



ACADEMIC
COMPETITION
FEDERATION

ACF NATIONALS 2018

ROUND 20
FINALS 2

packet by
THE EDITORS (12)

Tossups

1. This system's three components include a primary component built by Elta and a "BMC" built by the software company mPrest. A *National Interest* article by David de Bruijn claimed that an APS known as "Trophy" was the "tank version" of this system. In 2012, one of the developers of this system claimed that its budget-conscious design included motors sourced from toy cars from Toys "R" Us. This system was nearly 80% effective at repelling "Operation Stones of Baked Clay" during a broader mission called "Operation Pillar of Defense." This system uses items known by the acronym "Tamir," which are often deployed against items known as "Qassams." This system was co-developed by Rafael Advanced Defense Systems, which has also played a part in developing related systems such as Barak 8, David's Sling, and Iron Beam. For 10 points, name this air-defense system that, since 2011, has intercepted many short-range rockets and shells fired into Israel.

ANSWER: **Iron Dome** [or **Kippat Barzel**]

2. An essay by this author calls for "rowdiness" in place of the quietism advocated in George Orwell's essay on Henry Miller. This author collected "Outside the Whale" in a book whose title essay observes that "sometimes we feel that we straddle two cultures; at other times that we fall between two stools" in its discussion of the "migrant theory." This author compared his subject to the "will-o'-the-wisp of modern critical theory: the authorless text" in a monograph on the film that inspired his writing career, *The Wizard of Oz*. This author of *Imaginary Homelands* used the moniker "The Illusion" to refer to his fourth wife in one book. That third-person memoir by this author narrates the disintegration of his marriage to his second wife, Marianne Wiggins, depicts the moment that he chose the first names of the authors Conrad and Chekhov as his pseudonym, and describes his marriage to Padma Lakshmi. For 10 points, what author's memoir *Joseph Anton* describes the ten years he spent in hiding over a fatwā?

ANSWER: Salman **Rushdie** [or Ahmed Salman **Rushdie**]

3. A bacterial form of this structure contains the Ffh protein, which is analogous to a 54 kDa eukaryotic subunit. The traditional set of myositis-specific antibodies are anti-Jo-1, anti-Mi-2, and antibodies that target this complex. The Alu SINE is likely derived from the 7SL RNA found in this structure and names a domain in this structure believed to inhibit elongation factors. This complex binds to the receptor FtsY. Like SecA and SecB, this structure complexes with the RNP to transport proteins to the SecYEG translocon. This structure binds to its receptor in a GTP-dependent fashion, and it identifies an N-terminal region of 16 to 30 amino acids at the ribosome nascent chain that is later cleaved off. This complex binds to the leader peptide while the rest of the protein is still being synthesized. For 10 points, name this protein-RNA complex responsible for translocating proteins to the endoplasmic reticulum.

ANSWER: **signal recognition particle** [accept **SRP**]

4. In 1991, a definitive review of the literature surrounding this phenomenon was written by Colin MacLeod, who updated a previous review by Frederick Dyer, an advocate of the "differential-practice" explanation of this phenomenon. Michael Posner and C. R. R. Snyder are among the researchers who have attributed this phenomenon to the "voluntary/automatic" distinction formulated by Wilhelm Wundt's student James McKeen Cattell based on research conducted 50 years before the experiments of this phenomenon's namesake. This phenomenon, which is a classic source of "interference" used to study perceptual encoding, can also be explained by a "parallel distributed processing" model under which people have a stronger mental pathway for reading than for the other visual task that this phenomenon requires. For 10 points, what psychological "effect" consists of the delay in reaction time when people try to say the color of ink in which the name of a different color has been printed?

ANSWER: **Stroop** effect [accept **Stroop** test or **Stroop** task]

5. This shape is shown on a painter's palette in a self-portrait that shows the artist's face on an oval canvas behind the artist's dog Trump, which is titled *Painter and His Pug*. A book subtitled for "retracing" this shape by Carol Ockman examines its use in creating "eroticized bodies" in the 19th century. This shape is connected to the "intricacy" of a work of art in a book whose first illustration shows this shape within a transparent triangular prism labeled "variety" and whose 49th plate shows an illustration of seven of these shapes becoming more dramatic from left to right. Artists in another visual medium created the subtle illusion of this kind of shape by using the technique of "ponderation." The theory of aesthetics in the book *The Analysis of Beauty* is based on William Hogarth's theory that the eye naturally followed a "line of beauty" of this shape. Following Praxiteles, ancient sculptors based the *contrapposto* form on, for 10 points, what shape of line, also called a "serpentine curve"?

ANSWER: **S-shaped** lines or curves [accept **serpentine** lines or curves; accept **line of beauty** before "beauty"; prompt on "**curvy** lines" or "**wavy** lines" or similar answers; prompt on "**curves**" or "**lines**"]

6. Giovanni Dondi's *Tractatus astarii* describes how he spent over 15 years planning and building one of the earliest examples of these devices in Europe. Thomas Tompion used the first-known serial numbers to identify these devices, which he manufactured based on scientific advances he learned from Robert Hooke. Beginning in the 13th century, these devices used a weighted bar called a foliot connected to a verge to move a "crown wheel." These devices were made possible by the invention of the mechanical escapement, which regularly locks and unlocks a central gear. A 1995 book by Dava Sobel describes how a board set up by a 1714 act of Parliament issued its largest reward to John Harrison for inventing one of these devices to measure longitude. Lewis Mumford's *Technics and Civilization* argued that daily life was synchronized by, for 10 points, what devices that became more precise in western Europe after incorporating pendulums?

ANSWER: mechanical clocks [or astrolological clocks; accept mechanical watches or marine chronometers]

7. In one novel, characters fleeing this years-long event include a priest who is thrown in a lake and stoned to death by his orphan charges and an art collector who steals the petrol supply of a young couple. The author claims to have forgotten writing a diary set during this event in which she waits for news of her husband Robert L., in a "memoir" whose original title translates as "Pain." *The Night Watch* and *Ring Roads* are part of a trilogy about this event by an author who was praised for uncovering the "life-world" of this event in his 2014 Nobel citation; that author is Patrick Modiano. *Storm in June* and *Dolce* are the completed parts of a planned "suite" of novels about this political period by Irène Némirovsky, who was deported during it. This political period is allegorized in an update of *Antigone* by Jean Anouilh. For 10 points, writers such as Marguerite Duras and Albert Camus were involved in the resistance during what political period?

ANSWER: Nazi German occupation of France [accept Vichy France or Nazi-Occupied France or German-Occupied France; accept answers mentioning equivalents of "occupation" such as Nazi invasion of France; accept Paris in place of "France" in any of the preceding answers; prompt on partial answers; prompt on "World War II" or "WWII"; do not accept or prompt on "Holocaust" or similar answers]

8. Goheer, Kleban, and Susskind used this result to set an upper bound on the lifetime of de Sitter space. This theorem can be proven by showing that, for a measure-preserving transformation on a probability space, applying the transformation some positive number of times on a set will always map it to a new set that intersects the original. Ernst Zermelo used this result to attack Boltzmann's H-theorem, arguing that the H-theorem's prediction of monotonically increasing entropy was incompatible with this statement. Unlike Liouville's theorem, which is used to prove it, this theorem requires that the system of interest be restricted to a finite volume of phase space with bounded motion. For 10 points, name this theorem from classical mechanics that states that certain dynamical systems will always return arbitrarily close to their initial state after some finite time.

ANSWER: Poincaré recurrence theorem [prompt on "Poincaré theorem" or "recurrence theorem"]

9. This author provided the criterion of "does this work help or encourage men to know and claim their social rights?" to judge works of art. This author argued that photographs of war often depoliticized conflicts by editing out suffering, in his essay "Photographs of Agony." Building on the collaboration between Walker Evans and James Agee for *Let Us Now Praise Famous Men*, this author provided the text but did not directly reference Jean Mohr's photographs in books such as a study of migrant labor titled *A Seventh Man*. The claim that "men act and women appear" is central to this critic's discussion of the female nude in European painting. This author takes a box cutter to Venus in a reproduction of Sandro Botticelli's *Venus and Mars* at the opening of a four-part series in which he discusses oil paint as a status symbol and advertising as the dominant contemporary visual medium. For 10 points, name this novelist and art historian who created the BBC television series *Ways of Seeing*.

ANSWER: John Berger [or John Peter Berger]

10. This book discusses how secondary qualities, such as color, can be seen as "lovely" or "suspect" based on how strongly they are connected to classes of observers. This book jokingly favors the image of "thousands of word-making demons," dubbed "Pandemonium," over the metaphor of bureaucracy, in its chapter "How Words Do Things with Us." This book proposes a method in which raw data and transcripts of verbal reports are treated with the intentional stance; this book calls that third-person method "heterophenomenology." In this book, the author dubs two faulty accounts of illusions like the phi phenomenon the "Orwellian" and "Stalinesque" theories and argues that they both rely on the metaphor of the "Cartesian theater." This book presents the theory that the brain processes information in parallel with constant "editorial revision." The "multiple drafts" model was proposed in, for 10 points, what 1992 book about mental processes by Daniel Dennett?

ANSWER: Consciousness Explained

11. Tip O'Neill's response to this policy is recounted in the 23rd chapter of a book that profiles a "turbulent decade" in the lives of the Twymons, McGoffs, and Divers, real-life families affected by this policy. That book, J. Anthony Lukas's *Common Ground*, was criticized as "distorted" by Robert Dentler, a sociologist who helped devise this policy. An organization called METCO was a voluntary predecessor of this policy, which was opposed by Louise Day Hicks's group "Restore Our Alienated Rights," or ROAR. In the case of *Morgan v. Hennigan*, federal judge W. Arthur Garrity devised this policy, which led to 1976 protests in which Joseph Rakes assaulted Ted Landsmark using an American flag as a weapon, captured in a photo called *The Soiling of Old Glory*. For 10 points, name this policy, in force during much of the 1970s and 1980s, by which Boston attempted to desegregate its public schools.

ANSWER: compulsory desegregation **busing** (in Boston) [accept any answer mentioning **busing** or **bus** and the idea of desegregating (Boston) public schools; prompt on "school desegregation (in Boston)" before "desegregate"]

12. The narrator of this novel claims to have gifted the feathers used for a dress in Robert Howard's *The Indian Queen*. A party of women accompanies a character in this novel on outings in which he slays a tiger with a sword after stealing its cub and faints after grabbing a "numb-eel" from a river. A character in this novel throws a piece of his own throat at men who find him in the woods with a flower-covered corpse he'd been lying next to for eight days. In the first part of this novel, the main female character is horrified to receive a "royal veil," which obliges her to join the harem of the king of Coramantien. The owner of Parham House, Trefry, gives this novel's main character the name "Caesar" and reunites him with his lover Imoinda. This novel concludes with the title character smoking a pipe as his body parts are hacked off by an executioner after the failure of his revolt in Surinam. For 10 points, name this novel about a "royal slave" by Aphra Behn.

ANSWER: Oroonoko; or, the Royal Slave

13. It has nothing to do with chemistry, but when performing this task, a data structure known as the Verlet (vair-lay) neighbor list can be used to lower the number of required calculations. Algorithms that simplify this task, like the "sweep and prune" technique, take advantage of the principle of temporal coherence. Three-dimensional space is often partitioned using octrees before performing this task. The Gilbert-Johnson-Keerthi algorithm, which finds the smallest distance between two convex regions, is often implemented to help with this task. This task can also be performed by searching for solutions to the separating axis theorem, which gives basic conditions for which the events sought by this task do not occur. Simple "bounding box algorithms" are often used to perform this task in video games. For 10 points, name this task of determining whether two objects are in contact.

ANSWER: **collision detection** [or **hit detection**; accept answers mentioning **collisions** or **hits** and forms of the word **detect** such as **detecting hits** or **detection of collisions**]

14. Karl Barth's *Church Dogmatics* claimed that this doctrine was the quintessential example of a broader theological "great negation" because it was based on a fundamental opposition to even that which was "demanded by the Law." An apparent contradiction to this doctrine in the Epistle of James led this doctrine's formulator to call that book an "epistle of straw." This doctrine, which is based on the "renewal of one's way of life," is outlined in the 26th article of the *JDDJ*, whose 27th article describes a competing Catholic doctrine. This doctrine's formulator attempted to support it by interpolating a crucial word into Romans 3:28. Along with doctrines about scripture, Christ, the glory of God, and grace, this doctrine is one of the five "solae" of the Protestant Reformation and directly rejects the Catholic doctrine of "good works." For 10 points, what central tenet of Lutheranism holds that God's removal of the guilt of sin, a process known as justification, requires only belief?

ANSWER: justification by **faith alone** [or **sola fide**; or **solifidian** doctrine; accept justification by **faith** or **fide** after "solae"; prompt on "justification by faith" or "fide" before "solae"; prompt on "doctrine of justification" before "justification"]

15. A solo viola accompanies a character in this ballet as she very slowly raises her right leg up in *développé* during the *pas de deux* in the second act. A different character in this ballet enters the stage in a gliding *bouffée* with arms crossed in front before a series of solo variations in which she picks up two branches. Near the end of this ballet's first act, the protagonist drags a sword in circles around the floor. A different character in this ballet discovers that sword in his rival's cottage and uses it to expose that rival as a nobleman in disguise, which causes the main character to lose her sanity in the mad scene that ends Act 1. At the end of this ballet, the title character intercedes to save her beloved Albrecht from the wrath of Queen Myrtha, who leads a race of ghostly spirits of maidens betrayed by their lovers. For 10 points, name this Romantic ballet with music by Adolphe Adam and a title character who becomes a Wili [vee-lee] following her death.

ANSWER: Giselle [or Giselle, ou les wilis; accept The Wilis or Les wilis before "Wili"]

16. An island outside of this city was the last place where Ernest Beaux worked as an interrogator before creating the perfume Chanel No. Five. That island near this city was the site of a concentration camp run by the British and French known as Mudyug Island. This city was the northern point in a “line” created by Erich Marks in his Operation Draft East study in 1940, and it was where the American ANREF force was sent by Woodrow Wilson during World War I. While working in this city, John Bellingham racked up a large debt, leading to his eventual decision to assassinate Spencer Perceval. This city was where Richard Chancellor arrived in 1553, establishing trade between England and Ivan the Terrible’s Russia. St. Petersburg was constructed after Peter the Great ordered a shipyard built in this port on the mouth of the Dvina before concluding that it was too icy to serve as a primary naval base. For 10 points, identify this Russian city on the White Sea named in honor of the biblical figure Michael.

ANSWER: Arkhangelsk [or Archangel]

17. The final poem of one of this poet’s collections declares that “problems of sexuality need not / trouble us here” because a recurring character is dead. This poet stated that a “daughter’s body / doesn’t exist, except / as a branch of the mother’s body,” in detailing a “second version” of the Persephone myth. This poet wrote, “I would like to see you walk off the face of the earth / because you are all that’s wrong with my life / and I need you and I claim you,” in a poem about the addressee’s title “Purple Bathing Suit.” This poet used the *Odyssey* as a basis for her collection *Meadowlands*. A poem by this woman asks, “Do you see? / we were made fools of,” and closes by wondering, “How can I rest? / how can I be content / when there is still / that odor in the world?” In that poem, this author wrote of the title flowers, “I hate them. / I hate them as I hate sex.” *Averno* and *The Wild Iris* are collections by, for 10 points, what American poet who wrote “Mock Orange” and served as Poet Laureate in 2003?

ANSWER: Louise Glück [or Louise Elisabeth Glück]

18. Two equivalents of this compound form a ligand found in a rubidium complex that switches from D₃ (“D-three”) to C₂ (“C-two”) symmetry upon excitation. Two units of this molecule are coupled and then methylated to synthesize the herbicide and ROS generator paraquat. A di-carboxylated derivative of this molecule makes up a significant portion of the mass of bacterial spores. A derivatized form of this compound removes a hydrogen from a carboxylic acid before it reacts with DCC in the Steglich esterification. That derivative of this compound contains a di-methyl-amino group substituted at the four position. Multiple equivalents of this compound are found in the terpy and bipy (“bippy”) ligands. A chlorochromate salt of this compound can be used to partially oxidize primary alcohols to aldehydes. This compound and methanol are the primary compounds added to “denature” alcohol. For 10 points, name this aromatic compound consisting of a six-membered ring with a nitrogen hetero-atom.

ANSWER: pyridine [or pyridinium]

19. Louis Rosoor claimed that a piece for this ensemble was intended to bear the subtitle “Pierrot argues with the moon.” The second movement of that piece for this ensemble is a “Sérénade” and features an arco passage for one performer marked “ironique” following a mostly pizzicato opening. That D-minor piece for this ensemble was the first of a planned cycle of six pieces for various instrumental combinations by Claude Debussy. *Elfentanz*, or *Dance of the Elves*, is one of the many challenging pieces for this ensemble by David Popper. Chopin’s sonata for this ensemble is in G minor, while Brahms’s first sonata for this ensemble ends with a fugal movement based on Contrapunctus 13 from *The Art of Fugue* and is in E minor. Complete sets of sonatas for this ensemble by Beethoven and Brahms were recorded by the husband-and-wife team of Jacqueline du Pré and Daniel Barenboim. For 10 points, name this ensemble composed of a low string instrument and a keyboard instrument.

ANSWER: cello and piano [accept the instruments in either order; accept violoncello in place of “cello” or pianoforte in place of “piano”; accept cello and piano sonata before “Elfentanz”]

20. This book contains a footnote praising Thomas Carlyle’s *Past and Present* for its “splendid description” of a sort of person who “knows no bliss save that of rapid gain” and “no pain save that of losing gold.” The book relays the anecdote of its author commenting that he “had never seen so ill-built a city,” to which a man replies, “And yet there is a great deal of money made here; good morning, sir.” This book, which Edmund Wilson speculates was written with the aid of illiterate sisters named Mary and Lizzie Burns, was first translated into English by Florence Kelley. The influential empirical data found in this work includes tables on illness and death rates in such towns as Carlisle and Preston, which are compared to statistics from rural Rutlandshire. This book was written while its author was employed by his father and Peter Ermen at a cotton mill in Manchester. The effects of the Industrial Revolution are examined in, for 10 points, what sociological study by Friedrich Engels?

ANSWER: *The Condition of the Working Class in England* [or *Die Lage der arbeitenden Klasse in England*]

Bonuses

1. Amy Beach based her only symphony on folk tunes from this country. For 10 points each:

[10] Name this country, home to poet-songwriter Thomas Moore and the inventor of the nocturne, John Field.

ANSWER: **Ireland** [or **Éire**]

[10] This Anglo-Irish composer brought Irish folk elements into a late romantic style in pieces such as his five *Irish Rhapsodies* and seven symphonies. As a professor at the Royal College of Music and then at Cambridge, he taught both Vaughan Williams and Holst.

ANSWER: Charles Villiers **Stanford**

[10] This piece by Percy Grainger draws on two traditional reels from Cork, one of which is “Temple Hill” and the other of which shares its name with this piece. Grainger later arranged this piece for military band.

ANSWER: **“Molly on the Shore”**

2. A statement about this action was partly rescinded in a passage comparing it to the right “a tortured man has to scream” and raising the broader question of whether “you can go on living.” For 10 points each:

[10] Name this action that a critic called “barbaric” because it represented “absolute reification” presupposing “intellectual progress as one of its elements” in the essay “Cultural Criticism and Society.”

ANSWER: writing **poetry after Auschwitz** [accept answers mentioning **poetry** or **poems** in the wake of **Auschwitz**; prompt on less-specific answers along the lines of “writing **poetry after the Holocaust**” or “writing **poetry**” or “writing after **Auschwitz**”]

[10] This leading cultural critic of the Frankfurt School discussed his remark that “to write poetry after Auschwitz is barbaric” in *Negative Dialectics*, published 19 years after his *Dialectic of Enlightenment*.

ANSWER: Theodor W. **Adorno** [or Theodor Wiesengrund **Adorno**; or Theodor Ludwig **Wiesengrund**]

[10] This critic wrote *Poetry after Auschwitz*, a study in which she argued that Adorno’s remark sparked a tradition of writing Holocaust poetry. With Sandra Gilbert, she authored a feminist interpretation of Victorian literature titled *The Madwoman in the Attic*.

ANSWER: Susan D. **Gubar**

3. This character ends his story by asking which of the people within the story ended up with the most freedom. For 10 points each:

[10] Name this character, a small landowner who recounts the story of how the squire Aurelius was charged to remove all the rocks from the coast of Brittany in exchange for the love of Dorigen.

ANSWER: the **Franklin** [accept “The **Franklin’s Tale**”]

[10] “The Franklin’s Tale” is often considered a foil to this other Chaucer character’s tale, in which a knight goes on a quest to learn what women desire most. This character often used her own body as a bargaining chip to get what she wanted from her many husbands.

ANSWER: The **Wife of Bath** [or **Alysoun**; accept “The **Wife of Bath’s Tale**”]

[10] “The Wife of Bath’s Tale” lampoons the idea that this noble quality is born from heredity. This French-derived term also titles a Chaucer poem in which the speaker argues that this quality derives from virtuous behavior, in contrast to vice, which can be inherited.

ANSWER: **gentillesse** [prompt on “**gentility**” or word forms such as “**genteel**”]

4. These materials ideally have a large scattering cross section but a low absorption cross section so as not to poison the reactor. For 10 points each:

[10] Name these materials used in nuclear reactors to slow down so-called “fast” neutrons so they can more easily interact with fissile fuel. Common examples include water and graphite.

ANSWER: neutron **moderators**

[10] For an infinitely large reactor with no leakage, the neutron multiplication factor can be computed using this equation, which accounts for the net effect of processes such as fast fission and resonance escape.

ANSWER: **four-factor** formula [or Fermi’s **four-factor** formula; prompt on “**Fermi**’s formula”]

[10] Because moderators do not absorb neutrons well, fission reactors also employ these components that can be inserted into the core to shut the entire reactor down.

ANSWER: **control rods** [prompt on “**rods**”]

5. This man's executioners used hot pliers to rip open his skin and ordered his fellow rebels to bite into and consume his flesh. For 10 points each:

[10] Name this man who was also chained to a red-hot iron throne and forced to wear a burning-hot iron crown after leading an unsuccessful revolt of peasants against his country's nobility and being captured by Jan Zapolya in 1514.

ANSWER: György **Dozsa** (GYER-geh DOH-zha) [or György **Szekely**; or Gheorghe **Doja**]

[10] The brutal crackdown against peasants after Dozsa's unsuccessful rebellion enabled the Ottomans to smash this country at the 1526 Battle of Mohacs. Its golden age occurred under its rulers Matthias Corvinus and Janos Hunyadi.

ANSWER: **Hungary** [or Kingdom of **Hungary**; or **Magyar** Kiralysag]

[10] Suleiman the Magnificent attacked Mohacs after this ruler pressured him to invade Hungary. His mother, Louise of Savoy, opened talks with the Ottomans while he was imprisoned in Madrid.

ANSWER: **Francis I** of France [or **François I**; prompt on "Francis" or "François"]

6. A chapter on this concept and freedom claims that, "from the very beginning, existentialism defined itself as a philosophy of" this concept. For 10 points each:

[10] Name this concept, the "ethics" of which titles a 1947 book that works out a moral system based on Jean-Paul Sartre's *Being and Nothingness*.

ANSWER: **ambiguity** [accept forms of the word **ambiguous** such as **ambiguousness**; accept *The Ethics of Ambiguity*]

[10] *The Ethics of Ambiguity* is a work by this existentialist philosopher, who wrote that "one is not born, but rather becomes, a woman" in her book *The Second Sex*.

ANSWER: Simone de **Beauvoir**

[10] Maurice Merleau-Ponty held that the "ambiguity of being-in-the-world is translated by that of" this entity in his book *The Phenomenology of Perception*. The "image" of this concept is discussed throughout the book, which argues that this thing is a subject that perceives the world and not a mere object.

ANSWER: the **body** [or le **corps**; accept **body**-image or **body** subject or le **corps** propre]

7. This thinker drew from Machiavelli in dividing people in political power into the categories of "foxes" and "lions" and describing the historical oscillation between governments led by both. For 10 points each:

[10] Name this Italian thinker who explained regime change as a process dependent on the "circulation of elites."

ANSWER: Vilfredo **Pareto** [or Vilfredo Federico Damaso **Pareto**]

[10] This sociologist criticized Pareto for using mathematical proportions of the population to define the "elite" in his study of American society titled *The Power Elite*.

ANSWER: C. Wright **Mills** [or Charles Wright **Mills**]

[10] Pareto's methods of identifying elites were later criticized in this American anthropologist's 1983 book *Elites: Ethnographic Issues*. He wrote the book *Anthropology as Cultural Critique* with Michael M. J. Fischer.

ANSWER: George E. **Marcus**

8. Zitkala-Sa's "Impressions of an Indian Girlhood" was originally published in this magazine. For 10 points each:

[10] Name this magazine that popularized regionalist "local color" fiction under the editorship of William Dean Howells in the 1870s. This magazine dropped "monthly" from its name in 2003 and is named for a body of water near its Boston headquarters.

ANSWER: *The Atlantic*

[10] Howells rejected this regionalist short story by Sarah Orne Jewett from the magazine for its alleged sentimentality. In this story, Sylvia refuses to disclose the location of a bird's nest to a hunter for ten dollars.

ANSWER: "The **White Heron**"

[10] Howell's praise of this Belarusian-born author as "a new star of realism" helped launch his career, during which he wrote *The Rise of David Levinsky* and published his story "The Imported Bridegroom" in the *Jewish Daily Forward*, which he edited for over 40 years.

ANSWER: Abraham **Cahan**

9. These molecules act through the Aub- and Ago3-dependent ping-pong cycle and form double-stranded clusters bound to the rhino-deadlock-cutoff complex. For 10 points each:

[10] Identify this class of RNAs named for their complexing to a protein required for germ-cell formation. They typically contain 26 to 31 nucleotides.

ANSWER: **piRNAs** ("P-I-R-N-A(s)") [or **Piwi-interacting RNAs**]

[10] Piwi proteins are named for their being induced by these transposons responsible for hybrid dysgenesis in *Drosophila*.

ANSWER: **P elements** [prompt on "**P**"]

[10] When piRNA silences a gene, it remodels this substance to its more tightly packed, hetero- form. The substance forms a 30-nanometer fibre that is condensed into chromosomes.

ANSWER: **chromatin** [accept hetero**chromatin**]

10. This boat was piloted by Grant West on a 54-hour, 710-mile journey to Bismarck, North Dakota, that set the downriver steam speed record. For 10 points each:

[10] Name this steamboat that began that journey on June 25, 1876, on the orders of General Alfred Terry.

ANSWER: ***Far West***

[10] The *Far West* thus brought the news of this battle in which the Dakota annihilated the U.S. 7th Cavalry.

ANSWER: Battle of **Little Bighorn** [or Battle of **Greasy Grass**; accept **Custer's Last Stand**]

[10] The U.S. defeat at Little Bighorn was first relayed on the deck of the *Far West* by Ashishishe, also known as Curley, a scout from this tribe that was generally friendly to the U.S. because of bitter relations with the Dakota and Cheyenne that ensued after this tribe were forced from Ohio by the "Iron Confederacy" of the Cree and Ojibwe.

ANSWER: **Crow** Tribe [or **Crows**; or **Apsáalooke**; or **Absaroka**; or **Crow** Tribe of Montana]

11. In this scene, Vargas jokes that he is "hot on the trail of a chocolate soda for my wife" before the camera shifts its focus to a woman who frantically claims to hear a "ticking noise" in her head. For 10 points each:

[10] Name this scene from a 1958 film that was shot by cinematographer Russell Metty. The camera tracks two couples as they move through a town on the Mexican border in this scene, which ends with the explosion of a car.

ANSWER: **opening** scene of ***Touch of Evil*** [accept **first scene** (or equivalents) or **crane shot** or **tracking shot** in place of "opening scene"; prompt on "**long take**" in place of "opening scene"]

[10] This director of *Touch of Evil*, despite the enduring acclaim for the opening shot, supposedly considered a longer continuous shot in the film, set inside an apartment, to be superior. He also directed *Citizen Kane*.

ANSWER: Orson **Welles** [or George Orson **Welles**]

[10] This much earlier Alfred Hitchcock film uses a crane shot to reveal the identity of a murderer. In that shot from this film, the camera glides over a hotel ballroom to eventually fixate on the twitching eyes of a blackface drummer.

ANSWER: ***Young and Innocent***

12. According to the *Mahabharata*, a man was warned of this event by a fish that he raised in a clay jar after it asked him to protect it from the larger fish in the sea. For 10 points each:

[10] Name this cataclysmic event that Manu survived by following Matsya's advice to gather a variety of seeds and build an ark for himself and the *rishis*. During this event, the fish pulled Manu's ark to the top of the Himavat.

ANSWER: Great **Flood** [or Great **Deluge**]

[10] The story of Manu is told in the *Vana Parva* by Markandeya to this figure. This man's noble choice to remain in Naraka with his brothers rather than ascend to Heaven is narrated in the *Mahabharata*'s closing passages.

ANSWER: **Yudhishtira** [or **Yudhisthira**]

[10] The Pandavas were forced to spend thirteen years in exile because Yudhishtira was defeated by Shakuni in this kind of event. After this event, Duryodhana tried to have Draupadi disrobed, but her sari kept growing to keep her covered.

ANSWER: game of **dice** [accept game of **Pachisi** or any answer indicating gambling or playing with **dice**; prompt on answers relating to "**gambling**"]

13. In his preface to an anthology from this country, David McCann notes how everyone he met in this country could recite the poem “Azaleas” and wonders how many Americans know Frost by heart. For 10 points each:

[10] Name this Asian country home to Kim Sowol and Pak In-hwan. This country’s leading female poet of the 1960s, Kim Nam-jo, wrote that “I do not know the name yet / for my child” in her poem “For Baby.”

ANSWER: **Korea** [accept North **Korea** or South **Korea**]

[10] This internationally recognized Korean poet tried to write about everyone he ever met in his book *Ten Thousand Lives*. Choi Young-mi’s poem “Monster” launched a recent wave of sexual misconduct allegations against this poet.

ANSWER: **Ko** Un

[10] In a work about *this thing*, Kim Hyesoon likens it to a Korean pressure cooker that was “dismantled the year I married.” This subject of an epic by Hans Magnus Enzensberger is called a “creature of cleaving wing” in another poem.

ANSWER: RMS **Titanic**

14. Answer the following about phonons, for 10 points each.

[10] Phonon dispersion relations are typically plotted only for the first of these regions of momentum space, which divide up the reciprocal lattice into cells.

ANSWER: **Brillouin** (BREE-loo-an) **zones**

[10] The Dulong–Petit law for heat capacity fails at low temperatures because it assumes that lattice vibrations follow this purely classical result, which states that each degree of freedom contributes a factor of “one-half kT” to the total energy.

ANSWER: **equipartition** theorem

[10] Below the Debye temperature, electron-phonon scattering causes the resistivity of metals to be proportional to this power of the temperature, a result sometimes named for Bloch.

ANSWER: **fifth** power [accept **5**]

15. This event was preceded by growing tensions between Spoletan and Roman factions over whether Arnulf or Lambert should be Holy Roman emperor. For 10 points each:

[10] Name this event in which Pope Stephen VI put the rotting corpse of his predecessor, Formosus, on trial, declared Formosus’s actions void, and ordered the body thrown in the Tiber.

ANSWER: **Cadaver Synod** [or the **Synodus Horrenda**]

[10] In another erratic papal act, this pope supposedly excommunicated Halley’s Comet during the Siege of Belgrade in 1456.

ANSWER: **Callixtus III** [or **Alfons** de **Borja**; prompt on “**Callixtus**” or “**Borja**” or “**Borgia**”]

[10] During the 15th century, Pius II had this man burned in effigy in a “reverse canonization” ceremony damning him to hell. This *condottiero* was accused of murdering his first two wives as ruler of Rimini, where he built the church of San Francesco.

ANSWER: Sigismondo Pandolfo **Malatesta**

16. This concept was exemplified by a performance in which gold dust was thrown into the Seine to memorialize ownership of a “zone of immaterial pictorial sensibility.” For 10 points each:

[10] Name this concept used to title an exhibition in which an artist painted the Iris Clert Gallery entirely white and removed all of its objects except an empty cabinet. This word also appears in the title of a photomontage in which that artist seemingly leaps out a second-story window.

ANSWER: The **Void** [or Le **Vide**; accept **Leap into the Void** or **Saut dans le vide**]

[10] This 20th-century French experimental artist also painted many monochromes as an extension of his interest in the Void, which he theorized in his *Chelsea Hotel Manifesto*.

ANSWER: Yves **Klein**

[10] Klein is the namesake of an “international” shade of this color, another shade of which is produced from the gemstone lapis lazuli.

ANSWER: **blue** [accept International Klein **Blue**]

17. The first comprehensive treatment of this idea is found in a “manual” by Nicomachus of Gerasa. For 10 points each:
[10] Name this idea related to the order of the universe that is also discussed in Cicero’s *Dream of Scipio*, in which Scipio Africanus explains this concept that his grandson perceives as “tantus et tam dulcis.”

ANSWER: **music of the spheres** [or **musica universalis**; or **universal music**; or **harmony of the spheres**]

[10] The first section of this late antiquity thinker’s *De institutione musica* discusses the music of the spheres, which is greater than the music of spiritual harmony and instrumental music produced by humans. He was executed shortly after completing a work framed around the fickleness of fortune.

ANSWER: **Boethius** [or Anicius Manlius Severinus **Boëthius**; or **Boetius**]

[10] The concept of the music of the spheres is credited to this mystic, who banned his followers from eating beans, taught the transmigration of souls, and is credited with devising a fundamental geometrical theorem.

ANSWER: **Pythagoras** of Samos

18. Madame de Graffigny satirized French society through the viewpoint of Zilia, the fiancée of the Sapa Inca, in a novel titled for works in this form from a Peruvian woman. For 10 points each:

[10] Name this literary form, the primary output of 17th-century writer Madame de Sévigné. Uzbek and Mirza travel through Europe in Montesquieu’s 1721 book titled for “Persian” works of this form.

ANSWER: **letters** [or **lettres**; accept answers mentioning **epistolary** writing or fiction or similar; accept ***Letters from a Peruvian Woman*** or ***Lettres d’une Péruvienne*** or ***Persian Letters*** or ***Lettres persanes***]

[10] One of Sévigné’s letters praises this author’s two-million-word novel *Artamène*, one of the longest novels ever. As a literary title character, this sister of the Corneille-hating pamphleteer Georges solves a series of poisonings in a pioneering detective story by E. T. A. Hoffman.

ANSWER: Madeleine de **Scudéry** [or Mademoiselle de **Scudéry**; accept ***Mademoiselle de Scudéry***]

[10] Sévigné’s friend Gabriel-Joseph de La Vergne is the likely author of a popular work of epistolary fiction attributed to a nun from this country. Jacques the Anabaptist dies in a storm off the coast of this country in another French novel.

ANSWER: **Portugal**

19. Because the radiation source for this technique is inherently monochromatic, it is modulated using the Doppler effect, which results in spectra being plotted against velocity. For 10 points each:

[10] Name this technique that observes the atomic nucleus by relying on an effect in which a bulk solid absorbs a photon in a recoilless manner.

ANSWER: **Mössbauer** spectroscopy

[10] Mössbauer spectroscopy typically uses a cobalt-57 source. That source decays to iron-57 to generate this type of high-energy radiation which, beyond being higher energy than X-rays and usually being emitted by nuclei, is somewhat nebulously defined.

ANSWER: **gamma** ray [accept **gamma** radiation]

[10] Gamma ray-based spectroscopy often uses scintillation detectors, whose scintillators commonly consist of this compound doped with thallium.

ANSWER: **sodium iodide** [accept **NaI(Tl)**]

20. The victims of this conflict are chronicled in the UN report “Memory of Silence.” For 10 points each:

[10] Name this conflict between government forces and rebel groups such as the Guerrilla Army of the Poor. During this conflict, activists occupying the Spanish Embassy were burned alive by the army in 1980.

ANSWER: **Guatemalan Civil War** [accept answers mentioning **Guatemala** and **civil war** or **guerra civil**]

[10] The UN report argued that the enormous number of Mayans massacred during the Guatemalan Civil War constituted this crime. In 2013, Guatemalan dictator Efraín Ríos Montt was convicted of this crime against humanity, the first time a head of state was found guilty of it by their country’s judicial system.

ANSWER: **genocide**

[10] The Guatemalan civil war began six years after this CIA-backed operation that overthrew Jacobo Árbenz Guzmán and installed Carlos Castillo Armas.

ANSWER: Operation **PBSUCCESS**