

## ACF Regionals 2017

Edited by Andrew Hart, Stephen Liu, Benji Nguyen, Adam Silverman, Cody Voight, Nathan Weiser

Tossups by Florida A (Alex Shaw, Jonathon Settle, Taylor Harvey) and Johns Hopkins A (Noah Stanco, Eric Bobrow, Forrest Hammel, Walter Zhao)

1. A poet from this country lamented “don’t die Dad / but they die” in a poem that concludes “fuck thém; I wish you God” and is titled “The Last Hellos”; that poet from this country, who wrote “axe fall, echo and silence” in his poem “Noonday Axeman,” penned the collection *Subhuman Redneck Poems* and is named Les Murray. A literary journal in this country called *Angry Penguins* published work by James McAuley and Harold Stewart that was attributed to the fictional poet “Ern Malley.” The line “down came the Policemen: one, two, three” appears in a poem from this country about a man who “waited till his billy boiled” before singing beneath a “coolibah tree.” For 10 points, name this home country of Banjo Paterson, whose “bush ballads” include “Waltzing Matilda.”

ANSWER: Australia [or Commonwealth of Australia]

2. The *North American Review* commissioned a financier and businessman from this industry to write essays on foreign policy, including “Americanism versus Imperialism” and “Distant Possessions.” A 1919 strike in this industry targeted a company whose owners included Elbert Gary and future bank namesake Charles Schwab. A country club frequented by this industry’s magnates built a reservoir that broke in 1889, causing the Johnstown flood. Frederick Taylor refined his management theories while working for a company in this industry based in the town of Bethlehem. Henry Clay Frick helped put down a strike of workers in this industry in Homestead, Pennsylvania. For 10 points, name this manufacturing industry in which Andrew Carnegie made his fortune.

ANSWER: steel industry

3. This thinker developed the notion of “intuitive cognition,” which he distinguished from “abstractive cognition.” This thinker used the example of the sentence “Socrates is similar to Plato” to show that seven out of ten of Aristotle’s categories were unnecessary. This thinker, whose idealization of poverty fueled his dispute with Pope John XXII, transitioned from a “fictum-theory” to an “intellectio-theory” to critique the idea of universal concepts in metaphysics. This thinker’s textbook *Summa Logicae* outlines his nominalist position, which has been boiled down to the statement “entities should not be multiplied without necessity.” For 10 points, what Franciscan friar names a statement holding that the simplest idea is usually the correct one, which is often referred to as his “razor”?

ANSWER: William of Ockham [or William of Occam; or Gulielmus Occamus; accept Ockham’s razor]

4. Angela Hewitt’s “world tour” in 2007 and 2008 was primarily devoted to complete performances of this work. This work was first recorded in its entirety by Edwin Fischer. Gottlieb Schwenke (SHVEN-kuh) added an extra measure to this work’s opening, a 35-bar passage consisting primarily of broken chords that ends on a C-major chord. By age ten, Nadia Boulanger (boo-“lawn”-ZHAY) supposedly memorized the entirety of this work, whose form inspired Dmitri Shostakovich’s Opus 87. Charles Gounod (goo-NOHD) composed his *Ave Maria* by superimposing a melody over the Prelude in C Major that opens this work, whose title refers to a method of tuning that allows one to play most keys. For 10 points, what keyboard collection by J. S. Bach contains two books of preludes and fugues that span all 24 major and minor keys?

ANSWER: The Well-Tempered Clavier [or Das Wohltemperierte Klavier; or Das Wohltemperirte Clavier]

5. The departure function for this quantity always includes a “Z minus 1” term but not a “log Z” term. Refrigeration cycles are trapezoidal on phase diagrams plotting this quantity against pressure. The Maxwell relation derived from this quantity sets “partial V partial S” equal to “partial T partial P.” It is the Legendre (leh-ZAHN-druh) transform of internal energy with respect to volume. In chemical engineering, open-system energy balances are done over this quantity, which, for a monatomic ideal gas, equals “five-halves times RT.” Its partial derivative with temperature is defined as the constant-pressure heat capacity, and it equals the Gibbs free energy plus temperature times entropy, or “U plus PV.” For 10 points, what thermodynamic potential—a state function according to Hess’s Law—is symbolized H?

ANSWER: enthalpy [accept H before “H”; prompt on “energy”; do not accept or prompt on “internal energy”]

6. In this text, a child is hanged from a tree but survives and is found carving pictures of heroes into the wood. Because a stone baked into a loaf of bread causes a knife to break, a man in this text disguises bears and wolves as a herd of cattle to kill the wife of a smith. A grief-stricken mother in this text sends a bee to retrieve drops of magic honey to revive her son, who was shot and killed with an arrow while trying to retrieve a black swan from the underworld. In this text, the witch-queen of Pohjola (poh-YOH-lah) offers her daughter in marriage in exchange for a magical mill called the Sampo (SAHM-po), which is forged by Ilmarinen ("ILL"-mah-rin-en). Elias Lönnrot (EL-ee-as LOON-rot) compiled, for 10 points, what poem about the heroes Väinämöinen and Lemminkäinen ("VIE"-nah-moy-nen and LEM-in-kye-nen) that serves as the national epic of Finland?

ANSWER: Kalevala [or Kalewala]

7. This country's unification into a nation-state was solidified by a victory at the Battle of Slivnitsa (slihv-NEET-sah) and by the Tophane (toh-FAH-nay) Agreement. Paisius ("PIE"-see-us) of Hilendar was an early advocate of this country's national revival. Rebels from this nation built cannons made of cherrywood during an uprising whose brutal suppression was reported on by Eugene Schuyler (SKY-ler). As a principality and vassal state, this country was ruled by Alexander of Battenberg, who added Eastern Rumelia (ROO-mee-lee-ah) to its control. During this nation's April Uprising, *bashi-bazouk* (bah-shee-bah-ZOOK) troops massacred citizens, leading William Gladstone to criticize Benjamin Disraeli for failing to address this country's "horrors." In 1878, the Treaty of San Stefano granted autonomy from the Ottoman Empire to, for 10 points, what Balkan country whose capital is Sofia?

ANSWER: Bulgaria [accept Principality of Bulgaria or Kingdom of Bulgaria or Tsardom of Bulgaria or Third Bulgarian Tsardom or Republic of Bulgaria; do not accept or prompt on "Ottoman Empire"]

8. The infinitesimal generators of this operation in 3D are elements in the algebra defined by the Lie (LEE) bracket of  $L$ -sub- $k$  and  $L$ -sub- $l$  equals the totally antisymmetric 3-dimensional tensor times  $L$ -sub- $m$ . The Lie group corresponding to this operation in 2D has a two-by-two infinitesimal generator in the form of the matrix zero, minus one (pause) one, zero. The special orthogonal group is the group of this isometry's "proper" type. In quantum mechanics, its operator interconverts spin-up and spin-down particles and is generated by the angular momentum operator. Symmetry under this operation equates to conservation of angular momentum by Noether's (NOY-turr's) theorem. For 10 points, for what type of motion does the cross product of lever arm and force cause acceleration, also known as torque?

ANSWER: rotational motion [or circular motion; or angular motion]

9. Yoko Ono's *Film no. 5* shows John Lennon facing the camera for 52 minutes and sporadically doing this action. In another film, a mummified skull is briefly superimposed over the transition to a shot of a car being pulled out of a swamp from a shot of a man doing this action, which he begins doing after a fly crawls on his hand. The cow-carrying man called *Moschophoros* (moh-skoh-foh-rohs) and the standing nude male called *Kroisos Kourois* (kroh-EE-sohs KOO-rohs) exemplify a trend in the Greek Archaic period of depicting life by having sculptural subjects do this action. Norman Bates does this action while staring into the camera at the end of *Psycho*. Despite its title, Frans Hals's *The Laughing Cavalier* shows its subject doing this action. For 10 points, what facial expression is enigmatically on display in the *Mona Lisa*?

ANSWER: smiling [accept word forms such as smile; accept synonyms such as grinning; accept laughing or synonyms or word forms before "laughing"]

10. A philosopher in this novel decides that the "liftman in the Tube is an eternal necessity" but that the "arts are merely a decoration imposed on the top of human life." During a walk on the beach in this novel, four characters sing "damn your eyes, damn your eyes" before Minta learns she has lost her grandmother's brooch. In this novel, a boy who likes to cut pictures out of an Army and Navy Stores catalogue is crushed when his father predicts that the weather will be poor the next day. Parentheticals note that Prue died in childbirth and Andrew was killed at war in its middle section, "Time Passes." Lily Briscoe finishes a painting and James and his father take a boat out to the title structure in the Hebrides at the end of, for 10 points, what Virginia Woolf novel about the Ramsay family?

ANSWER: To the Lighthouse

11. An unpopular advisor to this king was going into exile when he was intercepted by the warship *Nicholas of the Tower* and executed with a rusty sword. Nobles who opposed this king were subjected to bills of attainder by the Parliament of Devils. After a mysterious “sudden fright,” this king entered a months-long trance that may have been a form of schizophrenia. He disinherited his son in the Act of Accord and was briefly restored to power in the Readeption (ree-ah-DEP-shun). This king was found singing beneath a tree when his wife, Margaret of Anjou, rescued him at the Second Battle of St. Albans. His second reign ended when Yorkist forces took London after the Battle of Tewkesbury. For 10 points, what king from the House of Lancaster lost his throne to Edward IV during the Wars of the Roses?

ANSWER: **Henry VI** of England [prompt on “**Henry**”]

12. A year after moving to the U.S., this man, under the umbrella of the organization ICF, founded a series of international scientific conferences, one of which was chaired by Nobel laureate John Eccles. This man promoted the idea that humans are restored to God’s ideal by doing good things via the process of “indemnity.” This man, who wrote a 1966 religious text called *Divine Principle*, called his family the “True Family” and was known to followers as the “True Father.” The prologue to Don DeLillo’s novel *Mao II* describes a “blessing ceremony” presided over by this man at Yankee Stadium. Adherents of this man’s movement sold flowers in airports and engaged in mass wedding ceremonies. For 10 points, name this founder of the Unification Church who was a South Korean religious leader.

ANSWER: Sun Myung **Moon** [or **Mun** Seon-myeong; or **Mun** Yong-myeong]

13. The first approved U.S. clinical trials using CRISPR (“crisper”), due to start in 2017, will edit this structure. This structure is abnormally small in *Plasmodium*, and in trypanosomes (trih-PAN-oh-sohmz), it is organized into several maxicircles interlocking thousands of minicircles. Petite yeast mutants are caused by defects in this structure. Haplogroups are distinguished by genes on the Y chromosome or on this structure. In humans, cytochrome c oxidase and only 36 other genes are encoded by this structure, which is circular and encodes the gene responsible for Leber’s optic neuropathy. The hypothetical origin of this structure’s genetic information is named Eve because its genes are only inherited maternally. For 10 points, what non-nuclear genetic material is found in the organelle where cellular respiration takes place?

ANSWER: **mitochondrial DNA** [or **mtDNA**; or **M chromosome**; or **mitochondrial chromosome**; accept answers mentioning both **DNA** and **mitochondria** or word forms or variants of either; prompt on answers mentioning “**mitochondria**” and “**genes**” or equivalents; do not accept or prompt on “**DNA**” alone]

14. This activity is the subject of an award-winning documentary directed by Jimmy Chin that shows Chin, Renan Ozturk, and another man’s attempts to accomplish a notable first; in that film, one of this activity’s leading practitioners, Conrad Anker, leads a group that does this activity at the “Shark’s Fin” to honor Anker’s mentor, Mugs Stump. The documentary *Meru* centers on this activity, which is central to a 2015 film in which Jason Clarke and Jake Gyllenhaal played Rob Hall and Scott Fischer, two real-life practitioners of it. In this activity, the danger of pulmonary edema can be mitigated by a drug called “dex,” and people doing it often use bottled oxygen. Jon Krakauer’s book *Into Thin Air* discusses, for 10 points, what pastime that is central to the film *Everest*?

ANSWER: mountain **climbing** [or **mountaineering**; accept **rock climbing**; prompt on “**hiking**”]

15. This character takes refuge in a chocolate factory and proclaims himself to be Jesus when he is assaulted by a gang whose members refer to themselves by code names such as “Firestealer” and “Chicken Soup”; shortly thereafter, this character joins that group, called “The Dusters,” and sets out to destroy government buildings. The two “presumptive fathers” of this character are a man who is executed for defending a post office against an invasion force and a man who goes into seizures after swallowing a political party pin. This character uses his voice to shatter glass and, after reaching the age of three, refuses to grow. For 10 points, name this character who receives the title “tin drum” as a birthday gift in the first entry in Günter Grass’s *Danzig Trilogy*.

ANSWER: **Oskar Matzerath** [accept either underlined portion]

16. A terrorist attack in this city was launched in response to Operation Agatha. Soldiers fighting in this city's suburbs in an operation named after "pitchforks" set up fortifications called "Bevingrads." The al-Husayni family organized this city's guerilla fighters into the "Army of the Holy War." The Nebi Musa riots occurred in this city, which was led by mayor Teddy Kollek for most of the late 20th century. The United Nations dispatched Ralph Bunche ("bunch") to lead peace negotiations after his predecessor, Folke Bernadotte ("FOAL"-keh ber-nah-DOHT), was assassinated in this city by the Stern Gang. The British diplomatic presence in this city was wiped out when the Irgun bombed its King David Hotel. For 10 points, name this city where Muslim and Jewish residents fought over access to the Western Wall.

ANSWER: **Jerusalem** [or **Yerushalayim**; or al-**Quds**]

17. One economist disputed traditional approaches to this situation by formulating eight design principles, including the use of "graduated sanctions"; that economist, Elinor Ostrom, wrote a book that offered governing methods in response to this situation. An essay about this situation begins by using the example of the nuclear arms race to illustrate a "dilemma that has no technical solution"; that 1968 essay, published in *Science*, references Thomas Malthus's writings on population to pose concerns about overpopulation and environmental sustainability in light of this situation, which is typically illustrated with the example of cattle grazing. Garrett Hardin titled an essay after, for 10 points, what situation in which self-interested individuals exploit a publicly available resource?

ANSWER: **tragedy of the commons** [accept **commons** before "arms race"; prompt on "**commons**" after "arms race"]

18. The fact that twice applying a type of this operation always yields zero can be intuitively understood as "the boundary of a boundary is nothing"; that type of this operation gives an " $n$  plus one" form for an  $n$ -form and is the exterior type. A matrix containing values to which this operation is applied is used for a change of variables via the substitution rule and is the Jacobian. The dot product of the gradient with a unit vector defines the directional type of this operation. A composition of functions requires the chain rule in order to perform this operation, which is defined as the limit as  $h$  goes to zero of the difference quotient " $f$  of  $x$  plus  $h$ " minus " $f$  of  $x$ " all over  $h$ . For 10 points, what calculus operation gives the rate of change of a variable?

ANSWER: **derivative** [or obvious equivalents such as **differentiation**; or **exterior derivative** until "change of variables" is read]

19. This artist designed and created a large "picturesque" landscape that was best observed from the "Viewshed" near the Calvert Vaux (VAWKS)-designed "Cosy Cottage," where this man painted many of his works. This artist's travels in Persia inspired both a painting that looks through an opening in a rock onto the facade of a building known as "the treasury" and the name of his family home, Olana. This artist of *El Khasne Petra* was inspired by Alexander von Humboldt's book *Cosmos* to take a trip that inspired a massive landscape depicting two people in front of a rustic cross to the left of a large tropical waterfall. For 10 points, name this member of the Hudson River School whose trip to Ecuador led him to paint *Cotopaxi* and *Heart of the Andes*.

ANSWER: Frederic Edwin **Church**

20. This poem describes an entity that "makes the willow shiver in the sun" for maidens who "taste / and stray impassioned in the littering leaves." This poem asks whether "boughs / hang always heavy in that perfect sky" at a place where there might be "no change of death." The first section of this poem concludes with a comparison of the day to "wide water" that is "stilled" so that "dreaming feet" might pass "over the seas, to silent Palestine." The "coffee and oranges in a sunny chair" lead a woman to question the divine promise of paradise in this poem, which repeats that "death is the mother of beauty" and opens by describing the "complacencies of the peignoir" (pay-NWAHR). For 10 points, name this poem by Wallace Stevens that is set in the early hours of the Lord's day.

ANSWER: "**Sunday Morning**"

TB. An essay by this author recalls a woman wearing a “dirty crepe-de-Chine (crep-duh-sheen) wrapper” who tells a bartender that Estelle is the reason she and George Sharp separated. This author explained that writing down anecdotes about others helps her to reconnect with her past selves in the essay “On Keeping a Notebook.” In another essay, this author wrote that for people who grew up out west, New York City is an “infinitely romantic notion” rather than a “plausible place” to live, which is why she moved away. This author of “Goodbye to All That” described a Word document with the words “life changes fast” in a book about the death of her husband and the hospitalization of her daughter Quintana Roo (kwin-TAH-nuh ROO). For 10 points, name this Californian essayist who wrote *The Year of Magical Thinking* and *Slouching Towards Bethlehem*.

ANSWER: Joan **Didion**

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Bonuses by Florida A (Alex Shaw, Jonathon Settle, Taylor Harvey) and Johns Hopkins A (Noah Stanco, Eric Bobrow, Forrest Hammel, Walter Zhao)

1. The middle movement of this work replaced an earlier movement that was published separately as an *Andante favori* (ahn-DAH-n-tay fah-VOH-ree). For 10 points each:

[10] Name this piece whose challenging third movement rondo begins with crossing hands playing a pianissimo melody before a section in fortissimo that requires a continuous pedal trill from the right hand.

ANSWER: Waldstein Sonata (VAHLD-shtein OR VAHLD-styne) [or Beethoven's Piano Sonata no. 21; or Beethoven's 21st Piano Sonata; or L'Aurora; or "The Dawn"]

[10] This C-sharp minor piano sonata, also by Beethoven, is sometimes called *Quasi una fantasia* (kwah-zee oo-nah fahn-TAH-see-ah). Its *adagio sostenuto* (ah-DAH-zhee-oh soh-steh-NOO-toh) first movement opens with broken chord triplets in the right hand.

ANSWER: Moonlight Sonata [or Beethoven's Piano Sonata no. 14; or 14th Piano Sonata]

[10] Napoleon's attack on Vienna forced Beethoven's patron to flee, prompting Beethoven to write this piano sonata that, like *Waldstein*, is from his middle period. Its outer movements are called "Das Lebewohl" and "Das Wiedersehen" (dahs LAY-beh-vol and dahs VEE-der-zay-en).

ANSWER: *Les* Adieux Sonata [or Beethoven's Piano Sonata no. 26; or 26th Piano Sonata]

2. This sociological approach is sometimes contrasted with the "grand" theories associated with Talcott Parsons and was adapted to archaeology by Lewis Binford. For 10 points each:

[10] Name this approach that argues sociological theories should be integrated with empirical findings instead of aiming to find overarching independent variables that span all social processes.

ANSWER: middle-range theory or theories [or theories of the middle range; or middle-range approach]

[10] The concept of middle-range theories was developed by this sociologist, who developed the "strain theory" of deviance and authored *Social Theory and Social Structure*.

ANSWER: Robert Merton [or Robert King Merton; or Meyer Robert Schkolnick]

[10] Merton's strain theory was influenced by this Frenchman's concept of *anomie* (AH-noh-mee). This sociologist authored *The Division of Labor in Society* and a monograph on suicide.

ANSWER: Émile Durkheim [or David Émile Durkheim]

3. *Note: do not read alternate answers.* This emperor's advisor Lou Jing (loh jing) devised a strategy of marriage alliances called *heqin* (heh-cheen). For 10 points each:

[10] Name this man who led his dynasty in a lengthy war against the Chu, which ended after he defeated Xiang Yu (shee-ahng yoo) at the Battle of Gaixia ("GUY"-shyah). The dynasty he founded succeeded the Qin (cheen).

ANSWER: Liu Bang (l'yoo bahng) [or Emperor Gaozu of Han; prompt on "Liu"]

[10] Liu Bang founded this dynasty, which shares its name with the largest Chinese ethnic group.

ANSWER: Han dynasty

[10] Before their war, Xiang Yu tried to kill Liu Bang at a banquet that took place at one of these structures. During the Tang dynasty, Emperor Taizong assumed the throne after assassinating his brothers at one of these structures called Xuanwu (SHWAN-woo).

ANSWER: a gate [or a palace gate; accept Hong Gate or Xuanwu Gate]

4. Henry Bence Jones published the “life and letters” of this physicist, which contains the quote “nothing is too wonderful to be true, if it be consistent with the laws of nature.” For 10 points each:

[10] Name this physicist who discovered electromagnetic induction and proved that a coil’s induced  $\epsilon \cdot m \cdot f$  is minus number of turns times rate of change in magnetic flux, an equation put in differential form by James Clerk Maxwell.

ANSWER: Michael **Faraday**

[10] Ampère’s law is only valid in magnetostatics because applying this operation to the law’s differential form shows that this operation of current density is always zero, an issue that Maxwell fixed by adding the displacement current.

ANSWER: **divergence**

[10] Maxwell’s equations can be used to show that these modes of propagation are not supported in hollow, metallic waveguides. This set of modes doesn’t have a cutoff frequency and requires two conductors, such as coaxial cable.

ANSWER: **T·E·M** modes [or **transverse electric** and **magnetic** modes; or **transverse electromagnetic** modes; prompt on “**transverse** mode”; do not accept or prompt on other partial answers]

5. A lion that protects this woman kills the thief Kirkrapine, who steals from churches to provide money for Abessa and her deaf-mute daughter Corceca (kor-SAY-kah). For 10 points each:

[10] Name this princess of Eden, whose parents’ kingdom is rescued from a dragon by her eventual betrothed in a long poem in which she enlists the aid of Prince Arthur to save her betrothed from the giant Orgoglio (or-GOH-lee-oh).

ANSWER: **Una**

[10] This man is Una’s champion. This warrior, who is bewitched by Archimago (ar-kih-MAH-go) into believing Una is dishonorable, abandons Una and is himself temporarily led astray by the evil enchantress Duessa (du-ESS-ah).

ANSWER: **Redcrosse Knight** [or **Knight** of the **Red Cross**; accept Saint **George**]

[10] Una and the Redcrosse Knight are the central characters of Book I of this epic poem by Edmund Spenser, which is titled for Gloriana, an allegorical stand-in for Elizabeth I.

ANSWER: *The* **Faerie Queene**

6. In 2011, Tufts engineers designed one of these systems composed of only butyl methyl sulfide adsorbed onto a chunk of copper. For 10 points each:

[10] Name these synthetic compounds developed by Ben Feringa that are often composed of catenanes and rotaxanes (“CAT”-eh-nayns and roh-TAX-ayns). This term has since been applied to enzymes like ATP synthase.

ANSWER: molecular **machines** [or molecular **motors**]

[10] The torque in Feringa’s molecular motors is supplied by this stimulus, which normally activates pericyclic reactions that are heat-forbidden. This stimulus also activates fluorescence.

ANSWER: **light** [or visible **light**; or ultraviolet **light**; or **photons**; or similar answers]

[10] Chemists at Northwestern are *very* proud to tell you that 2016 Nobelist Fraser Stoddart has also made substantial contributions to this field of supramolecular chemistry, which is named for the two large molecules that interact non-covalently so that one is surrounded by the other.

ANSWER: **guest-host** chemistry [or **host-guest** chemistry]

7. In his *Geography*, Ptolemy placed this island to the east of the Ivernica (eye-VER-nik) Ocean and the Vergionius (ver-jee-OH-nee-us) Ocean but incorrectly rotated its northern portion 90 degrees to the right. For 10 points each:

[10] Name this island whose discovery by the classical world is usually attributed to Pytheas of Massilia (PIH-thee-ahs of mah-SILL-ee-ah), who might have circumnavigated it before sailing on to Thule (“THOO-lee”).

ANSWER: **Great Britain** [accept **Britain**; do not accept or prompt on “England”]

[10] The Hellenistic explorer Megasthenes (meh-“GAS”-teh-nees) documented this region, which titles his now-lost description of its geography. Megasthenes saw many elephants and the Ganges River while traveling to Pataliputra in this region.

ANSWER: **India** [accept **Indika**]

[10] The epithet of this 6th-century Alexandrian traveler means “Sailor to India.” In his text *Christian Topography*, he suggested that the world was a flat rectangle contained in a universe shaped like a tabernacle.

ANSWER: **Cosmas** Indicopleustes [or **Cosmas** the Monk]

8. Lay adherents of this religion are known as *sravaka*. For 10 points each:

[10] Name this religion whose lay members take five compulsory vows called *vratas*, which include a vow of truth called *satya* and a vow of sexual restraint called *brahmacharya* (brah-muh-CHAR-yuh).

ANSWER: **Jainism** [accept answers mentioning forms of the word **Jain**]

[10] Jains believe that time is split into six time periods known by this name, with the current one being called *duhsama*. In Jain cosmology, human height and life span get progressively shorter as these periods progress.

ANSWER: **aras** [do not accept or prompt on “era(s)”]

[10] Like Hindus and Buddhists, Jains follow this principle of nonviolence. It is the foremost of the Five Great Vows.

ANSWER: **ahimsa**

9. A novel by this author contains a chapter that consists of a numbered list describing a coffin, with statements such as “a body is not square like a crosstie” and “so I made it on the bevel.” For 10 points each:

[10] Name this author from Mississippi who also wrote a chapter that consists entirely of the statement “my mother is a fish” in his novel *As I Lay Dying*.

ANSWER: William **Faulkner** [or William Cuthbert **Faulkner**; or William Cuthbert **Falkner**]

[10] Most of the stories in Faulkner’s *Go Down, Moses* feature this central character, who kills his first buck in “The Old People.” In “The Bear,” he helps Boon Hogganbeck hunt Old Ben.

ANSWER: **Isaac McCaslin** [accept either underlined portion; accept (Uncle) **Ike** McCaslin]

[10] This African American writer drew from the spiritual “Go Down, Moses” for his poem “Go Down, Death,” which is described as a “funeral sermon” and collected with other poems couched as sermons in a 1927 book.

ANSWER: James Weldon **Johnson** (The book is *God’s Trombones*.)

10. Cab Calloway popularized his version of “Minnie the Moocher” while performing at this venue. For 10 points each:

[10] Name this Harlem nightclub run by gangster Owney Madden, who instituted a strict whites-only policy for customers. Duke Ellington became a national celebrity while directing this venue’s house orchestra.

ANSWER: **Cotton** Club

[10] Calloway often employed this type of singing, which improvises nonsense syllables in the style of an instrumental jazz solo. This style of singing was perfected by Ella Fitzgerald.

ANSWER: **scat** singing

[10] Calloway performed a scat-heavy version of this standard for the 1933 Betty Boop film *Snow-White*. In this song, made famous by a 1929 Louis Armstrong recording, the singer recounts seeing his girlfriend’s corpse “stretched out on a long white table” in the title location.

ANSWER: “**St. James Infirmary Blues**” [accept “**Gambler’s Blues**”]

11. In a debate with Sam Harris, this philosopher argued that morality could be derived from science, and he defended his neo-Humean views in the book *Ruling Passions*. For 10 points each:

[10] Name this Cambridge-based philosopher who authored the 2008 *Oxford Dictionary of Philosophy* and leads the quasi-realism movement.

ANSWER: Simon **Blackburn**

[10] Blackburn is a former editor for the philosophy journal *Mind*, which published this thinker’s essay *Mind and Nature*. This MIT linguist devised the sentence “colorless green ideas sleep furiously” in his *Syntactic Structures*.

ANSWER: Noam **Chomsky** [or Avram Noam **Chomsky**]

[10] This philosopher was a former editor of *Mind* who identified a supposed “category mistake” in Cartesian philosophy in his major work, which is on the philosophy of mind.

ANSWER: Gilbert **Ryle**



12. Secretion of proteins is difficult when you've got two cell membranes to deal with! For 10 points each:  
[10] That's the dilemma faced by this type of bacteria, which are *not* colored by crystal violet during a namesake stain and instead have a periplasmic space inside a thin peptidoglycan wall.

ANSWER: **gram-negative** bacteria

[10] As a result, gram-negative bacteria such as *Salmonella* have evolved this complex secretion system, in which bacterial effector proteins get pumped directly into the host cytoplasm through a needle.

ANSWER: Type **III** secretion system [or T3SS; or **injectisome**]

[10] Type IV secretion systems are more closely related to this mechanism of horizontal gene transfer, which occurs when a donor cell containing the F plasmid synthesizes a pilus.

ANSWER: bacterial **conjugation**

13. This novel follows the lives of five high school friends who study abroad and then return to Nigeria to work middle-class jobs. For 10 points each:

[10] Name this novel that follows Egbo, Bandele, Segoe, Kola, and Sekoni in pre-civil war Lagos.

ANSWER: *The **Interpreters***

[10] *The Interpreters* is one of two novels written by this Nobel Prize-winning author, who is primarily a playwright. His dramatic output includes *The Lion and the Jewel* and *Death and the King's Horseman*.

ANSWER: Wole **Soyinka** [or Akinwande Oluwole Babatunde **Soyinka**]

[10] Soyinka's works *The Detainee* and *A Scourge of Hyacinths* are in this genre. Dylan Thomas's *Under Milk Wood* and Pinter's *A Slight Ache* originated in this genre's "Golden Age."

ANSWER: **radio plays** [or **radio dramas**; or **audio plays**; or **audio dramas**; or **audio theater**; or **radio theater**; prompt on partial answers]

14. John Osborne, the author of a weekly column about this president, wrote that studying him "requires a steadfast clinging to the fact that he is human." For 10 points each:

[10] Name this president who put unfriendly writers like Osborne on an "enemies" list. He claimed "I am not a crook" shortly before resigning due to the Watergate scandal.

ANSWER: Richard **Nixon** [or Richard Milhaus **Nixon**]

[10] This historian ended up on the enemies list after he attacked Nixon in *The Imperial Presidency*. This former special assistant to JFK glorified the Kennedy presidency in his book *A Thousand Days*.

ANSWER: Arthur **Schlesinger** Jr. [do not accept or prompt on "Arthur Schlesinger Sr."]

[10] This author of the syndicated "Washington Merry-Go-Round" column so angered Nixon that two Nixon thugs tried to poison him. He later demonstrated Congress's poor security standards by sneaking a gun into Bob Dole's office.

ANSWER: Jack **Anderson** [or Jack Northman **Anderson**]

15. This painting is stylistically similar to its artist's *Capri*, which shows Rosina Ferrara on the roof of a white stucco building near a woman holding a tambourine. For 10 points each:

[10] Name this painting held in the Isabella Stewart Gardner museum, which constructed its Spanish Cloister wing around this work. Its central woman casts a dramatic shadow on the back wall as she lifts her skirt in dance.

ANSWER: *El **Jaleo*** (hah-LAY-oh)

[10] *El Jaleo* is by this American artist, who scandalized the 1884 Paris Salon with his *Portrait of Madame X*.

ANSWER: John Singer **Sargent**

[10] This woman was the model for *Portrait of Madame X*. After the scandal, this woman's mother demanded that the painting be removed from the Salon, but Sargent refused.

ANSWER: Virginie **Gautreau** [or Virginie Amélie Avegno **Gautreau**; or Virginie Amélie **Avegno**]

16. Agamemnon's episode of this type occurs in Book XI of the *Iliad*, when he drives the Trojans back to the Scaean (SKY-an) Gate and kills many warriors in the process before he is wounded by Antenor's son Coön (KOH-on). For 10 points each:

[10] Give this term that is typically defined as a scene or sequence displaying a warrior's finest or most glorious moments in battle; it is derived from a Greek word meaning "best."

ANSWER: aristeia (ah-RIS-tee-ah)

[10] Book V of the *Iliad* is the *aristeia* of this Greek hero, who is given courage by Athena and goes on to wound both Aphrodite and Ares. This hero shares his name with a Thracian king who owned four man-eating mares.

ANSWER: Diomedes ("die"-AH-meh-dees) [or Diomede]

[10] Like his son Diomedes, this member of the Seven against Thebes was a favorite of Athena. When he was dying, Athena tried to make him immortal but turned in horror when he started eating the brains of Melanippus.

ANSWER: Tydeus [or Tudeus]

17. A poem whose title addresses this person calls ennui (ON-wee) "more wicked" and "more filthy" than jackals, panthers, or "bitch hounds" because ennui "would willingly make of the earth a shambles." For 10 points each:

[10] Name this person who is addressed in the title of a poem that begins by listing "folly, error, sin, [and] avarice" as subjects that "occupy our minds and labor our bodies."

ANSWER: reader [or lecteur; accept "To the Reader" or "Au Lecteur"]

[10] The "hypocrite reader" who is the poet's "twin" and "brother" is addressed in the first poem of this poetry collection, whose sections include "Spleen and Ideal."

ANSWER: *The Flowers of Evil* [or *Les Fleurs du mal*]

[10] This French Symbolist poet, who is credited with coining the term "modernity," wrote *The Flowers of Evil*.

ANSWER: Charles Baudelaire [or Charles Pierre Baudelaire]

18. When the people of Alexandria ridiculed this man for his belief that he was the reincarnation of Alexander the Great, he set his troops loose on the city and erected a wall around its Bruchium (BROO-kee-um) district. For 10 points each:

[10] Name this Roman emperor and son of Septimius Severus. After having his brother, Geta, murdered, this emperor ordered a *damnatio memoriae* against him.

ANSWER: Caracalla [or Marcus Aurelius Antoninus; or Lucius Septimius Bassianus]

[10] Caracalla had a famous one of these public facilities built in Rome. Natural springs supplied the heat for the pools of water used in one of these facilities at Aquae Sulis (AH-kwye SOO-lis), which grew into an English city that is named after them.

ANSWER: baths [or thermae; or balneae]

[10] In this 212 edict, Caracalla granted Roman citizenship to all free men living in the Roman Empire, in the process eliminating the status of *peregrinus*.

ANSWER: Constitutio Antoniniana [or Antonine Constitution; accept any combination of Antonine or Antoninian and edict or decree; prompt on Edict of Caracalla]

19. Bill Bryson described performing this action with his friend Stephen Katz in the book *A Walk in the Woods*. For 10 points each:

[10] Name this action that Mark Sanford claimed to be performing while actually visiting his mistress in Argentina. People who complete this action in its entirety are called "2,000 Milers."

ANSWER: hiking the Appalachian Trail [accept reasonable answers that mention the Appalachian Trail]

[10] Those hiking the Appalachian Trail south-to-north end their journeys in this state's "Hundred-Mile Wilderness." Mount Desert Island is in this state's Acadia National Park.

ANSWER: Maine

[10] This conservationist proposed the idea for the Appalachian Trail in a 1921 article. He names a shorter trail that starts at Springer Mountain, the southern end of the Appalachian Trail, and ends in Great Smoky National Park.

ANSWER: Benton MacKaye

20. Get ready to answer the following about super-dope digital signal processing, for 10 points each.

[10] Discrete signals are often multiplied by these functions, which are zero valued outside of some interval, even though they increase spectral leakage. In filter design, these functions can be used to truncate an I·I·R filter to an F·I·R filter.

ANSWER: **window** function [or **apodization** function; or **tapering** function]

[10] Both the Hamming and Hann windows use a “raised” version of this function. Its Fourier transform, which yields two delta functions that are offset from the center frequency, is real because this trigonometric function is even.

ANSWER: **cosine** [or **cos**]

[10] An important parameter for windows is the side-lobe roll-off rate in decibels per decade or per octave. For a first-order filter, the roll-off rate per octave is approximately six, which is equal to 20 times the base-10 log of what integer?

ANSWER: **two**

Extra. The phase transition temperature in thin superconducting cylinders is a periodic function of the axial magnetic flux according to the Little–Parks effect, which is a manifestation of this effect. For 10 points each:

[10] Name this quantum mechanical effect in which a charged particle’s wavefunction acquires an additional phase, even when moving in a region where the magnetic field and electric field are zero.

ANSWER: **Aharonov–Bohm** effect [or Ehrenberg–Siday–**Aharonov–Bohm**; accept **AB** effect or **ESAB** effect]

[10] Tonomura (TOE-noe-MUHR-ah) et al.’s second verification of the AB effect used the Meissner effect, in which a magnetic field is expelled by a superconductor, allowing one to make magnets do this action. Andre Geim and Michael Berry won an Ig Nobel for an awesome experiment in which they used superconductors to do this action to a frog.

ANSWER: **levitation** [or word forms; or equivalents such as they making it **float** in mid-air]

[10] Tonomura et al.’s first verification of the AB effect used an electron microscope and a bi-prism to harness this phenomenon, which is created by superposition with a coherent *reference* wave.

ANSWER: **holography** [or obvious equivalents]