



ACADEMIC  
COMPETITION  
FEDERATION

ACF NATIONALS 2018

ROUND 13  
PLAYOFFS 5

packet by  
THE EDITORS (5)

## Tossups

1. The influence of local variations in pattern density on the rate of this process is called the microloading effect. A specialized version of this process repeatedly alternates between the deposition of a chemical passivation layer and an attack on the exposed surface. The rate of this process can be modified by tuning the DC self-bias voltage. The “deep” version of this process was developed for the fabrication of micro-electro-mechanical systems, or MEMS, and is sometimes named for Bosch, which patented it. This process is commonly used to create trenches for vias that extend inside silicon wafers, or for insulating different circuit components on the wafer, and it has mostly replaced its “wet” counterpart, which relies on hydrofluoric acid. For 10 points, name this technique common in microchip fabrication, a form of dry etching that bombards the target with plasma to physically and chemically remove material.

ANSWER: **reactive ion etching** [or **RIE**; accept deep **reactive ion etching**; accept (deep) **reactive ion** after “etching”; accept “**plasma etching**” before “plasma” ;prompt on “**sputtering**”; prompt on “**dry etching**” before “dry”; prompt on “**etching**” before “etching”]

2. A practice involving this text was revived in the 19th century, partly because of the publication of an anonymous tale in which learning this text fulfills a desire first awakened in the protagonist upon hearing First Thessalonians 5:17. This text was at the center of a controversy that resulted in the writing of a book called the “triads of the defense” of people who revered it. That 14th-century controversy with Barlaam over a practice centered on this text resulted in Gregory Palamas formulating the essence-energies distinction. Hilarion based the doctrine of *imiaslavie* on this text central to the anonymous narrative *The Way of a Pilgrim*. Worshippers believe that this prayer can transform from spoken words to “The Prayer of the Heart” when it is recited to rhythmic breathing in the practice of *hesychasm*. The phrase “have mercy on me, a sinner” is the second half of, for 10 points, what short foundational prayer in Eastern Orthodoxy?

ANSWER: **Jesus Prayer** [or *i prosefchi tou iisou*; or *Slotho d-Yeshu*; or *I Etchi*; prompt on “The Prayer”; prompt on “The Prayer of the Heart” before “Heart”]

3. As a youth, this ruler met Juan de Lángara after the latter was captured by George Rodney at the Battle of Cape St. Vincent, shortly after the Spanish ship *Guipuzcoana* (gee-pooz-co-ah-nah) was renamed for this man. This ruler was nicknamed “Silly” for behaviors like offering rides to friends he saw on the street and inviting guests in Brighton hotels to dine with him at the Royal Pavilion. By agreeing to the creation of additional peerages in the House of Lords, this king helped end the Days of May. This king’s wife, a princess of Saxe-Meiningen, was the namesake of the Australian city of Adelaide. A quarrel over the Church of Ireland caused this king to replace Lord Melbourne with Robert Peel. His illegitimate children, all surnamed “FitzClarence,” were borne by the actress Dorothea Jordan. Earl Grey secured the passage of the Great Reform Act during this man’s reign, which lasted from 1830 to 1837. For 10 points, name this British ruler known as the “Sailor King,” who was succeeded by his niece Victoria.

ANSWER: **William IV** [prompt on “William” or “William Henry” or “Prince William” or “Sailor King”]

4. This poem’s second section is haunted by the specter of the atom bomb, noting that “all suppressions, / from the witchcraft trials at Salem / to the latest / book burnings / are confessions / that the bomb / has entered our lives.” The closing “Coda” section of this poem is a lengthy celebration of light, which “for all time shall outspeed / the thunder crack.” In this poem’s discussion of the *Iliad*, the speaker argues that silence “is like Homer’s / catalogue of ships: / it fills up the time,” and that “all women are not Helen, / I know that, / but have Helen in their hearts.” This poem’s speaker states that he “was cheered” upon learning “that there were flowers also / in hell” as he drinks in the joy of his wife’s approach, “perhaps for the last time.” In this poem, the speaker pleads to his wife for forgiveness by describing an object “like a buttercup / upon its branching stem” of which “I come, my sweet, / to sing to you.” For 10 points, name this long poem by William Carlos Williams about a plant that grows in the Greek underworld.

ANSWER: “**Asphodel, That Greeny Flower**”

5. Amsterdam publisher Estienne Roger boasted that his edition of this composer's opus 5 included ornaments for the slow movements as this composer would have played them. In one piece by this composer, the 11th and 21st variations are played almost entirely using double stops, and the main theme is based on the chord progression "one - five - one - flat-seven - flat-three - flat-seven - one - five - one." A *grave* (GRAH-vay) passage by this composer includes the unusual directive to play "*arcate sostenute e come sta*," or to "bow the notes sustained and as written." The final section of that piece by this man is in G major and 12/8 time and opens with the two concertino violins playing the melody in parallel thirds. His twelfth violin sonata is a set of variations on the Portuguese dance tune "La Folia." He placed a "Pastorale ad libitum" at the end of a piece inscribed as "fatto per la notte di natale." For 10 points, name this Italian baroque composer whose Concerto Grosso Opus 6, No. 8, is popularly known as the "Christmas Concerto."

ANSWER: Arcangelo Corelli

6. The Chac1 gene codes for a protein that degrades this compound. That protein is a cyclotransferase that cleaves this compound and produces 5-oxoproline. This compound forms an adduct with an aldehyde that is then isomerized and hydrolyzed in the glyoxalase system. This compound is conjugated to LTA<sub>4</sub> in the structure of leuko-triene C<sub>4</sub>, and parts of this compound found on LTC<sub>4</sub> are cleaved in the structures of leuko-trienes D<sub>4</sub> and E<sub>4</sub>. This compound helps DHAR form ascorbate in a pathway that reduces hydrogen peroxide. This compound serves as a cofactor for an enzyme containing a glutamine, tryptophan, and selenocysteine in its active triad; that enzyme is a peroxidase. A 220 amino acid tag is used in a specific pull-down assay to isolate fusion proteins containing this compound. This compound binds to GST and, like its analogue, ophthalmic acid, contains a gamma-glutamate residue. For 10 points, name this tripeptide antioxidant whose reduced form is symbolized GSH.

ANSWER: glutathione [or GSH before mention]

7. This character hears a song advising maidens to "allure the young gallant" and "pelt him with cherries" being sung by servants picking in an orchard. This non-Juliet character's nurse replies "we never loved in days of old" and describes her arranged marriage at age thirteen when this character asks her "were you in love when you were young?" While walking through an abandoned study, this character inspects the nail marks and margin notes left in books by authors such as the "bard of Juan and the Giaour." This character is rejected in a sermon-like speech criticizing domesticity by the protagonist after she spent all night writing a love letter to him. After marrying a "fat general," this woman spurns the protagonist, who had years earlier flirted with her sister, Olga, at the latter's name-day party. That protagonist's rejection of this woman parallels his shooting of Lensky in a duel. For 10 points, name this main female character of Pushkin's *Eugene Onegin*.

ANSWER: Tatyana Larina [or Tania; prompt on "Larina"]

8. This woman's granddaughter, Kate Hennessy, has written a recent biography of this woman subtitled *The World Will Be Saved by Beauty*. This woman wrote about dealing patiently with "a terror" named Mr. O'Connell, who stayed for over a decade at a farm in Easton, Pennsylvania. After returning from Europe, she wrote a novel based largely on her own life in Greenwich Village that described the abortion she had after getting pregnant by Lionel Moise; that novel was published as *The Eleventh Virgin*. Her relationship with anarchist Forster Batterham fell apart after her religious conversion. The St. Joseph's House was the first of around 30 hospitality houses established by this woman, who founded a paper that still sells for one cent per copy and shares its name with the movement she cofounded. In the 1930s, she met a Frenchman who advocated a "green revolution" of communal farming and was named Peter Maurin. For 10 points, name this journalist who founded the Catholic Worker movement.

ANSWER: Dorothy Day

9. A chapter that criticizes this book argues that its methodology fails to prove its claim that U. B. Phillips, Kenneth Stampp, and Stanley Elkins had ignored the assimilation of the "Protestant work ethic." That criticism appears in a book-length rebuttal that reexamines the "numbers game" underlying this book by a leading light in "new labor history," CCNY professor Herbert Gutman. This book—which reviewers often compared to a publication from the same year, Eugene Genovese's *Roll, Jordan, Roll*—came out ten years after *Railroads and American Economic Growth*, a study using similar cliometric methods by one of this book's authors. The disputed claim that whippings were historically exaggerated as a method of punishment is central to the argument of, for 10 points, what 1974 book claiming that American slavery was economically viable and partly beneficial to the enslaved, written by Robert Fogel and Stanley Engerman?

ANSWER: Time on the Cross [or Time on the Cross: The Economics of American Negro Slavery]

10. A book about this activity opens with a comparison to “a miner’s pick, a woodcarver’s gouge, a surgeon’s probe” and contains an anecdote about a singing cab driver whose one boring song serves to remind Annie Dillard of the “courage” needed to “tie off the umbilical cord.” A 1994 book about this activity discusses how two stereo speakers convey simultaneous messages of “self-aggrandizement” and “self-loathing” broadcast by the fictional “Radio Station KFKD” (“K-fucked”). That book about this activity is titled for advice that Anne Lamott got from her father to finish a school assignment by taking it “bird by bird.” A 2000 book about this activity, which mentions the “Poepictures” (“poe pictures”) of Vincent Price as an inspiration and contains an autobiographical section recounting a cocaine addiction, was the first published by its author after he was hit by a van while walking in Maine. Stephen King wrote a book “on,” for 10 points, what activity, which some instructors teach to do on “what you know”?

ANSWER: **writing** [accept answers mentioning forms of the word **write** such as **how to write** or **writing fiction** or **writing books**; accept **On Writing: A Memoir of the Craft** or **The Writing Life**]

11. In the Potts model, the correlation length along a column is equal to one over this function of the ratio of the largest eigenvalue of the transfer matrix to the second-largest eigenvalue. The Kullback-Leibler divergence gives the expectation value of this function of the ratio of two probability distributions. The trace of the product of the density matrix and this function of the density matrix gives a quantity named for John von Neumann. The integral over the product of a probability distribution function with this function of the distribution function defines the quantity H in Boltzmann’s H-theorem. When the argument of this function is N-factorial, with large N, the expression is often simplified using Stirling’s approximation. For the canonical ensemble, the Helmholtz free energy equals negative kT times this function of the partition function Z. For 10 points, name this function that, when acting on the number of microstates and multiplied by Boltzmann’s constant, gives the entropy.

ANSWER: natural **logarithm** [or **ln** or **logarithmic** or **log base e**]

12. Richard Sorabji’s *Animal Minds and Human Morals* discusses a treatise by this thinker that cites Theophrastus’s criticism of animal sacrifice in promoting vegetarianism. A student of this philosopher used the persona of the Egyptian priest Abammon to respond to his attacks on the mystical practice of theurgy. The word “individual” was introduced to philosophy through Boethius’s translation of this thinker’s term *atomoi*; that translation also popularized three questions posed by this thinker, including whether things like “animal” and “man” exist in the mind only, that introduced the problem of universals. This thinker’s hierarchy of genera such as “substance” and their species inspired namesake tree diagrams made by medieval academics, who used this man’s best-known book as a standard logic textbook. This teacher of Iamblichus compiled his teacher’s work into the *Enneads*. For 10 points, name this Neoplatonist, a student of Plotinus who wrote the *Isagoge*.

ANSWER: **Porphyry** of Tyre [or **Porphyrios**] [The treatise in the lead in is *On Abstinence from Animal Food*.]

13. A story by this author switches to third person to imagine the narrator stringing a fiddle and setting free her lover’s caged birds after strangling him with his long hair. This author wrote a story in which a jewel-clad spaniel brings the protagonist from London to the country house where the title character lies dying. A story by this author repeatedly describes the lice moving in the hair of a naked man who instructs the child protagonist to throw her shawl and then her blouse into a fire after betting her that he can get to an isolated house first by using his compass. One of this author’s stories begins with a Parisian pianist taking a train to the castle of her new husband, a marquis. This author of “The Courtship of Mr. Lyon” and “The Erl-King” included three wolf-themed stories, including “The Company of Wolves,” in a collection whose title story retells the Bluebeard legend. For 10 points, name this British author who updated fairy tales in her collection *The Bloody Chamber*.

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

14. American ambassador William Hines Page said that he was “sickened” by the writings of this man that were given to him by Basil Thomson and Blinker Hall of Scotland Yard. The National Portrait Gallery refused to hang a painting of this man’s appeals trial by John Lavery that was commissioned by Judge Charles Darling. This man’s lawyer, A. M. Sullivan, tried to argue that there was a comma after the word “realm” in the clause “realm or elsewhere” in the 1351 statute this man was charged with violating; as a result, this man was said to have been “hanged on a comma.” This man’s homosexuality was documented in his “Black Diaries,” whose public exposure undermined calls for his clemency after he was captured on a beach in County Kerry upon exiting a German U boat, bringing an end to his attempts to secure German support for the Easter Rising. For 10 points, name this Irishman who wrote a namesake report about Belgian atrocities committed in the Congo.

ANSWER: Roger **Casement** [or Sir Roger David **Casement**]

15. In 2010, an institution in Philadelphia that is both an art museum and a place of this type acquired portraits by Thomas Sully and G. P. A. Healy depicting the siblings Rebecca and Joseph Gratz. That institution of this type houses over a thousand miniatures in its decorative arts collection and is named for A. S. W. Rosenbach. A building of this type named for Fisher Ames Baker houses the “Black Dan” portrait of Daniel Webster. One of these institutions, which maintains botanical gardens on its San Marino, California, grounds, houses Thomas Lawrence’s *Pinkie* across from a painting depicting a young man thought to be Jonathan Buttall. One of these institutions on the Dartmouth campus contains José Clemente Orozco’s mural *The Epic of American Civilization*. Thomas Gainsborough’s *The Blue Boy* is housed in the Huntington, an institution of, for 10 points, what type, other examples of which include the Folger, which maintains an archive of William Shakespeare’s works?

ANSWER: libraries [or library; accept research libraries or library or college libraries or library; accept Rosenbach (Museum and) Library or Baker(-Berry) Library or Dartmouth College Library or Huntington Library, Art Collections, and Botanical Gardens or Folger Shakespeare Library]

16. The pseudocontact shift affects molecules exhibiting this phenomenon. Much of Harden McConnell’s early research was on molecules with this property, and aromatic examples with this property are described by McConnell’s namesake equation. In the Ramsey equation, a second-order term containing excited-state contributions to shielding is given this name. The Evans method compares NMR shifts of a probe molecule in the presence and absence of molecules with this property. This property tends to be possessed by vanadium Tutton’s salts. Lanthanide shift reagents have this property, as do T1 relaxation time-reducing contrast agents. Hydrogen NMR spectra of molecules with this property tend to have chemical shifts around 200 ppm. Spin traps are used to extend the lifetime of molecules with this property so that their Zeeman splitting and hyperfine splitting can be studied. For 10 points, name this property of molecules studied in EPR.

ANSWER: paramagnetism [or paramagnetic; accept radicals]

17. The opening paragraphs of a paper partially titled for this situation claim that, much like a game of tic-tac-toe, it has no technical solution. A set of eight principles for governing this scenario include ensuring that those affected by the rules can participate in modifying them and using graduated sanctions for violators; those principles were put forth in a 1990 book about “governing” this situation that contrasts the Leviathan approach and the privatization approach. Elinor Ostrom received the Nobel Prize in Economics for her work on modeling this situation, which involves resources known as CPRs. A 1968 paper predicting that the welfare state’s inability to manage this scenario will cause an economic catastrophe was written by Garrett Hardin. The example of grazing lands used by Swiss shepherds was used to illustrate, for 10 points, what situation that can lead to a “tragedy” of economic overuse?

ANSWER: commons [or the tragedy of the commons; accept “The Tragedy of the Commons”; or Governing the Commons; or common-pool resources; prompt on “CPRs” before “CPRS”]

18. A politician of this ethnicity proposed a system whereby schoolchildren spent half their day learning their parents’ skills, which was derisively called the “hereditary education policy.” The atheistic and socialistic Self-Respect Movement was composed of members of this ethnic group. Following the death of Charles Anthony, militants from this ethnic group attacked the Four Four Bravo unit, after which this ethnicity was targeted in the Black July riots. Nationalist political parties of this ethnic group have traditionally been led by figures from the Kollywood film industry. A female suicide bomber of this ethnicity killed a former prime minister at an election rally in 1991. Until 2009, rebels of this ethnicity carried on a civil war under the leadership of Velupillai Prabhakaran. For 10 points, name this ethnic group whose “Liberation Tigers” fought against the Sinhalese majority to create an ethnic state in Sri Lanka.

ANSWER: Tamils [or Tamil people; or Tamilar; or Tamilians; accept Tamil Tigers or Liberation Tigers of Tamil Eelam; prompt on “Dravidians”]

19. A member of this profession accomplishes the illusion of instantaneously growing a fruit tree using the cart and goods of a stingy peach seller in a story in *Strange Tales from a Chinese Studio*. A woman uses the pretext of donating 100 shoes to people of this profession to visit her son, a member of it, after he proves his identity by showing her a letter she wrote him in her own blood. After joining this profession, the protagonist chops off his part-dog, surgically-enhanced penis in a Li Yu novel titled for a “carnal” mat. A character of this profession uses the “Tight-Fillet spell” to control the size of the headband worn by another character, whom he had freed from underneath a mountain. That man of this occupation is accompanied by a demon from Flowing Sand River and a rake-toting hog monster on a journey to retrieve scriptures. For 10 points, name this profession of Xuanzang (SHWAHN-zahng), who is accompanied by Sun Wukong on a pilgrimage in Wu Cheng’en’s *Journey to the West*.

ANSWER: monks [accept Taoist or Buddhist priests; prompt on “pilgrims” or “beggars”]

20. This artist wrote an article for *October* entitled “pathos: Trois Contes,” in which she discusses both Vincent Van Gogh’s *A Pair of Shoes* and Gustave Flaubert’s “A Simple Heart.” In her series *President Collage*, she filled in the silhouettes of Washington, Lincoln, and Kennedy with images of women taken from fashion magazines. She created a series of woodcuts called *Melt Down* by reducing paintings by Monet, Kirchner, Mondrian, and Duchamp to three-by-four grids of colored pixels. Howard Singerman’s book titled for “art history, after” this artist advances the idea that she might be better understood as an art historian because she recontextualizes artistic legacies. She was a central figure in an exhibition organized by Douglas Crimp and the movement named for it, the Pictures Generation. This artist took a series of photos of pictures that first appeared in the book *Let Us Now Praise Famous Men*. For 10 points, what “appropriation artist” of *After Walker Evans* is known for her practice of re-photography?

ANSWER: Sherrie Levine

**Bonuses**

1. The unresolved chord at the end of this composer's song "Im wunderschönen Monat Mai" suggests that there is more to come in the story, paving the way for the rest of the song cycle. For 10 points each:

[10] Name this German composer who wrote the cycle *Dichterliebe* in 1840, which is often called his "Year of Lieder."

ANSWER: Robert **Schumann**

[10] Schumann composed two cycles generically titled *Liederkreis* in 1840, one of which was set to poems by Joseph von Eichendorff and the other of which was set to poems by this Germanic poet. *Dichterliebe* was also set to poems by this man.

ANSWER: Heinrich **Heine**

[10] Heine's poem "Aus meinen Tränen spriessen," or "From my tears," was used both by Schumann in *Dichterliebe* and by this Russian composer in translation. His other art songs include "Song of the Dark Forest," and he also wrote a *Petite Suite* for solo piano.

ANSWER: Alexander **Borodin** [or Alexander Porfiriyevich **Borodin**]

2. A poem modeled on this construct opens, "Apricot trees exist, apricot trees exist," before stating in its second part that "bracken exists; and blackberries, blackberries; / bromine exists; and hydrogen, hydrogen." For 10 points each:

[10] Name this construct that gives the structure for Inger Christensen's book-length poem *alphabet*. Ron Silliman's prose poem *Tjanting* uses this construct to generate its 19 paragraphs.

ANSWER: **Fibonacci** sequence [accept **Fibonacci** series; prompt on "Golden Ratio" or "phi"]

[10] After listing place names that start with the letter J, *alphabet* shifts to a passage about this historical event, a recurring theme. Robert Lowell's "For the Union Dead" references a photo of this event and a "Mosler safe" that survived it.

ANSWER: atomic bombing of **Hiroshima** [accept plausible answers mentioning **Hiroshima**; prompt on the dropping of the atomic or nuclear bomb; prompt on the bombing of Japan]

[10] Inger Christensen's *Butterfly Valley* is a sequence of poems in this form. Sandra Gilbert wonders how Fibonacci can explain "why I still bleed when all your blood is gone" in a poem written in this popular 14-line form.

ANSWER: **sonnet** [accept **sonnet** redoublé or crown of **sonnets**; accept **heroic crown**]

3. This man was forced out as Iran's minister of culture and Islamic guidance due to his tolerance, but he surprisingly came back to win the presidency as a dark horse. For 10 points each:

[10] Name this reformist who defeated the establishment candidate Ali Akbar Nategh-Nouri to win the 1997 Iranian presidential election before being re-elected in 2001.

ANSWER: Mohammad **Khatami** [or Seyed Mohammad **Khatami**]

[10] Khatami initially stood in the 2009 Iranian presidential election before withdrawing and backing this man, the left-wing prime minister of Iran for most of the 1980s before that post was abolished. This man remains under house arrest for encouraging protesters during the Arab Spring

ANSWER: Mir-Hossein **Mousavi** [or Mir-Hossein **Mousavi** Khameneh]

[10] This then incumbent won the 2009 Iranian presidential election. This former mayor of Tehran said that "Israel must be wiped off the map" and that there were no homosexuals in Iran during his rule from 2005 to 2013.

ANSWER: Mahmoud **Ahmadinejad** [or Mahmoud **Sabbaghian**]

4. This ion had the longest carbon-oxygen bond ever measured until it was surpassed by a tri-tert-butyl derivative. For 10 points each:

[10] Name this stable oxonium ion consisting of a cyclononane ("cyclo"-NOH-nayn) ring with three carbons bonded to a central oxygen.

ANSWER: **oxatriquinane** (ox-ah-try-KWY-nayn)

[10] Oxonium and oxocarbenium (ox-oh-car-BEE-nee-um) ions are common intermediates in chemistry involving this class of biomolecules consisting of monosaccharide sugars and their polymers.

ANSWER: **carbohydrates**

[10] A cyclic oxonium intermediate has been used to explain the mechanism of this class of chain-growth polymerizations in which a Lewis acid creates a carbenium ion that propagates to form the polymer.

ANSWER: **cationic** polymerization

5. Dwight Conquergood's essay "Rethinking Ethnography" argues that this method "privileges the body as a site of knowing." For 10 points each:

[10] Name this dominant paradigm in ethnographic research pioneered by Bronislaw Malinowski, which takes place outside of the laboratory, library, or other workplace.

ANSWER: **fieldwork** [or **field** research; or participant **observation**; accept any answer indicating research in the **field** or **observational** research or **participatory** research; accept, **BUT DO NOT REVEAL, etics**]

[10] The distinction between cultural writing from the perspective of the subjects versus the perspective of the observer is captured in these two contrasting four-word terms invented by Kenneth Pike.

ANSWER: **emic(s)** and **etic(s)** [accept answers in either order; accept any answer mentioning **emic** and **etic**]

[10] This linguistic anthropologist devised a rigorous emic anthropological paradigm through the application of componential analysis to kinship terminology. His major works include *Culture, Language, and Society* and *Cultural Anthropology and Linguistics*.

ANSWER: Ward **Goodenough** ("good enough") [or Ward Hunt **Goodenough**]

6. This instrument is probably descended from the German *scheitholz* (SHYTE-holtz). For 10 points each:

[10] Name this instrument, a type of zither native to the eastern United States, that is usually held in the lap.

ANSWER: Appalachian **dulcimer** [or mountain **dulcimer**; or lap **dulcimer**, do not accept or prompt on "hammer dulcimer"]

[10] The middle and bass strings of an Appalachian dulcimer generally play these sustained tones that do not change throughout a piece. On a bagpipe, these tones are played by, and share their name with, a set of pipes with no finger holes.

ANSWER: **drones**

[10] The Appalachian dulcimer is not to be confused with the European hammered dulcimer, which is believed to descend from this Persian or Indian instrument. It usually has at least 72 strings but can have over 100.

ANSWER: **santur** [or **santoor** or **samtur** or **santuri**]

7. Answer the following about contemporary American novels that feature environmental activism, for 10 points each.

[10] In this Jonathan Franzen novel, Walter Berglund works for the Cerulean Mountain Trust, which plans to create a sanctuary for cerulean warblers after stripping the land of coal.

ANSWER: **Freedom**

[10] The bird-watching couple Stephen and Tiff respectively join the Global Rivers Alliance and try to destroy the levees on the Elbe in this author's novel *Wallcreeper*. Jonathan Franzen aided this author's rise to fame after she wrote him a letter about songbird hunting.

ANSWER: Nell **Zink**

[10] The Animal Liberation Front features in Karen Fowler's *We Are All Completely Beside Ourselves*, which was shortlisted for this prize in 2014. Paul Beatty's *The Sellout* was the first American novel to win this prize, which was previously given only to Commonwealth authors.

ANSWER: Man **Booker** Prize for Fiction

8. Newtonian predictions for the rate of this process fell short by about 43 arcseconds per century. For 10 points each:

[10] Name this process in which the orbit of a certain planet changes over time. Albert Einstein identified this as the first major test of general relativity.

ANSWER: perihelion **precession** of **Mercury** [or **perihelion shift** of **Mercury**, prompt on "precession"]

[10] Further evidence to support general relativity comes from this effect, in which light from a distant source is deflected by the curvature of spacetime. In the "strong" case, this effect can even cause one distant galaxy to appear as two images.

ANSWER: gravitational **lensing** [or gravitational **lens**; accept strong gravitational **lensing** or **lens**]

[10] In 1971, two American scientists empirically demonstrated gravitational time dilation by flying four atomic clocks around the world and comparing those clocks to a reference clock. Name either scientist.

ANSWER: Joseph (Carl) **Hafele** or Richard E. **Keating**



9. This newspaper published many cartoons depicting Jews as vicious snakes and spiders. For 10 points each:

[10] Name this Julius Streicher-owned tabloid newspaper that disseminated fervent anti-Semitic Nazi propaganda until the end of World War II.

ANSWER: Der Stürmer

[10] A notorious special edition of *Der Stürmer* was devoted to the historical libel that Jews murdered Christians to use this substance in religious rituals, such as baking matzah.

ANSWER: blood [accept blood libel]

[10] This Nazi ideologue explained history as a clash between “Aryan” and “Jewish” races in his book *The Myth of the Twentieth Century*. He edited the official Nazi newspaper, the *Völkischer Beobachter* (fool-kish-er BAY-oh-bach-ter), and was temporarily appointed leader of the Nazi Party by Adolf Hitler after the Beer Hall Putsch.

ANSWER: Alfred Rosenberg [or Alfred Ernst Rosenberg]

10. According to an origin myth from this region, the first marriage took place between a man named Ling-dkar and a goddess, who received the “arrow of life” and a spindle as parting gifts from her parents. For 10 points each:

[10] Name this region where the Bon religion is practiced and whose other folklore describes revived corpses called *rolangs* that are unable to bend at their joints. This mountainous region of Asia is home to the Dalai Lama.

ANSWER: Tibet [or Bod; or Poi; or Xizang; accept Tibetan Plateau]

[10] As a symbol for the soul, this mythical horse from Tibetan folklore appears on prayer flags, surrounded by a Snow Lion, tiger, *garuda*, and dragon. An image of Gesar on his heavenly mount sometimes replaces this horse.

ANSWER: Wind Horse [or rlung rta (lung tah)]

[10] The Wind Horse’s saddle is often depicted carrying this wish-granting jewel from Hindu and Buddhist legends. This object, which is similar to the Western philosopher’s stone, belongs to the *chakravartin*, or universal monarch.

ANSWER: Cintamani Stone [or Chintamani Stone; or yid bzhin norbu]

11. Answer the following about the adventures of Vladimir Atlasov, for 10 points each.

[10] Atlasov met a castaway from this country who was taken to St. Petersburg and provided Peter the Great with much of the information that Russia knew about this country in the early 1700s. About 80 years later, Pavel Lebedev-Lastochkin likely became the first Russian to sail to this country.

ANSWER: Japan [or Nippon-koku or Nihon-koku]

[10] Atlasov found the Japanese castaway Dembei while exploring this far-eastern peninsula of Russia, which at the time was home to the Koryak peoples living on the coast of the Sea of Okhotsk.

ANSWER: Kamchatka Peninsula [or Poluoostrov Kamchatka]

[10] Atlasov saw himself as a successor to this Cossack, who was sent by Ivan the Terrible to destroy the Sibir Khanate. This man’s adventures were recorded in the Kungur Chronicle, and like Frederick Barbarossa, this man was weighed down by his chainmail and drowned in near freezing waters.

ANSWER: Yermak Timofeyevich [prompt on “Timofeyevich”]

12. A David Reynolds book titled “beneath” this period examines parallels between its literary output and popular works such as George Thompson’s racy pamphlet novels. For 10 points each:

[10] Name this literary period that titles a canon-shaping 1941 book by F. O. Matthiessen, which examines how five of its writers, including Ralph Waldo Emerson and Walt Whitman, produced “literature for our democracy.”

ANSWER: American Renaissance

[10] Jane Tompkins used the term “the Other American Renaissance” for works in this genre by women from the same period, such as Susan Warner’s *The Wide, Wide World*. The domestic novel was a subset of this emotion-centric genre, whose first American example was the 1791 novel *The Power of Sympathy*.

ANSWER: sentimental fiction [or novel of sensibility; or novel of sentiment]

[10] Among the novels from the half-decade period of the American Renaissance that are excluded by Matthiessen’s account is this writer’s *Uncle Tom’s Cabin*.

ANSWER: Harriet Beecher Stowe [or Harriet Elisabeth Beecher Stowe; accept any underlined portion]

13. The symbolism in this painting is thought to have been inspired by the imagery in the poet John Davies's *Hymns to Astraea*. For 10 points each:

[10] Name this painting, thought to be by the Flemish artist Marcus Gheeraerts the Younger, that depicts its subject wearing an orangish-red cloak decorated with images of human eyes and ears. A Latin inscription notes that its title object cannot exist "without the sun."

ANSWER: the **Rainbow Portrait**

[10] The *Rainbow Portrait* depicts this English ruler, who was shown with her right hand on a globe in front of two pictures of sea battles in the *Armada Portrait*.

ANSWER: **Elizabeth I** [prompt on "Elizabeth"]

[10] Elizabeth's now-iconic pale skin, as seen in the *Darnley Portrait*, is a result of the deterioration over time of the organic "lake" pigments of this color, which was sometimes sourced from brazilwood trees.

ANSWER: **red** lake [accept **red** lac or **crimson** lac or **carmine** lac]

14. This lemma came from a conversation that Saunders Mac Lane had with a Japanese mathematician on a Paris train. For 10 points each:

[10] Name this lemma that states that if  $F$  is a functor from some category  $C$  to the category of Sets, and little  $c$  is an object of  $C$ , then there is a bijection between  $F$  of "little  $c$ " and the set of natural transformations that go from the functor  $\text{Hom}_{\text{Sets}}(\text{little-}c, \text{blank})$  to the functor  $F$ .

ANSWER: **Yoneda lemma**

[10] The Yoneda lemma is a generalization of this theorem from group theory, which states that every finite group with  $n$  elements is isomorphic to a subgroup of the symmetric group  $S_n$ .

ANSWER: **Cayley's theorem** [do not accept "Cayley-Hamilton"]

[10] Proving the Yoneda lemma involves drawing this type of diagram, which uses arrows to denote morphisms. Groups with this property are called Abelian.

ANSWER: **commutative** [accept word forms like "commutativity"]

15. According to Herodotus, the first king and namesake of these people was a son of Heracles who, while returning to Greece with the cattle of Geryon, slept with a creature who was half maiden, half serpent. For 10 points each:

[10] Name these people who were, in another myth, descended from a son of Zeus named Targiteus. These nomadic steppe people buried their kings with 50 sacrificed horses and revered a version of Hestia named Tabiti.

ANSWER: **Scythians** [or **Skythoi** or **Ishkuzi**]

[10] In honor of their first king, Scythes, the Scythians wore one of these objects on their girdles. The youth Ganymede was abducted by Zeus to be a "bearer" of these objects.

ANSWER: **cups** [accept **cupbearer**; accept equivalents such as **goblets** or **glasses**]

[10] Suidas mistakenly states that this mythical Hyperborean priest of Apollo was from Scythia, perhaps because of his reported Scythian style of dress. This man delivered the world from a plague and traveled on a flying arrow.

ANSWER: **Abaris** the Hyperborean

16. After David Terry, the chief justice of this state's supreme court, was not renominated by his party in 1859, Terry blamed U.S. senator David Broderick. For 10 points each:

[10] Name this state that Broderick represented in the Senate until Terry killed him in a duel over that disagreement.

ANSWER: **California**

[10] Broderick and Terry were both Democrats, but they were on opposite sides in the debate over this document issued in 1855 in response to an antislavery document written by James Lane. Opponents of this pro-slavery document formed the core of the California Republican Party.

ANSWER: **Lecompton Constitution**

[10] The Lecompton Constitution was proposed in this state, the site of the Pottawatomie massacre.

ANSWER: **Kansas**

17. Using the pseudonym Bysshe Vanolis, a poet with this surname published a melancholy portrait of London titled *The City of Dreadful Night*. For 10 points each:

[10] Give this surname of two Scottish poets named James: that late Victorian poet, and the 18th-century author of *The Castle of Indolence*, the lyrics of “Rule, Britannia!,” and the poem used in Haydn’s oratorio *The Seasons*.

ANSWER: **Thomson**

[10] *The City of Dreadful Night* contains a section of stanzas beginning, “As I came through [this place] thus it was.” Percy Shelley’s “Ozymandias” describes two “vast and trunkless legs of stone” that stand in this sort of terrain.

ANSWER: **desert** [accept answers mentioning **arid** land or **sand**]

[10] Thomson nearly shares his surname with another substance-abusing, Shelley-loving late Victorian poet, Francis Thompson, who is best known for this poem in which a voice states, “Naught shelters thee, who wilt not shelter Me,” as God’s love pursues the speaker with “deliberate speed.”

ANSWER: “The **Hound of Heaven**”

18. The gene encoding this protein encodes a longer mRNA known as the Golli mRNA. For 10 points each:

[10] Name this substance that is mimicked by glatiramer acetate; the latter is a mixture of randomly sized peptides that contains only glutamic acid, lysine, alanine, and tyrosine.

ANSWER: **myelin basic protein** [accept **MBP**]

[10] Glatiramer acetate is used as a treatment for this demyelinating condition named for the formation of scars on white matter.

ANSWER: **multiple sclerosis** [or **MS**]

[10] A common treatment for multiple sclerosis is the beta-1a form of these cytokines that slow down viral replication. An assay based on the release of the “gamma” form of these proteins can be used as a test for tuberculosis.

ANSWER: **interferons** [accept beta-1a **interferons** or gamma **interferons**]

19. *The Book of the Wise Philosophers* popularized a cave-dwelling philosopher from this modern-day country. For 10 points each:

[10] Name this modern-day country home to the author of the 1667 treatise *Hatata*, who was compared by Claude Sumner to one of his contemporaries for his discussion of the means of knowing God’s existence.

ANSWER: **Ethiopia** [or Federal Democratic Republic of **Ethiopia**; or **Itiyoppya** Federalawi Demokiasiyawi Repeblik]

[10] The Ethiopian philosopher Zera Yacob is often considered an analog to this European. Rwandan philosopher Alexis Kagame held that this man’s statement “I think, therefore I am” would be incoherent among the Bantu.

ANSWER: Rene **Descartes** [or Renatus **Cartesius**]

[10] Anton Wilhelm Amo, an 18th-century Ghanaian philosopher who began lecturing at this university in 1840, argued, against Descartes, that the mind could not sense material things. Fichte’s alleged atheism got him dismissed from this university, where another philosopher saw the “world spirit” enter its city on horseback in 1806.

ANSWER: University of **Jena** [The “world spirit” philosopher is G. W. F. Hegel.]

20. After being expelled from this group, Nathaniel Branden founded the self-esteem movement in psychology. For 10 points each:

[10] Branden’s complex web of love affairs precipitated the slow dissolution of what ironically named social circle, whose other members included Joan Kennedy Taylor and Leonard Peikoff?

ANSWER: The **Collective** [prompt on “**objectivists**” or “**objectivism**”]

[10] The Collective was a social circle surrounding this writer, who circulated manuscript chapters of her novel *Atlas Shrugged* to its members.

ANSWER: Ayn **Rand** [or Alisa Zinov'yevna **Rosenbaum**]

[10] Like Peikoff, this member of the Collective remained loyal to Rand until her death. He contributed essays to Rand’s book *Capitalism: The Unknown Ideal* eight years before he was appointed to Gerald Ford’s Council of Economic Advisers.

ANSWER: Alan **Greenspan**