “C, E, G,” above sixteenth-note triplet arpeggios in the violins. This is the first orchestral movement by its composer to exemplify his so-called “C minor mood.” This movement’s secondary theme appears in inversion as the subject of its F-minor fugato (“f’you-GAH-toh”). This movement is in a genre that the composer used four years earlier in his twelfth piano sonata, and it comes two movements before a finale that re-uses a theme from *The Creatures of Prometheus*. For 10 points, name this slow movement of a symphony that was originally going to be titled “Bonaparte.”

ANSWER: the **funeral march** from the *Eroica Symphony* [accept *Marcia funebre* or **second movement** instead of “funeral march”; accept **Beethoven’s Symphony No. 3** in E-flat major, Op. 55 instead of “Eroica”]

<Classical Music>

16. This economist’s proposal to experiment with one billion dollars in “stamp currencies” was modified by Robert Noble into a California pension proposal called the Ham and Eggs movement. The idea that company decisions will always seek to maximize present value, regardless of shareholder preferences, is called this economist’s “separation theorem.” In the book *Booms and Depressions*, this economist argued that recessions happen when the value of outstanding liabilities remains constant while nominal wages and prices drop, causing mass insolvency. He lost credibility by claiming that stocks were on a “permanently high plateau” six months before the crash of 1929, after which he tried to explain the Depression with his “debt deflation” theory. For 10 points, what early American monetarist names an equation stating: real interest rate equals nominal interest rate minus inflation?

ANSWER: Irving **Fisher** [accept **Fisher** separation theorem or **Fisher** equation]

<Social Science>

17. A long-bearded statesman from these people’s ruling clan remarked that it was possible to conquer from horseback, but not to rule from horseback, after he was taunted with the remark “Are you going to weep for the people again?” Finding dozens of these people’s epitaphs has allowed scholars to recently decipher their two writing systems, the syllabic “small script” and logographic “large script.” The last-known speaker of these people’s language was Chucai (“choo-tsai”), a Confucian scholar employed by Genghis Khan to reform northern Chinese administration. Genghis’s conquests also overran the “Black” or “Kara” successor state of these people’s empire. Their Yelü (“yay-lew”) clan included Abaoji (“ah-bao-jee”), who established a state that was eventually overrun by their Jurchen neighbors, who founded the Jin dynasty. For 10 points, what nomadic steppe people founded China’s Liao (“lee-YAO”) dynasty?

ANSWER: **Khitans** [or **Khitans** or Kara-**Khitans**; accept **Khitans** Liao; prompt on **Liao** dynasty before “Liao”]

<World History>

18. Edward Elgar hung a print of a painting from this movement in his room while composing *The Apostles*. That work from this movement shows a religious figure sitting glumly on a rock in a barren landscape. In a portrait from this movement, hazy buildings appear behind a lady in a black velvet coat who looks down at the viewer from her open carriage. The artist of *Christ in the Desert* and *Portrait of an Unknown Woman* helped start this movement after the breakup of the Artel of Artists, who had revolted from the Imperial Academy. A painting from this movement shows a crippled boy among the peasants walking behind an icon as part of the title *Religious Procession in Kursk*. In a work from this movement, tired men drag a boat along a riverbank. For 10 points, name this realist movement that included Ivan Kramskoi and the artist of *Barge Haulers on the Volga*, Ilya Repin.

ANSWER: **Wanderers** [or *Peredvizhniki*; accept **Itinerants** and other synonyms; accept The **Society for Itinerant Art Exhibitions**; prompt on **realism**; reject “Artel of Artists”]

<Painting/Sculpture>

19. A type of these objects has a rank equal to the side length of its Durfee square, as defined in a Freeman Dyson paper that also suggested defining their “crank.” That type of these objects inspired the Hardy–Littlewood circle method for studying the asymptotics of their counting function, which also follows Ramanujan’s (“rah-MAH-noo-jun’s”) congruences. For a set of size n , these objects are counted by the n th (“N’t^h”) Bell number, or by summing the Stirling numbers of the second kind $S(n, k)$ (“S-of-n-comma-k”) for all values of k . The change-making problem asks for one of these objects for an integer using only coin values, while one for a set can be constructed from equivalence classes. This is the term for a way to write a given integer as a sum of other positive integers. For 10 points, give this term for divisions of a set into non-empty pieces, which share their name with a “function” in the canonical ensemble denoted Z .

ANSWER: partitions [accept integer partitions or partitions of an integer or partition function or partitions of a set]

<Misc. Science>

20. *Note to players: Exact word required.* Ted Hughes’s “The Howling of Wolves” describes this quality creeping into minerals. In Hughes’s “There’s a Grandfather Clock in the Hall,” the reader is urged to “Seize the nettle of [this quality] in both your hands.” The first stanza of Geoffrey Hill’s “Ovid in the Third Reich” declares that this quality “is no earthly weapon.” This quality is named in the first and last lines of the final stanza of Philip Larkin’s “MCMXIV” (“nineteen-fourteen”). A poem titled for this quality declares that “Some are Born to sweet delight / Some are Born to Endless Night.” This quality is mentioned in the line before “The best lack of all conviction” in “The Second Coming,” which states that “the ceremony of [this quality] is drowned.” For 10 points, “The Little Black Boy,” “Holy Thursday,” and “The Lamb” are poems embodying what quality, which William Blake paired with “experience”?

ANSWER: innocence [reject any synonyms; accept “Auguries of Innocence”; accept *Songs of Innocence*]

<British Literature>

BONUSES

1. A method of quantitation in this procedure involves de-multiplexing on unique molecular identifiers. For 10 points each:

[10e] Name this procedure in which contigs are created from short reads. Illumina developed a platform for this procedure, whose output is a string of As, Cs, Gs, and Ts.

ANSWER: next-generation DNA **sequencing** [or **NGS**; accept RNA **sequencing** or RNA-**seq**]

[10m] This is the process of joining together short sequencing reads into a larger read. A method of doing this involves constructing a de Bruijn (“BROW-en”) graph and finding an Eulerian (“oy-LER-ian”) path through it.

ANSWER: **assembly** [accept word forms such as **assemble**]

[10h] The FASTQ (“fast-Q”) file format includes symbols for each sequenced nucleotide that give this quality score. This score ranges from “exclamation point” to “tilde,” and is equal to: ten times the negative log of the error probability.

ANSWER: **Phred** (“fred”) quality score [prompt on Q]

<Biology>

2. In the 19th century, this leader was regarded as a forerunner of Italian nationalism for quixotically decreeing the unification of Italy. For 10 points each:

[10h] Name this rabble-rousing merchant and friend of Petrarch. He was released from prison by Innocent VI (“the-sixth”) as part of a papal effort to terrify the nobility into submission.

ANSWER: **Rienzi** (“r’YEN-tsee”) [or **Cola** de Rienzo, or Nicholas **Cola**, or Nicola **Gabrin**]

[10e] Rienzi received this title during his brief rulership of Rome. In Ancient Rome, this title designated two elected officers who represented the plebeians.

ANSWER: **tribunes** [or **tribunus** or **tribuni**]

[10m] The chief political opponents of Innocent VI and Rienzi included this prominent Roman noble family, whose members included Pope Martin V (“the-fifth”). This family feuded with the Orsini family for decades.

ANSWER: **Colonna** family [or **Sciarrillo** (“shah-REEL-loh”) family or **Sciarra** family]

<European History>

3. This collection's first poem, “Theories of Time and Space,” opens by declaring “You can get here from there, though / there's no going home.” For 10 points each:

[10h] Name this Pulitzer-winning 2007 poetry collection, which celebrates a then-illegal intermarriage in its poem “Miscegenation.” Its title poem depicts a Black Union soldier watching Confederate prisoners of war.

ANSWER: **Native Guard**

[10e] Natasha Trethewey's (“TRETH-away’s”) *Native Guard* is set in this U.S. state, the location of Faulkner’s fictional Yoknapatawpha (“YOCK-nuh-puh-TAW-fuh”) County.

ANSWER: **Mississippi**

[10m] In Trethewey's poem “Pastoral,” she dreams of getting photographed with poets from this group, centered at Vanderbilt University, which formed their namesake magazine in 1922. Many of its contributors, like John Crowe Ransom, became Southern Agrarians.

ANSWER: **Fugitive** poets [or **Fugitives**]

<American Literature>

4. With Rohit Chopra, this scholar authored a 2016 article in the Chicago Law Review supporting rulemaking that would target “unfair methods.” For 10 points each:

[10h] Name this former legal director of the Open Markets Institute. This protégé of Barry Lynn popularized the so-called “New Brandeis (“BRAN-dice”) movement,” which was derided as a “hipster” legal position by Joshua Wright.

ANSWER: Lina **Khan**

[10e] Khan gained prominence with a 2017 article whose title examines a “paradox” in applying this field of law to Amazon. As chair of the FTC, she mainly works in this field.

ANSWER: **antitrust** law [or **trust-busting** law or **competition** law; accept “Amazon’s **Antitrust** Paradox”]

[10m] “Amazon’s Antitrust Paradox” argues that this standard in antitrust law, supported by Robert Bork in *The Antitrust Paradox*, provides for inadequate power to regulate tech firms. This standard only opposes mergers when they reduce “allocative efficiency” or quality.

ANSWER: the **consumer welfare** standard [or the **consumer welfare** principle; accept answers that indicate maximization of the **welfare** of **consumers**; reject “welfare principle”]

<Current Events>

5. This work’s prologue asks, “How far is anyone justified [in] trying to express in terms of music...the value of anything, material, moral, intellectual, or spiritual[?]” For 10 points each:

[10h] Name this work whose attacks on Debussy include a comparison between his “sensual sensuousness” and the “spiritual sensuousness” of Henry David Thoreau, who inspired part of the piece this work was attached to.

ANSWER: *Essays before a Sonata*

[10e] This American composer wrote the *Essays before a Sonata* as a preface of sorts to his *Concord Sonata*.

ANSWER: Charles (Edward) **Ives**

[10m] When he was 63, Ives sent a personal letter to this man, attached to assorted earlier writings about forming a “People’s World Union.” This man’s funeral set the precedent for playing Barber’s *Adagio for Strings* at somber public occasions.

ANSWER: Franklin Delano **Roosevelt** [or **FDR**; prompt on Roosevelt]

<Classical Music>

6. With S. M. Johnson and J. Friedrich, this psychologist found that an observer's indifference goes up as the victim toll of an atrocity such as a genocide increases. For 10 points each:

[10h] Name this psychologist at the University of Oregon who studied “psychophysical numbing.” With his English professor son Scott, he co-edited the collection *Numbers and Nerves*.

ANSWER: Paul **Slovic** (“SLOW-vick”)

[10e] Slovic found that humans have irrationally high “aversion” to this phenomenon in studies done with Daniel Kahneman (“KAH-nuh-man”) and Amos Tversky.

ANSWER: **risk** [accept **risk** aversion; prompt on variance or loss]

[10m] Slovic wrote a 2001 book on the *Risk, Perception, and Policy* of this activity, which Darrell Huff defended in his sequel to *How to Lie with Statistics*. A study of its dangers introduced the Bradford Hill criteria for causation.

ANSWER: (tobacco or cigarette or cigar) **smoking** [accept *How to Lie with Smoking Statistics*]

<Social Science>

7. The Sabatier (“sah-bah-t’YAY”) process reduces this compound with eight electrons to make methane and water.

For 10 points each:

[10e] Name this inert gas formed when carbon is fully oxidized, or combusted.

ANSWER: **carbon dioxide** [or **CO₂**]

[10m] [read slowly] Reducing CO₂ with two electrons produces this molecule, a hydrogen carrier in some proposed organic fuel cells. Reducing this compound with four more electrons makes methanol (“METH-uh-nol”).

ANSWER: **formic acid** [or **formate**; prompt on the molecular formulas **HCOOH** or **H₂CO₂**]

[10h] Photo-catalytic CO₂ reduction requires a photo-sensitive complex ion, which is usually this metal bonded to three bi-pyridines (“by-PEE-rih-deenz”). This metal’s tris-bi-pyridyl (“triss-by-PEE-rih-dill”) complex forms bright red salts that are widely used in solar cells and photoredox (“photo-REE-dox”) catalysts.

ANSWER: **ruthenium** [or **Ru**]

<Chemistry>

8. Charles Weeghman, the owner of the Chicago Cubs, sponsored this group’s first statewide rally in Illinois in 1921. For 10 points each:

[10e] Name this group that organized local baseball teams and exhibition games to try to rebuild its reputation after the trial of its Indiana leader, D.C. Stephenson.

ANSWER: **KKK** [or **Ku Klux Klan**]

[10h] This adjective names a team of “All Stars” which, in a 1926 baseball game near DC, lost 4–0 to the KKK’s Knights. It also names the associations that funded the SPHAS (“s’fahzz”) basketball team from South Philly.

ANSWER: **Hebrew** [accept **Hebrew** All Stars or South Philadelphia **Hebrew** Association; reject “Jewish”]

[10m] This city’s all-Black Monroviaans fared better against the local KKK, defeating them 10–8 in a game at Island Park on the Arkansas River. Many Exodusters settled in this city, which is home to Dwight D. Eisenhower Airport.

ANSWER: **Wichita**, Kansas

<American History>

9. This repetitious two-section novel opens by noting that “There are sores which slowly erode the mind in solitude like a kind of canker.” For 10 points each:

[10h] Name this novel. Its nameless opium-addled narrator paints art on pen cases, obsesses over a girl in black outside his house, has mad visions, kills his wife, and confesses to his shadow.

ANSWER: *The **Blind Owl*** [or ***Buf-i Kur***]

[10m] Sadegh Hedayat’s *The Blind Owl* was first translated from Persian into English by D. P. Costello, a linguist born in this country. In a novel set in this country, prospector Walter Moody encounters a council of twelve men who correspond to the signs of the Zodiac.

ANSWER: **New Zealand** (That novel is Eleanor Catton’s *The Luminaries*.)

[10e] Hedayat’s earliest major work of literary criticism was a study of this medieval Persian poet, known for his *Rubaiyat*.

ANSWER: **Omar Khayyam** [accept either name]

<World Literature>

10. The lord of this place tests Inanna's favor by challenging his rival with three riddles, including finding a way to ship grain in nets without spilling, and procuring a dog of no known color. For 10 points each:

[10h] Name this land that appears in Sumerian myths about Uruk's founder, Enmerkar, who learned how to conquer it with help from Lugalbanda. In one text, its ruler is named En-suhgir-ana.

ANSWER: **Aratta**

[10e] The most famous mythological riddle asks what creature walks on four, two, and three feet at different times of day, and was presented by this monster who terrorized the people of Thebes.

ANSWER: **Sphinx**

[10m] In a medieval poem, Gromer Somer Joure threatens to behead Arthur if he cannot answer this riddle. Gawain agrees to marry the ugly Ragnelle to learn the answer to this riddle, which also appears in the Wife of Bath's Tale.

ANSWER: What do **women desire** most? [accept equivalent answers]

<Mythology/Legends>

11. French humorist Alphonse Allais's ("ah-LAY's") *Album primo-avrilesque* includes early examples of art with this property, such as *Apoplectic Cardinals Harvesting Tomatoes on the Shore of the Red Sea*. For 10 points each:

[10m] Name this property that characterized much of Yves Klein's work, including for a set of eleven identical canvases he sold at the Gallery Apollinaire in Milan in 1957.

ANSWER: **monochrome** [accept being **one color**; accept being all **red** or all **blue**]

[10e] Much of 20th-century monochrome painting used this color, including the best-known works of Robert Ryman and Kazimir Malevich's depiction of a tilted square that blends in with the background.

ANSWER: **white** [accept off-**white**]

[10h] Dansaekhwa ("DAHN-seck-hwah"), a movement whose name means "monochrome painting," began in this country in the 1970s. An artist from here placed replicas of homes from this country in odd public spaces in his *Bridging Home* series.

ANSWER: **South Korea** [or **Republic of Korea**; or **Hanguk** or **Namhan** or **Daehan Minguk**; prompt on **Korea**]

<Painting/Sculpture>

12. This book uses the term "wooden-headedness" to describe statecraft which assesses situations "in terms of preconceived fixed notions while ignoring or rejecting any contrary signs." For 10 points each:

[10h] Name this book that opens by giving the Trojan's acceptance of the Greeks' horse as an example of the title counterproductive phenomenon, in which policy is pursued "contrary to the government's own interests."

ANSWER: *The **March of Folly***

[10e] *The March of Folly* is by this historian, who described the lead-up to World War I in *The Guns of August*.

ANSWER: Barbara **Tuchman** ("TUCK-mun")

[10m] This conflict is the focus of the second of the three major case studies in *The March of Folly*. Its "radicalism" is assessed in a book by Gordon Wood, who describes the state it created as a "dispassionate umpire."

ANSWER: The **American Revolution** [or the **American Revolutionary** War; accept *The Radicalism of the **American Revolution***; prompt on **Revolutionary War**]

<Other History>

13. This process exceeds accumulation in a namesake zone that lies below the equilibrium line. For 10 points each:
[10m] Give this common term for processes such as surface melt, sublimation, and calving, which reduce the mass of a glacier.

ANSWER: **ablation** [accept **ablation** zone]

[10e] A glacier's equilibrium line typically follows the edge of summertime snow cover, partly because snow has a greater value for this quantity than ice. This quantity is the fraction of light reflected by a surface.

ANSWER: **albedo** ("al-BEE-doh")

[10h] Though net ablation is the norm globally, the glaciers of this region have been stable or expanding since at least the 1970s. Heavy precipitation due to mid-latitude cyclones may contribute to that namesake "anomaly" of this region.

ANSWER: **Karakoram** [accept **Karakoram** anomaly; prompt on Himalayas; prompt on High Mountain Asia or HKKH; prompt on Kashmir or India or Pakistan or Indian subcontinent]

<Misc. Science>

14. For 10 points each, answer the following about aniconism ("ANN-iconism"), or avoiding depictions of religious figures:

[10e] In keeping with aniconism, Islamic artists instead often decorate buildings with geometric designs and this art form, exemplified by elaborate renditions of Qur'anic verses.

ANSWER: Arabic/Islamic **calligraphy** [or *khatt*; prompt on Arabic writing or Arabic script or Arabic text]

[10m] In the context of the Ten Commandments, the Hebrew term *pesel*, elsewhere given as "idol," is instead rendered with this two-word English phrase in the original King James Version to explicitly describe aniconism.

ANSWER: **graven image** [reject all other answers]

[10h] Early Buddhists indirectly depicted the Buddha with an empty example of these objects covered by a parasol or Bodhi tree. The *hetoimasia* ("HEH-toy-muh-SEE-uh") scene from Eastern Orthodox art shows one of these objects prepared for the Last Judgment.

ANSWER: **throne** [accept empty **throne** or prepared **throne**; prompt on chair or seat]

<Religion>

15. The defendant in this case was accused of drugging the wine of the stonemason Durdles in order to gain access to a cathedral vault in which he later dissolved the victim's body using quicklime. For 10 points each:

[10h] Name this trial held in King's Hall in Covent ("KUH-vint") Garden, with John Cuming Walters serving as lead prosecutor.

ANSWER: Trial of John **Jasper**, lay precentor of Cloisterham Cathedral in the County of Kent, for the murder of Edwin Drood, engineer [or the trial to determine **who killed Edwin Drood**; or the trial to **solve *The Mystery of Edwin Drood***; prompt on John for John Jasper; accept synonyms for killed] (Since defendants are referred to by their last names, the defendant's surname is required.)

[10e] The Dickens Fellowship's mock trial to solve *The Mystery of Edwin Drood* was stocked with celebrities. G. K. Chesterton was the judge, and the foreman of the jury was this playwright, who two years earlier had created the character of Henry Higgins.

ANSWER: George Bernard **Shaw**

[10m] Also serving on the jury was this English author, who is best known for a story in which Mr. and Mrs. White regret using a mummified object to wish for money and for their son to come back to life.

ANSWER: W(illiam) W(ymark) **Jacobs** (That story is "The Monkey's Paw.")

<British Literature>

16. The present-day capital of this region, Sittwe (“sit-tway”), has a name meaning “place where war meets,” as it was the site of a battle during the conquest of this region’s Mrauk U (“muh-RAO oo”) kingdom. For 10 points each: [10h] Name this coastal region. After gaining control of this region in the Treaty of Yandabo, the British encouraged Bengali laborers to settle it throughout the 19th century.

ANSWER: **Arakan** (“ARR-uh-kan”) [or **Rakhine** (“ruh-KYNE”); accept **Arakan** Valley or **Rakhine** State]

[10e] Myanmar’s government asserts that this ethnic group from Arakan mainly descends primarily from those laborers, implicitly justifying its ongoing persecution of this group as an anti-colonial action.

ANSWER: **Rohingyas** (“roh-HIN-juh”)

[10m] This leader declined an appeal from the Rohingya in the 1940s to incorporate Arakan into a new nation, though he did secure the nearby Chittagong Hill Tracts. This leader was the chief Muslim signatory of the Lucknow Pact.

ANSWER: Muhammad Ali **Jinnah** [or Mahomedali **Jinnah**bhai]

<World History>

17. A play about the “madness” of a woman with this first name was a smash hit at the 1589 wedding of Ferdinand de Medici. For 10 points each:

[10h] Identify this first name. The woman who wrote and performed that play had this first name and the last name Andreini, and was the leading actress in the Compagnia dei Gelosi and the rival of Vittoria Pisimi.

ANSWER: **Isabella** Andreini [or **Isabella** Canali; or **Isabella** da Padova]

[10e] Isabella Andreini was also the namesake of the stock character Isabella in this genre of theatre, whose other characters include Harlequin and Pierrot (“p’yair-OH”).

ANSWER: **commedia dell’arte** (“cuh-MAY-dee-uh-del-AR-tay”)

[10m] Andreini’s play *La Mirtilla* was inspired by this author’s play *Aminta*. He wrote a poem in which Charles and Ubaldo rescue a knight from a sorceress by showing him his reflection in a shield, so he can recall who he is.

ANSWER: Torquato **Tasso**

<European Literature>

18. Congolese artist Sammy Baloji’s series *Mémoire* combines works in this medium to juxtapose dilapidated Katangan mining sites with the people who once worked in them. For 10 points each:

[10e] Name this medium used by Malick Sidibé, who was called the “Eye of Bamako” for his depictions of Malian society. One work in this medium shows a vulture perched next to a starving child.

ANSWER: **photography** [or **photographs**]

[10m] The photographer of *The vulture and the little girl*, Kevin Carter, was from this country, where he formed the Bang-Bang Club with Greg Marinovich, Ken Oosterbroek (“OH-ster-brook”), and João Silva.

ANSWER: **South Africa** [or Republic of **South Africa** or **RSA**]

[10h] Tunisian photographer Mouna Karray’s show *Off-the-Air* was exhibited at this Cape Town museum, the largest in the world dedicated to contemporary African art. It was built from a decommissioned concrete grain silo.

ANSWER: **Zeitz** (“tsytes”) Museum of Contemporary Art Africa [or **Zeitz** MOCAA]

<Other Fine Arts>

19. One of this man's essays asked, "Do Black Men Have a Moral Duty to Marry Black Women?" For 10 points each:

[10h] Name this philosopher and developer of "Black Radical Kantianism," whose work on race described the designation of "sub-persons" excluded from political deliberation.

ANSWER: Charles W(ade) **Mills** [reject "C(harles) Wright Mills"]

[10e] Mills's book *The Racial Contract* described this American author of *A Theory of Justice* as engaged in a "purely hypothetical exercise."

ANSWER: John Bordley **Rawls**

[10m] Another Mills essay describes a type of theory known by this adjective "as Ideology." Rawls championed this type of theory, which describes the optimal political situation while deliberately disregarding the challenges of implementation.

ANSWER: **ideal** theory [accept "**Ideal** Theory as Ideology"]

<Philosophy>

20. *Pencil and paper ready.* Consider a thin, hollow, conducting sphere of radius R , carrying net charge Q . For 10 points each:

[10h] In SI units, what is the capacitance of the sphere? You have ten seconds, and your answer may include any or all of π , Q , R , and the permittivity of free space.

ANSWER: **$4\pi\epsilon R$** ("four-pi-epsilon-R") [accept **radius** for " R "; accept **epsilon-nought** or **permittivity** of free space for "epsilon"; accept terms in any order, but reject partial answers]

[10m] What is the electric potential *inside* the sphere, if the potential infinitely far from the sphere is set to zero? You may give your answer in terms of Q , R , and either epsilon-nought or Coulomb's constant k .

ANSWER: **kQ/R** ("K-Q over R") [or **$Q/4\pi\epsilon R$** ("Q over four-pi-epsilon-R")]

[10e] The previous part can be answered by remembering that capacitance equals charge over voltage, or by relating the electric flux leaving the sphere to its enclosed charge using *this* one of Maxwell's equations

ANSWER: **Gauss's** ("gaoss's") law

<Physics>