



ACADEMIC  
COMPETITION  
FEDERATION

ACF NATIONALS 2018

ROUND 15  
PLAYOFFS 7

packet by  
THE EDITORS (7)

## Tossups

1. After World War I, the holder of this position toured the U.S., including a visit to the Pueblo village of Isleta to bestow an award on Father Anton Docher. In 1960, the holder of this position was wearing a white military uniform and standing in a black limousine when his ceremonial sword was snatched during a parade. A 1950 general strike was called during an ongoing constitutional crisis that stemmed from the holder of this position refusing to abandon the army and join a government-in-exile during World War II. That “Royal Question” concerning the holder of this position was resolved when this position passed to a man named Baudouin. After three French candidates, including Louis, Duke of Nemours, were rejected, a German prince who had turned down an offer to be king of Greece was made the first holder of this position following an 1830 revolution. For 10 points, name this position held by Albert I and three men named Leopold.

ANSWER: king of Belgium [or king of the Belgians; accept any answer indicating the king or monarch of the Kingdom of Belgium or the Belgian king; prompt on “king”]

2. Vesicomyids may use this ecosystem as a dispersal stepping-stone habitat because individuals found in these ecosystems contain lineages that can exist in multiple reducing environments. The genus *Osedax* was first found in this ecosystem, which often hosts members of the genus *Idas*. These ecosystems are believed to progress to a climax community of suspension feeders called the “reef stage,” which has yet to be observed. Succession in these ecosystems begins with a mobile scavenger stage, followed by an enrichment-opportunist stage, and then a sulphophilic stage. Zombie worms dig into this ecosystem's natural features, which include cores consisting of 60% lipid matter. The mollusk *Osteopelta* can be found in this ecosystem that—along with marine snow, hydrothermal vents, and cold seeps—provides a major source of nutrients in deep-sea communities. For 10 points, name this ecosystem formed after the death of a large marine mammal.

ANSWER: whale falls [accept whale carcasses; accept whale corpses; accept whale skeletons; accept whale bones; prompt on answers referring to the bottom of the ocean; prompt on abyssal zone or abyssal plains]

3. The speaker of a poem set in this country says of the confluence of two rivers, “I liked the place; I liked the idea of the place.” At the end of that poem set in this country, the speaker remembers admiring an empty wasps’ nest so much that its owner gave it to her, only for Mr. Swan to ask, “What’s that ugly thing?” On seeing this country’s flag, the speaker states that “I somehow never thought of there *being* a flag, / but of course there was, all along,” in a poem that begins, “Here is a coast; here is a harbor; / here, after a meager diet of horizon, is some scenery.” A poem set in this country closes with a traveler asking, in a notebook, “Should we have stayed at home, wherever that may be?” and opens, “There are too many waterfalls here.” A poet’s time in this country with the architect Lota de Macedo Soares (LOH-tah de mah-SAY-doh soh-AH-race) inspired the collection *Questions of Travel*, which includes a poem about the use of fire balloons to honor a saint. For 10 points, what South American country is the setting of “The Armadillo” and other poems by Elizabeth Bishop?

ANSWER: Brazil [or Federative Republic of Brazil; or República Federativa do Brasil]

4. Tanabos the Enchanter cast a spell on this structure so that it could be reached only by chance. It was built by King Calafes, also called Alphasan, as a gift for Alain le Gros and his brother after they cured the king of leprosy. A visitor to this structure, distracted by the sight of a beautiful maiden was punished with an empty plate during a magical feast. Earlier, that man had failed to save a woman from a boiling bath outside this structure’s gates. In this structure, a fiery spear was cast at anyone who used its Adventurous Bed, which Gawain survived only because he slept in his armor. The invisible Garlon was killed in this castle by Balin, who then used a bleeding lance to inflict the Dolorous Stroke upon its ruler. After seeing a procession of damsels carrying sacred relics at this place, Perceval failed to say the words that would have lifted the desolation over its surrounding lands. This was the home of Elaine, Galahad’s mother, and the Fisher King. For 10 points, name this castle that housed a holy relic from the Last Supper.

ANSWER: Grail Castle [or Corbenic; or Corbin; accept Munsalväsche or Montsalvat; accept Grail Castle after the first mention of “castle”; prompt on answers that mention “castle” and “King Pelles” or “Fisher King” or “Maimed King” or “Wounded King before “Pelles”]

5. In a ballet created in this present-day country, an amnesiac girl is taken captive at the Blue Grotto after a storm but later escapes with her beloved, the fisherman Gennaro. A tenor born in this country holds the record for the most appearances as Tristan at the Met with 128 and often starred opposite the Norwegian soprano Kirsten Flagstad in Richard Wagner operas. The ballet *Napoli* was created in this country, where the Italian-born dancer Vincenzo Galeotti taught for the last phase of his career. This home of *heldentenor* Lauritz Melchior was also the adopted homeland of the French-born dancer Antoine Bournonville, whose son August directed this country's Royal Ballet for almost 50 years. A composer from this country employed two sets of warring timpani in his fourth symphony, which represents the "will to live." For 10 points, name this home of the composer of the *Inextinguishable Symphony*, Carl Nielsen.

ANSWER: Denmark [or Kingdom of Denmark; or Kongeriget Danmark]

6. This town is the namesake of a unique language, studied by Mostafa Souag, that has addressee agreement on demonstratives. In World War I, this town was the headquarters of 5,000 Germans and Turks and the most fortified of a "band" that included Farafra and Dakhla. A British "raid" on this town led by armored Rolls-Royce cars caused Sayed Ahmed Sherif to flee to nearby Jaghbug. In the 1920s, Harvard anthropologist Walter Cline lived in this town for three months to produce a monograph describing how it had open homosexuality and a type of monogamous marriage between a man and an adolescent boy. The fall of this town led to the end of a World War I campaign that pitted the British against the Senussi order. The name "ammonia" derives from the sublimed deposits from burning camel dung at the Oracle of Amun in this modern-day city. The "lost army of Cambyses" disappeared while trying to capture, for 10 points, what historically important Saharan oasis?

ANSWER: Siwa Oasis [or Isiwan; accept Ammon or Amun or Ammonium before "ammonia"]

7. This novella's main character visits a room whose only decoration is a black Christ on the wall, after which he dreams of a hand holding a bell and moving toward him. This novella climaxes with the protagonist poring over yellowed papers detailing their author's reactionary opinions on Republicanism, Boulanger, and Dreyfus, which give way to notes on experiments that that writer's wife conducted with magical herbs. A rabbit named Saga and a group of cats that the title character tortures live in the rat-infested, perpetually dark house where this novella is set. This novella, which is written in second person, follows a young historian who is hired by the 109-year-old Señora Consuelo to write the memoirs of her dead husband and who then falls in love with the green-eyed title character, a magically created younger version of Consuelo. For 10 points, name this Carlos Fuentes novella about Felipe Montero.

ANSWER: Aura

8. Reactions with this property that undergo cationic intermediates may be controlled with ACDC catalysis. Ben Feringa's early work with this sort of reaction involved the use of phosphoramidite ligands, which served as catalysts for 1,4 additions with this property. Catalysts for reactions with this property often contain privileged ligands such as salen or BOX with C<sub>2</sub> symmetry. A mixture of potassium osmate, ferricyanide, carbonate, and a ligand are used for AD mixes for a reaction with this property. David Evans introduced the use of auxiliaries for use in aldol condensations with this property. The Cieplak (chye-plahk) effect attempts to explain the distribution of reactions with this property for cases not explained by the Felkin-Anh or Cram models. The purity of a reaction with this property may be measured with the enantiomeric excess. For 10 points, name this type of reaction that produces unequal amounts of isomeric products.

ANSWER: asymmetric reaction(s) [or enantioselective reaction(s); accept stereoselective or enantioselective reaction(s); accept "synthesis" in place of "reaction(s)" in any of the preceding answers; prompt on "chiral (synthesis)" or forms of the word "chiral" such as "chirality"]

9. This dialogue quotes a Pindar fragment that describes how Persephone sends the sun up above humans whom she will punish for "ancient woes." Because this dialogue makes the point that a guide with a true opinion of the way to Larissa would be as good as one with knowledge, it sometimes names the contemporary "swamping problem" about the value of knowledge. Like the *Hippias Major* and the *Euthyphro*, this dialogue uses the metaphor of Daedalus's moving statues. This dialogue introduces an apparent paradox that holds that inquiry is unnecessary if you know what you're looking for and impossible if you don't. During an attempt at defining virtue in this dialogue, Socrates conducts an *elenchus* to demonstrate that all knowledge is recollection. For 10 points, name this dialogue in which Socrates guides a slave through the operation of doubling the area of a square to prove the immortality of the soul.

ANSWER: Meno

10. In one painting, this name is shown in the *bastarda* cursive script, apparently etched onto a stone barrier and in phrasing that Lome Campbell theorized was a satire of legalese. In that painting, this name appears below a French inscription meaning “loyal memory” on a portrait believed to depict Timotheus of Miletus. In paintings thought to be pendant portraits, this name is rendered in conjunction with the Latin phrases “me fecit” and “me complevit” in abbreviated Greek script. This name, whose inclusion in artworks was unconventional for its time, often appears with the words “was here,” as in a painting in which it is rendered on a wall in lavish calligraphy near the date “1434” and above a convex mirror whose wooden frame depicts the Stations of the Cross. The punning personal motto “as I can” often appears alongside, for 10 points, what name painted onto works such as *Man in a Red Turban* and *The Arnolfini Wedding* to identify their creator?

ANSWER: Jan **van Eyck** [or Johannes **van Eyck**; or **Johes. de Eyck**; accept answers mentioning Jan **van Eyck**’s signature or similar; prompt on “**Jan**” or “**Johannes**” or “**Johes.**” or “**Eyck**”; prompt on “artist’s signature” or similar answers]

11. An outlaw in this modern-day state was allowed to remove his boots before he was hanged by a posse for shooting prospector “Hard Luck” Harrison, in order to defy his mother’s prediction that he’d die with his boots on. That outlaw during this state’s territorial days, “Big” Steve Long, was killed soon after N. K. Boswell became sheriff. In the 1930s, this state’s governor Nels Smith ordered the use of a three-inch howitzer during an eleven-day manhunt for the outlaw Earl Durand. In this state in the 1890s, a rancher named Nate Champion was killed during a shootout at the KC Ranch. A band of Texans brought into this western state were led by former sheriff Frank M. Canton and formed a group known as “The Invaders” or “Wolcott’s Regulators” during a conflict that erupted over alleged cattle rustling along the Powder River. The Johnson County War was fought in, for 10 points, what state, where the Great Western Cattle Trail passed through Fort Laramie?

ANSWER: **Wyoming**

12. This group was the target of bombings that destroyed five cargo cranes, which the U.S. donated 3.9 million dollars to replace; however, the replacements were not delivered on the recommendation of U.S. ambassador Matthew Tueller. The U.S. directly struck at this group for the first time after alleging that this group had targeted the destroyer USS *Mason*. An alliance with a former world leader led to the 2014 capture of a capital city by this group, whose slogan calls for “death to America,” “death to Israel,” and a “curse on the Jews.” That alliance between this group and their former enemy resulted after the election of Abdu-Rabbu Mansour Hadi. The U.S. alleges that this predominantly Zaidi group has major backing from Iran in an ongoing war that began in 2004 as a rebellion against Ali Abdullah Saleh. A 2017 cholera epidemic has affected areas controlled by, for 10 points, what majority-Shia group of rebels battling Saudi-backed forces in Yemen?

ANSWER: **Houthis** (HOO-theez) [or al-**Huthiyyun**; or **Ansar Allah**; prompt on “Supporters of Allah”]

13. While disoriented by a strong opiate, the protagonist of this novel wanders to a midnight fête held in a park, where she sees “the secret junta” who conspired to send a man to “Guadeloupe.” In an oft-discussed episode of this novel, the protagonist is hurried to a series on “vie d'une femme” at a gallery after a man catches her looking at an orientalist painting of a fleshy nude “Cleopatra.” In order to visit Ginevra, a count in this novel dresses up as the ghost of a legendary nun who was buried alive for violating her vows. The comic French-language names used throughout this novel include that of the kingdom it’s set in, Labassecour, which means “barnyard.” Inspired by the author’s time at a *pensionnat* in Belgium, this novel follows a woman who falls in love first with Dr. John and then M. Paul, who are also employed at Madame Beck’s boarding school. For 10 points, name this novel about Lucy Snowe’s time in the title town by Charlotte Brontë.

ANSWER: **Villette**

14. The historian Sozomen writes that adherents of this movement practiced two weeks of half fasting, or “xerophagia,” during which they mostly ate cabbage. A later supporter of this movement, Themiso “the Confessor,” was cast into prison but bought his way out after the populace sent him large gifts of money. Adherents of this belief wrote that a new Jerusalem would descend on the village of Pepuza and made inscriptions in the Tembris River Valley. The man who founded this movement was assisted by two female disciples, Prisca and Maximilla, and had followers known as Cataphrygians because of that founder’s origin as a priest of Cybele in Phrygia. A convert to this belief included its teachings in his *Against Marcion* and dubbed it the “New Prophecy.” Tertullian converted to, for 10 points, what heretical Christian sect that centered on ecstatic visions of the Holy Spirit and thrived in North Africa starting in the late 2nd century CE?

ANSWER: **Montanism** [or **Montanists**; accept **New Prophecy** before “Prophecy”; accept **Cataphrygian** before “Cataphrygians”; prompt on “Phrygians” before “Cataphrygians”]

15. A paper on these data structures by Douglas Comer suggests that they could be used for a virtual paging system due to the ease of writing a “Least Recently Used” algorithm for them. That paper also contains an overview of IBM’s VSAM, an early system that used these data structures. As usually implemented, these data structures always guarantee an occupancy of at least 50%, making them very space efficient. The prefix-key compression algorithm is needed when implementing these data structures to guarantee their high fanout. Indexing in database systems is often handled by a form of these data structures in which the lowest nodes form a doubly linked list, which is known as their “plus” type. The “2-3 tree” is a simple member of this larger family of data structures. For 10 points, name these self-balancing trees that apply the binary search tree property to nodes with more than two children.

ANSWER: **B-trees** [accept **B-plus trees**; accept **B** (trees) after “(2-3) tree”; prompt on “trees” or “balanced trees” or “self-balancing trees” or “self-balanced trees” before “trees”; do not accept or prompt on “(self-balancing) binary (search) tree(s)” or other answers mentioning “binary (trees)”]

16. The lyrical second theme of this piece is introduced by horns and violas playing *espressivo ma tranquillo*. Like the fourth movement of the composer’s first piano concerto, the climax of this piece is marked *allegro marziale animato*, and that marking may refer to a trumpet calling man to battle. This piece was originally written as the introduction to four settings of poems by Joseph Autran. The score of this piece includes a preface which calls love the “enchanted dawn of all existence” and describes a storm that shatters the illusions of youth. Like its predecessors, *Ce qu’on entend sur la montagne* (seh kon awn-tawn sur lah MON-tan-yuh) and *Tasso, Lamento e Trionfo*, this piece is dedicated to the composer’s lover, Carolyne von Sayn-Wittgenstein. Although it was conceived as an overture to the composer’s choral cycle *The Four Elements*, the title of this piece is taken from a poem by Alphonse de Lamartine. For 10 points, name this third and most frequently performed symphonic poem by Franz Liszt.

ANSWER: *Les préludes* [or *The Preludes*]

17. These beings resemble the Freudian drives and are the “signature of [an author’s] spirit” according to a chapter subtitled for them in Harold Bloom’s *The Western Canon*. That chapter discusses a scene in which one of these beings suggests the motto “to yourself be true!” is better stated as “to yourself be—enough!” The protagonist of a play is advised to “go round about” by one of these beings that blocks his way in the dark. In another play, a woman recalls how, when she was a girl, the protagonist promised to take her away like one of these creatures and give her a kingdom; those characters, Hilde and Solness, later discuss the creatures of this sort inside themselves. The title character of a play nearly marries the daughter of the king of these creatures before escaping their mountain hall. Henrik Ibsen’s *The Master Builder* and *Peer Gynt* symbolically feature, for 10 points, what creatures of Scandinavian folklore?

ANSWER: trolls [or Great Bøyg]

18. A 1971 book on a type of this process assessed successes and failures to “definitive,” “purposeful,” “catalytic,” and “expressive” actions and was written by James Cable. This is the outward-facing process in a “two-level game” proposed in a 1988 paper by Robert Putnam that applies a theory devised in another context by Richard Walton and Robert McKersie. Louise Diamond and John McDonald cowrote a 1996 book that identifies “business,” “activism,” “religion,” and “funding” as among the nine “tracks” in a “multi-track” system of this process. That book drew from Joseph Montville’s original division of this process into two “tracks,” the second of which involves backchannels and non-state actors. The use of “constructive ambiguity” in this process is exemplified by the Six-Point Agreement of 1973. The extensive travels of Henry Kissinger following the Yom Kippur War exemplify the “shuttle” form of, for 10 points, what negotiating process that has historically also been done via “gunboat”?

ANSWER: diplomacy [accept answers mentioning forms of the word diplomacy such as diplomatic negotiations; accept gunboat diplomacy or multi-track diplomacy or two-track diplomacy or track II diplomacy or preventive diplomacy or shuttle diplomacy; prompt on “international relations” or “IR” or answers mentioning “negotiations” or “negotiating” or similar]

19. The classic English translation of this work is usually prefaced with Carl Jung’s commentary, which praises “useless books” meant for “queer folk.” A woman who coproduced a 1975 translation of this text, Francesca Fremantle, published a 2003 book about “understanding” it titled for its concept of “luminous emptiness,” which is related to the “clear light of reality” that it describes. Aldous Huxley gave the Walter Evans-Wentz translation of this text to Timothy Leary, whose book *The Psychedelic Experience* compared the experience of an LSD high to the stages outlined in this book. A realm first described in this book is where Abraham Lincoln seeks his son Willie in the first novel by George Saunders. Karma Lingpa was the *tertön*, or “revealer,” of, for 10 points, what religious text whose original-language title references an “intermediate state” known as the *bardo* and that outlines the belief in post-mortem consciousness in Tibetan Buddhism?

ANSWER: *Tibetan Book of the Dead* [or *Bardo Thodol*; accept *Liberation Through Hearing During the Intermediate State* or *Natural Liberation through Understanding in the Between* or *The Great Liberation through Hearing in Bardo* or close translational equivalents]

20. A landmark experiment by Bascom Deaver and William Fairbank provided the first observations of quantization of this quantity, although the observed value was half of previous predictions. A so-called “force” is given by the product of this quantity and the reluctance in Hopkinson’s law. In superconducting loops, this quantity, in SI units, is quantized in multiples of Planck’s constant divided by twice the electron charge, and the Josephson constant has dimensions of one over this quantity. This quantity is said to be “frozen” in MHD because it is conserved for any closed contour. The mutual inductance of a pair of current loops is equal to this quantity divided by the driving current. The negative time derivative of this quantity equals the induced electromotive force according to Faraday’s law. For 10 points, name this quantity that is equal to the surface integral of the magnetic field and whose SI unit is the weber (VAY-bur).

ANSWER: **magnetic flux** [accept **flux** after “magnetic”; prompt on “flux” before “magnetic”; do not accept or prompt on “magnetic flux density”]

**Bonuses**

1. A “study” of this kind of science fiction is presented in Gary Westfahl’s book *Cosmic Engineers*, which examines Hal Clement’s story “Mission of Gravity.” For 10 points each:

[10] Give this adjective that describes science-fiction stories that seemingly focus on scientific accuracy rather than character or setting.

ANSWER: **hard** [accept **hard** science fiction or **hard** SF]

[10] Many of this author’s hard science-fiction stories were first published by Ben Bova in *Analog*. He wrote about Valentine Michael Smith, a man who is raised by Martians, in his novel *Stranger in a Strange Land*.

ANSWER: Robert **Heinlein** [or Robert Anson **Heinlein**]

[10] Hard sci-fi author and astronomer Alastair Reynolds participated in the John Harrison–led internet discussion that coined the name for this movement associated with China Miéville’s work. Jeff and Ann VanderMeer edited an anthology titled for this literary movement, which blends aspects of fantasy, sci-fi, and horror.

ANSWER: **new weird** [accept *The New Weird*]

2. Handel used this form for the opening of his *Music for the Royal Fireworks* and for the “Sinfonia” to *Messiah*. For 10 points each:

[10] Name this form popular during the Baroque era that begins with a slow introductory section with dotted rhythms, followed by a faster fugal section.

ANSWER: **French overtures** [prompt on “overtures”]

[10] This Italian-born French composer pioneered the French overture as well as *tragédie lyrique*. He dominated French court music until he stabbed himself with his conducting staff and died of gangrene.

ANSWER: Jean-Baptiste **Lully** [or Giovanni Battista **Lulli**]

[10] Although Lully favored direct, syllabic singing, he still allowed performers to use ornaments like turns and trills, which were collectively known by this French term. They also became a feature of instrumental music, with Francois Couperin laying out rules for them in his *Art of Playing the Harpsichord*.

ANSWER: **agréments**

3. Answer the following about feedback and control in systems design, for 10 points each.

[10] When there is no feedback at all, the ratio of the output signal to the input signal is referred to as this type of transfer function.

ANSWER: **open-loop** transfer function

[10] Nonlinear systems can be stabilized by finding one of these functions that is positive definite but has a constant negative derivative along system trajectories.

ANSWER: control-**Lyapunov** functions

[10] The transfer function is typically determined by applying this operation to the differential equation that governs the system. It maps the time domain to the complex frequency domain, and the Fourier transform is equivalent to the two-sided form of this operation with the real part set to zero.

ANSWER: **Laplace transform** [accept **Laplace transformation**]

4. A program that sought to establish these places was put in place three years after the Rural Community Development Program. For 10 points each:

[10] Name these “safe” settlements to which peasants were relocated away from insurgent hot spots. They are the namesake of a resettlement program that began in 1962 during America’s early involvement in Vietnam.

ANSWER: **strategic hamlets** [or **protected hamlets**; accept **Strategic Hamlet** Program; prompt on “hamlets”]

[10] The Strategic Hamlet Program ended after the 1963 death of this South Vietnamese leader, who was unpopular with Buddhists due to his staunch Catholicism.

ANSWER: **Ngo Dinh Diem** [accept either underlined portion]

[10] Documents declassified in 2004 showed that this intelligence bureau within the State Department, led at the time by Thomas Hughes, had prepared a 1969 report documenting its repeated warnings that U.S. policy in Vietnam was failing, including reports warning of the ineffectiveness of the Strategic Hamlet Program .

ANSWER: **INR** [or Bureau of **Intelligence and Research**; accept **Research and Analysis** Bureau]

5. This concept is central to its deviser's treatment for negative automatic thoughts, or NATs. For 10 points each:  
[10] Name this concept that groups together the "self," the "world," and the "future" as three subjects that sufferers of depression have automatic, irrationally pessimistic thoughts about.

ANSWER: Beck's **cognitive triad** [or Beck's **negative triad**; or **Beck's triad**; prompt on "triad"]

[10] The cognitive triad is central to Beck's approach to therapy, which is described by both this adjective and "cognitive."

ANSWER: **behavioral** [accept cognitive **behavioral** therapy]

[10] This American psychologist devised a system called rational emotive behavior therapy, which was one of the approaches that influenced Beck's development of CBT.

ANSWER: Albert **Ellis**

6. Name these 20th-century American authors who wrote short stories titled for fathers, for 10 points each.

[10] A man seeks out the aristocrat who ran his father over in a carriage in one of the threads of this author's story "Views of My Father Weeping." The volumes *Forty Stories* and *Sixty Stories* collect this author's archetypally postmodern stories, such as "Indian Uprising."

ANSWER: Donald **Barthelme**

[10] The narrator's 86-year-old father begs her to write a "simple story" in this author's best-known story, "Conversations with My Father." Her collections include *The Little Disturbances of Man* and *Enormous Changes at the Last Minute*.

ANSWER: Grace **Paley**

[10] This author of *Reservation Blues* used a characteristically lengthy title for the story "Because My Father Always Said He Was the Only Indian Who Saw Jimi Hendrix Play 'The Star Spangled Banner' at Woodstock."

ANSWER: Sherman **Alexie** [or Sherman Joseph **Alexie Jr.**]

7. The courtyards of a massive temple dedicated to Amun-Re at this location are divided by two-towered gateways called pylons, which were designed to resemble the hieroglyph for "horizon." For 10 points each:

[10] Name this ancient temple complex connected to Luxor by an avenue of ram-headed sphinxes. A chamber here holds a so-called "Botanical Garden" of reliefs, showing flora and fauna that Thutmose III saw on his campaigns.

ANSWER: **Karnak** [prompt on "Thebes"]

[10] This dominant feature of the Karnak temple complex was built under Seti I and Ramses II. Clerestory lighting in this area was achieved by a center held up by tall papyrus-capital columns, with short bud-capital columns on the sides.

ANSWER: Great **Hypostyle Hall**

[10] A notably "unfinished" example of these monuments was planned for Karnak by Hatshepsut. These needle-like four-sided objects include the Washington Monument and one above Bernini's *Fountain of the Four Rivers*.

ANSWER: **obelisks**

8. The line "equal they fought, equal they yielded" in Martial's *Liber Spectaculorum* describes these two men in combat. For 10 points each:

[10] Name these two gladiators who both were declared winners and granted their freedom after their fight during the inaugural games in the Coliseum.

ANSWER: **Priscus** and **Verus** [accept in either order]

[10] The battle between Priscus and Verus was the highlight of the opening of the Coliseum under this Roman emperor, who succeeded his father, Vespasian. His namesake arch commemorates his capture of Jerusalem.

ANSWER: **Titus** [or **Titus** Flavius Caesar Vespasianus Augustus]

[10] Like Martial and Suetonius, this Bithynian historian's work describes the inauguration of the Coliseum. His 80-book *History of Rome*, which spans the founding to the third century CE, survives in fragments.

ANSWER: **Cassius Dio** [or **Dio Cassius**; prompt on "Dio" or "Cassius"]

9. John Martin Fischer developed a "semi-" version of this philosophical position. For 10 points each:

[10] Give this term for positions that attempt to reconcile free will and determinism, such as by holding that moral responsibility can exist in a deterministic universe.

ANSWER: **compatibilism** [accept semi-**compatibilism** or forms of the world **compatibilist**]

[10] John Martin Fischer's position of semi-compatibilism draws on the account of moral responsibility presented in this 1962 essay, which discusses the "reactive attitudes" that we would have even if convinced of the truth of determinism.

ANSWER: "**Freedom and Resentment**" [by P. F. Strawson]

[10] This philosopher revitalized attempts to reconcile determinism and moral responsibility by proposing namesake cases that violate the Principle of Alternate Possibility. The 2016 election revived interest in his book *On Bullshit*.

ANSWER: Harry **Frankfurt** [or Harry Gordon **Frankfurt**]

10. Cyclopentadienyl groups have a value of five for this quantity. For 10 points each:

[10] Name this value that, for a ligand, is symbolized eta and is the number of contiguous atoms on the ligand coordinated to a metal center.

ANSWER: hapticity

[10] The term hapticity was coined by this Texas A&M chemist, who, with Geoffrey Wilkinson, authored the influential textbook *Advanced Inorganic Chemistry*.

ANSWER: F. Albert Cotton [or Frank Albert Cotton]

[10] F. A. Cotton identified one of these structures in the octa-chloro-di-rhenate ion. These structures contain a single delta bond, and one of them is found in chromium(II) acetate.

ANSWER: quadruple bonds

11. Chapters in Lynn Hunt's *Inventing Human Rights* and Robert Darnton's *The Great Cat Massacre* detail the emotional letters about this event that the author received from readers. For 10 points each:

[10] Name this plot point that caused much lamentation among the readers of a best-selling 1761 novel. It occurs shortly after its subject, who had fallen into a lake, sends a letter to Saint-Preux asking him to care for her children.

ANSWER: the death of Julie [accept "the New Héloïse" or "la nouvelle Héloïse" in place of "Julie"; accept obvious equivalents for "death"]

[10] *Julie, or the New Héloïse*, which is sometimes considered the best-selling book of the 18th century, was written by this Geneva-born philosopher who also wrote *Confessions* and *Reveries of a Solitary Walker*.

ANSWER: Jean-Jacques Rousseau

[10] A critique of Rousseau's unconvincing portrayal of Julie appears in the letters of this daughter of Jacques Necker, who wrote the novel *Corinne* and conducted a salon in Switzerland after fleeing France due to her opposition to Napoleon.

ANSWER: Germaine de Staël [or Anne Louise Germaine de Staël-Holstein; or Madame de Staël]

12. This object was dismissed as "fraudulent moonshine" by Thomas Carlyle, centuries after its display in Claudius Du Puy's museum of curiosities. For 10 points each:

[10] Name this object now residing at Sidney Sussex College, the subject of an exhaustive 1934 study by Karl Pearson and Geoffrey Morant that claimed to confirm its authenticity.

ANSWER: Oliver Cromwell's head [accept answers mentioning head or skull of Oliver Cromwell]

[10] Cromwell's head was stuck on a pike after his posthumous "execution" during the reign of this monarch, who came to power in the Restoration.

ANSWER: Charles II [prompt on "Charles"]

[10] Along with John Bradshaw and Cromwell, this other man was posthumously "executed." This son-in-law of Cromwell died after executing Catholics following the siege of Limerick, and his delirious last words were "I must have more blood!"

ANSWER: Henry Ireton

13. Answer the following about the *shofar*, for 10 points each.

[10] The *shofar* is a musical instrument typically made from the horn of one of these animals. In Genesis, Abraham sacrifices one of these animals after God spares Isaac.

ANSWER: rams [accept (male) sheep or Ovis aries or ovines]

[10] Jews customarily blow the *shofar* every morning, except on Shabbat, during this last month of the Jewish calendar that leads up to Rosh Hashanah on the first of Tishrei.

ANSWER: Elul

[10] The acronym "tashat" denotes a pattern in which the *shofar* is blown in a sequence of sounds beginning and ending with *tekiah*, with this broken, moaning sound in the middle. This sound is sometimes played in conjunction with the staccato *teruah* sound.

ANSWER: shevarim [or shvarim; accept shevarim-teruah]

14. The “b” parameter in this equation arises from treating atoms as hard spheres. For 10 points each:

[10] Name this equation of state whose “a” parameter models the attractive force between particles.

ANSWER: van der Waals equation

[10] The van der Waals equation is an example of this statistical approach, in which small fluctuations in state variables are averaged out. This approach fails completely in one dimension, where it predicts a nonexistent phase change for the Ising model.

ANSWER: mean field theory

[10] In the van der Waals model, the pressure required for vapor-liquid separation can be found using this graphical construct, in which a horizontal line is drawn across the phase diagram such that the two areas formed between the line and the isotherm are equal.

ANSWER: Maxwell construction [or Maxwell equal area rule]

15. This woman’s love story and death was a common theme in Germanic arts in the 18th and 19th centuries, most notably in an 1855 play by Friedrich Hebbel considered a version of *Antigone* “for modern times.” For 10 points each:

[10] Name this woman, the mistress and possibly the first wife of Albert III, Duke of Bavaria. She was ordered drowned by Albert’s father because she was a commoner.

ANSWER: Agnes Bernauer

[10] Bernauer was drowned in this river that Friedrich Hölderlin called “the Ister.” This river flows from its source in the Black Forest through four national capitals, including Vienna and Bratislava, to the Black Sea.

ANSWER: Danube River [or Donau or Dunaj or Duna or Dunav or Dunarea or Donava]

[10] This composer wrote a folk opera titled *Agnes Bernauer* in 1947. In 1949, this creator of the “schulwerk” method of music education used Hölderlin’s translation of *Antigone* as the basis for his opera of the same title.

ANSWER: Carl Orff [or Carl Heinrich Maria Orff]

16. In a Russian folktale, Marusia allows herself to be killed by one of these beings, is reborn from a flower that grows from her grave, and then defeats the creature using holy water. For 10 points each:

[10] Name these beings called *upir* in Slavic cultures. In a widely read treatise, Dom Augustin Calmet collected and popularized stories about these undead beings, which fed on human blood and could be destroyed using a stake.

ANSWER: vampires

[10] In the 1970s, a vampire was said to haunt this London cemetery when dead animals were found drained of their blood in nearby Waterlow Park. The story led to a massive vampire hunt that caused great damage to the graves.

ANSWER: Highgate Cemetery

[10] After dying in 1892, this young woman from Rhode Island was suspected of vampirism and causing her brother Edwin’s tuberculosis. Her body was burned and the ashes were mixed into a potion for Edwin, who died anyway.

ANSWER: Mercy Brown [or Mary Lena Brown]

17. Answer the following about Renaissance preparatory drawings, for 10 points each.

[10] This word, which now signifies any two-dimensional illustration, originally denoted a preparatory drawing for a fresco or tapestry. The Victoria and Albert Museum holds Raphael’s works of this type for tapestries in the Vatican.

ANSWER: cartoons

[10] In the 16th century, patrons began demanding full-color *modelli* to prejudge the effect of this *trompe l’oeil* technique exemplified by Andrea Mantegna’s ceiling for the Camera degli Sposi. Its name comes from the Italian for “seen from below.”

ANSWER: di sotto in sù

[10] This earthy-red pigment containing hematite was used to make preparatory drawings directly on the wall for frescoes. It was named for the Black Sea port through which it was exported.

ANSWER: sinopia [or sinoper]

18. Methods of investigating these phenomena include co-immunoprecipitation and far-Western blotting. For 10 points each:

[10] Name these phenomena that can be classified as stable or transient and that include receptor-ligand binding. These entities make up the majority of the non-genetic portions of the interactome.

ANSWER: **protein-protein interactions** [or **PPIs**]

[10] Protein-protein interactions can be found using the two-hybrid screening developed using this organism's Gal4 transcription factor. This organism is also known as baker's yeast.

ANSWER: ***S. cerevisiae*** [or ***Saccharomyces cerevisiae***, prompt on "***Saccharomyces***"]

[10] This technique may be used to calculate binding affinities of biomolecules by analyzing the change in fluorescence distribution in a capillary containing a temperature gradient.

ANSWER: **microscale thermophoresis**

19. This unfortunate occurrence befell Frank Palka during legal proceedings in which the Supreme Court held that, despite being tried twice for killing two Connecticut police officers, Palka could be executed because double jeopardy was not an incorporated right. For 10 points each:

[10] Name this minor indignity also suffered at the Supreme Court by John Sanford, the owner of Dred Scott.

ANSWER: surname was **misspelled** by the Court in the opinion title [accept any answer indicating that the party's surname was **spelled incorrectly** by the Court or the Court's clerk]

[10] Walter Gobitas's surname was misspelled in a case holding that public schools could compel children to salute during this nationalist ritual, a holding reversed just three years later in the *Barnette* case arising from West Virginia.

ANSWER: saying the **Pledge of Allegiance** [prompt on "pledge"]

[10] A misspelling of this man's name was central to a Fourth Circuit "typosquatting" case arising from Christopher Lamparello's website criticizing this man's anti-gay views. Eleven years earlier, the Supreme Court held against him in a case arising from a parody Campari ad intimating that he had lost his virginity to his mother in an outhouse.

ANSWER: Jerry **Falwell** [or Jerry Lamon **Falwell Sr.**]

20. In a satire of this poem, "the Doctor" vows to write it after the prostitute Betty blames his impotence on his age. For 10 points each:

[10] Name this poem, the spark of a literary feud in which Lady Wortley Montagu wrote a savage poem imagining the "reasons that induced" its author to write it. This poem's last couplet reads, "Such order from confusion sprung, / such gaudy tulips raised from dung."

ANSWER: "The **Lady's Dressing Room**"

[10] This author's misogyny is often discussed in conjunction with the disgust over the female body portrayed in his "The Lady's Dressing Room" and in his description of gigantic Brobdingnagian women in one of his novels.

ANSWER: Jonathan **Swift**

[10] Swift mentions dining with Lady Montagu's husband in his "journal" to this woman, the pseudonym he gave his possible secret wife Esther Johnson. He also addressed several birthday poems to Johnson under this name.

ANSWER: **Stella** [accept *A Journal to Stella*]