

## ACF Regionals 2019

Packet by Cambridge B, Berkeley B, Columbia B, and Cornell

### Tossups

1. In his book *Compulsive Beauty*, Hal Foster argues that the “deathly repetition” that this painter engaged in during the 1920s stemmed from grief for his dead father. In one painting, this artist placed a yellow book with a red bookmark in front of the belly button of a shirtless, mustached man who closes his eyes. A clock tower overlooks this artist’s painting of Gare (“garr”) Montparnasse, which includes a bunch of bananas in the foreground. This painter of *The Child’s Brain* depicted an enormous orange surgeon’s glove hanging next to a classical bust in his painting *The Song of Love*. Recurring motifs such as distant locomotives and mannequin-like figures often feature in the paintings that this artist produced during his “metaphysical” period. For 10 points, name this artist who inspired Surrealism with works such as *Mystery and Melancholy of a Street*.

ANSWER: Giorgio **de Chirico** (“JOR-joh day KEE-ree-ko”)

<Painting>

2. Burgess and Ohlmayer discovered that chiral (“KYE-rull”) rhodium-phosphine complexes could be used for asymmetric types of this reaction. An enantioselective form of this reaction uses a bis-isopinocampheyl derivative of its main reagent. A simple reagent used in this reaction can be stabilized using a small amount of NIMBA or sodium borohydride. One reagent used in this reaction usually exists as a dimer with hydride bridges and contains two nonane groups; that reagent can also be used in Suzuki couplings. Performing this reaction on terminal alkynes produces aldehydes via tautomerization. This reaction often uses bulky reagents like 9-BBN. This reaction is complementary to oxymercuration and uses hydrogen peroxide in its second step to form a hydroxyl. For 10 points, name this anti-Markovnikov addition that uses an electron-deficient element with atomic number 5.

ANSWER: **hydroboration**-oxidation [accept **Suzuki** coupling or **Suzuki** reaction until read]

<Chemistry>

3. In a 2017 biography of this man, Michael Jones discredits an account of this man’s slaughter of three thousand civilians during a siege. This man led two devastating raids called *chevauchées* (“shuh-voh-SHAY”) into territory held by Jean I, Count d’Armagnac. This man helped Peter of Castile to defeat his half-brother Henry of Trastámara at the Battle of Nájera (“NAH-hay-rah”). The franc was created after this man posted a ransom of three million écus (“ay-KOO”) for the release of a captured king in the Treaty of Brétigny (“bray-teen-YEE”). This commander adopted a crest of three ostrich feathers from the helmet of John I of Bohemia, who was killed in the Battle of Crécy (“cray-SEE”). This son of Edward III took John II of France prisoner while commanding troops at the Battle of Poitiers (“pwaht-YAY”). For 10 points, name this first Prince of Wales, whose nickname might come from his dark armor.

ANSWER: **Edward** the **Black Prince** [accept **Edward** of **Woodstock**; prompt on **Edward**]

<British History>

4. According to the historian Timaeus, the Phaeacians encountered in the *Odyssey* were direct descendants of this deity. The few surviving images of this deity from antiquity depict him alongside Aion, who takes the form of a Zodiac wheel. Similarities between stories about this god and Anu provide evidence for the influence of Mesopotamian myths on the work of Hesiod (“HEE-see-id”). Three children of this Greek equivalent of Caelus aided the Olympians in a conflict by throwing giant boulders using their one hundred hands. This figure’s daughter duped her husband by giving him a cloth-wrapped stone after that husband castrated this god with a sickle. For 10 points, name this primordial sky god and husband of Gaia, the progenitor of the Titans.

ANSWER: **Uranus** [accept **Caelus** until read]

<Mythology>

5. This author wrote about Juan's suspicions that Frau Marta is a vampire preying on English tourists in a subplot of a novel set in "the Zone" and "the City." One of this author's characters searches for what he calls "the kibbutz of desire." The narrator throws his house key in the sewer after fleeing his house with his knitting-obsessed sister Irene in this author's short story "House Taken Over." This man expanded his character Morelli's literary musings into a novel subtitled "A Model Kit." In a novel by this author, Osip Gregorovius nearly seduces Lucía, to the dismay of the protagonist, a member of a Parisian bohemian circle called the Serpent Club. That novel by this author, about Horacio Oliveira and his lover La Maga, can be read in two different orders. For 10 points, name this Argentine writer of *Hopscotch*.

ANSWER: Julio **Cortázar** [or Julio Florencio **Cortázar**]

<World Literature>

6. This composer adapted his first ballet, *Happiness*, into another ballet in which a man threatens to throw his child Ripsime ("rip-SEE-meh") off a cliff. In the middle section of an excerpt from that ballet by this composer, the cellos and saxophone play a sinuous melody that opens with the rising pickup quarter notes F, A-flat, B-flat before landing on B-natural. That excerpt by this composer is heard during a triple wedding whose couples include Karen and Nune [pause] and Kazakov and the title character. During an *Adagio* from one of this composer's ballets, the title character and his wife Phrygia celebrate escaping from captivity. An excerpt from one of this composer's ballets includes trombone glissandi from F down to D and opens with piercing F-sharp eighth notes in the xylophone. For 10 points, name this Soviet composer of *Spartacus*, whose ballet *Gayane* ("gah-yah-nay") contains the "Sabre Dance," and who was from Armenia.

ANSWER: Aram **Khachaturian** [or Aram Il'yich **Khatchaturian**]

<Other Arts>

7. This poem inspired Terrance Hayes to create a poetic form that takes a poetic quote and uses each word from the quote as a successive end word. This poem's author compared a repeated word in this poem to "Kilroy-is-here" announcements in the autobiographical book *Report from Part One*. A book named after this poem argues that the hip-hop notion of "keeping it real" reflects an emotional immaturity that perversely embraces this poem's final line. That book, subtitled "Black Men and Masculinity," is by Bell Hooks. This poem from the collection *The Bean Eaters* has a subtitle indicating that it's about "the pool players," "seven at the Golden Shovel." The main characters of this poem "lurk late," "strike straight," and "jazz June." For 10 points, name this eight-line poem by Gwendolyn Brooks consisting of eight three-word sentences starting with the word "we."

ANSWER: "**We Real Cool**" (The form created by Terrance Hayes is called the Golden Shovel. I've capitalized bell hooks's name for ease of reading, but her name is written without capitals.)

<American Literature>

8. The Alsos Mission was led by a former security officer on this project, Boris Pash. After the conclusion of this project, a leader of it was called a "cry-baby" by the sitting President. Berkeley professor Haakon Chevalier was accused of trying to obtain secret information about this project. The Y-12 complex was built for this project, which also used Stagg Field in its early days. Klaus Fuchs was a double agent who worked for this program, which was encouraged by a letter written by Leo Szilard ("LAY-oh SIL-ard"). The head of this program claimed that he thought of the Bhagavad Gita verse "I have become death, the destroyer of worlds" during a test codenamed Trinity. The Los Alamos Laboratory was the site of, for 10 points, what program, managed by Robert Oppenheimer, that produced the world's first nuclear bomb?

ANSWER: **Manhattan** Project [or **Development of Substitute Materials**]

<American History>

9. The neovascular form of this disease can be exacerbated by an offset in VEGF (“vej-F”) to PEDF ratios. Polymorphisms in LOXL1 are linked to the pseudoexfoliation type of this disease by causing increased cross-linking between collagen and elastin fibers. In 2014, Japan approved ripasudil, a Rho kinase inhibitor, for treating this disease, which is also treated by the prostaglandin analogue latanoprost and carbonic anhydrase inhibitor dorzolamide. The most common operation for this disease involves removing parts of the Schlemm’s canal and trabecular meshwork to access the anterior chamber. An increased cup-to-disc ratio can indicate the onset of this disease, which results in high intraocular pressure due to poor drainage of aqueous humor. Classified as open- or closed-angle, for 10 points, name this eye disease, the second-leading cause of blindness worldwide.

ANSWER: glaucoma

<Biology>

10. According to Georges Bataille (“zhorzh bah-TYE”), this concept encompasses elements of “inner experience” that threaten “homogenous society” through waste, destruction, and “useless expenditure.” A book whose title contains this term defines it as a “sticking-out” that constitutes “a shield against the terror of anomy” represented by chaos; that work by Peter Berger (“burger”) is titled for a “canopy” with this quality. One thinker argued that myths describe the namesake “time” when this concept first appears, and introduced the concept of “hierophanies” (“hy-ROFF-uh-nees”) to refer to manifestations of this concept in the world. Émile Durkheim (“dur-KEM”) argued that this concept is embodied in totems, and argued that a dichotomy between it and an opposing concept that represents everyday concerns is the defining feature of religion. For 10 points, name this concept analyzed by Mircea Eliade (“meer-CHAY-uh el-ee-AH-duh”) in a book whose title pairs it with “the profane.”

ANSWER: sacred [accept *The Sacred Canopy*, sacred time, or *The Sacred and the Profane*]

<Social Science>

11. This author described his friend Constantine Cavafy as “a Greek gentleman in a straw hat, standing absolutely motionless at a slight angle to the universe.” The protagonist of a novel by this author yells “Come!” in the middle of the night, thinking that nobody will hear him, leading a gamekeeper to climb into his bedroom with a ladder. In that novel by this author, the protagonist learns about the ancient Greeks from Clive Durham and has a relationship with Alec Scudder. This author wrote a novel in which Leonard Bast is attacked by Charles Wilcox and dies, after which Margaret Schlegel and Henry Wilcox move into the title estate. In another novel by this author, Adela Quested falsely accuses Dr. Aziz of sexual assault when they travel into the Marabar Caves. For 10 points, name this author of *Maurice* (“Morris”), *Howards End*, and *A Passage to India*.

ANSWER: E. M. Forster [or Edward Morgan Forster]

<British Literature>

12. A “weld” named for this compound occurs when mineral strata of this compound become too thin to separate the rock layers above and below. “Teardrops” and “sheets” composed of this compound have developed from less mature “stocks” that may form flat “canopies” of this compound. This compound can rise through clastic rocks in a form of diapirism (“DIE-ah-peer-ism”) due to buoyant forces, creating traps for subsurface oil. Endorheic (“EN-do-REE-ick”) basins contain mineral formations of this compound. Large mineral structures of this compound called its namesake domes are common on the Gulf Coast. This compound makes up an evaporite mineral called halite, and its evaporation creates white “flats.” A high concentration of this compound dissolved in water is called brine. For 10 points, name this ionic compound whose formula is NaCl (“N-A-C-L”).

ANSWER: salt [or sodium chloride; accept NaCl until read; accept halite until read]

<Other Science (Earth Science)>

13. The world’s second-largest aquarium tank is in this city, where an oblong-shaped bright yellow Ferris wheel depicting a deity holding a penguin was recently renovated by the retail chain Don Quijote. One of this city’s mascots is a mechanical drum-playing clown named after this city’s culture of “eat till you drop,” while others

include a giant mechanical crab and a running man on a Glico billboard. A crowd in this city seeking a Randy Bass lookalike chose a Colonel Sanders statue to throw into a river, leading to a curse on the Hanshin Tigers. This city's tourist destinations include the entertainment district Dōtonbori and a castle owned by the Toyotomi clan that was besieged by Ieyasu Tokugawa. The Keihanshin metropolitan area is formed by Kobe, Kyoto, and, for 10 points, what city in the Kansai region, which after Tokyo and Yokohama is the third most populous in Japan?

ANSWER: **Osaka** [or **Osaka-shi**]

<Geography>

14. The historian Fritz Stern spent much of his childhood in this historical region's largest city. A short-lived province named for this region included the northeastern part of Upper Lusatia under the provisions of the Congress of Vienna. The Auschwitz concentration camp was located in the upper part of this historical region, which was split between Germany and Poland following an inconclusive 1921 plebiscite. This region's capital was the city of Breslau, now known as Wrocław ("VROT-swaff"). Maria Theresa was issued an ultimatum to surrender this region directly south of Brandenburg in exchange for recognition of her right to rule given by the Pragmatic Sanction. For 10 points, name this historical region whose 1740 invasion by Frederick the Great started the War of the Austrian Succession.

ANSWER: **Silesia** [accept **Śląsk** or **Slezsko** or **Schlesien**]

<European History>

15. A piece inspired by this historical event features a youth choir chanting stock phrases like "I am quite well," which were projected in the Royal Albert Hall during its premiere. The fourth movement of a composer's Third Symphony inspired by this general event opens with a soft timpani roll accompanying a solo soprano singing a wordless, pentatonic melody. This event inspired Anna Meredith's *Five Telegrams*, Vaughan Williams's *A Pastoral Symphony*, and a piano suite whose lively last movement opens with many repeated sixteenth-note E's. That E minor Toccata closes a Baroque-inspired suite whose six movements are dedicated to friends who participated in this event. This event inspired Ravel's *Le Tombeau de Couperin* and a requiem that includes settings of poems by Wilfred Owen. For 10 points, name this event that inspired Benjamin Britten's *War Requiem*.

ANSWER: **World War I** [or **WWI**; or **First World War**; or the **Great War**; prompt on **war**; prompt on things like **death** by asking "during which historical event?"]

<Music>

16. A play by this author ends with a declaration about "the spirit of truth and the spirit of freedom." The protagonist of another play by this author gives a speech denouncing the "compact majority," which he considers to be antithetical to truth and freedom, and compares a party to a "sausage machine" that mashes different people together into mincemeat. Mrs. Busk reluctantly fires the daughter of that protagonist of a play by this author. The main character's young son stows away on the dangerously unseaworthy ship the *Indian Girl* in a play by this author about a shipyard owner named Bernick. In another play by this author, a report stating that the water at a newly opened spa is contaminated earns Dr. Stockmann the hatred of the townspeople. For 10 points, *The Pillars of Society* and *An Enemy of the People* are by what Norwegian playwright?

ANSWER: Henrik **Ibsen** [or Henrik Johan **Ibsen**]

<European Literature>

17. The Schwinger limit is the value for this quantity where pair production introduces nonlinearities. The uniqueness of this quantity for a given source configuration can be proved by integrating the square of the difference of two solutions for this quantity over a volume. The polarization of a linear medium is proportional to this quantity. In statics, the curl of this quantity is zero and its normal component is discontinuous across a surface charge. This quantity vanishes inside conductors when there is no time dependence. This quantity falls off as one over  $r$ -cubed for a dipole. This quantity can be computed by taking the gradient of the scalar potential, and it is sourced by the

charge density in Gauss's law. For 10 points, name this quantity that gives the Coulomb force when multiplied by charge.

ANSWER: **electric field** [or **E-field**]

<Physics>

18. Gayatri Spivak ("GUY-uh-tree SPIV-uk") placed this philosopher's name inside quotation marks when analyzing his claim that the "monotony" of the *Bhagavad Gita* reflects the static nature of India. Susan Buck-Morss argues that this thinker's development of a certain concept was influenced by reading accounts of the ongoing Haitian Revolution in journals such as *Minerva*. This philosopher described a figure who experiences "absolute negativity" via fear before engaging in a "rediscovery of himself by himself" through labor in a passage titled for the "independence and dependence of self-consciousness." That passage, which describes how two figures recognize each other through a "struggle to the death," is often described in translation as this thinker's "master-slave dialectic." For 10 points, name this German author of *The Phenomenology of Spirit*.

ANSWER: Georg Wilhelm Friedrich **Hegel** ("HEY-gull") [accept "**Hegel** and Haiti"] (The concept Buck-Morss is talking about is the master-slave dialectic, not Hegel's description of "Minerva's owl" in the *Philosophy of Right*.)

<Philosophy>

19. A classic manual on performing this action was written by Ibn al-Jazari. In South Asia, this action is uniquely performed with the pani patti method. Important scholars of this task had their writings distributed by disciples known as rawi. According to the hadith, people who are particularly adept at this task have the ability to intercede and bring up to 10 people to heaven. The addition of nunation increased the ease of performing this task properly. In order to perform this action correctly, adherents obey the rules of tajweed. An individual who can perform this action perfectly from memory is known as a hafiz. For 10 points, name this action performed by Sunnis during nightly Ramadan prayers, the reading of a holy text in Arabic.

ANSWER: **reciting** the **Quran** [or **reading** the **Quran**; or **qira'at**; prompt on **memorizing** the **Quran**]

<Religion>

20. This dynasty created the Salt Industry Commission to sell merchants the right to buy salt from a government monopoly. A court favorite during this dynasty had fresh lychees ("lee-chees") delivered by horseback from Guangdong. Powerful military governors called *jiedushi* ("j'YEH-doo-shurr") during this dynasty gained unprecedented autonomy during it. A blank stele ("stee-lee") in front of the Qianling ("ch'yen-ling") Mausoleum was intended to eulogize a ruler of this dynasty who ordered the death of Empress Wang ("wong"). The Japanese monk Ennin ("EN-neen") was deported during this dynasty's Great Anti-Buddhist Persecution. This dynasty was crippled by a rebellion led by a Sogdian ("SOG-dee-in") general who was the lover of Emperor Xuanzong's ("shwen-dzong's") concubine Yang Guifei ("yong gway-fay"). For 10 points, name this dynasty of China that was briefly ruled by Wu Zetian ("woo dzuh-t'yen") and faced the An Lushan Rebellion.

ANSWER: **Tang** Dynasty

<World History>

21. After arriving in this state, a character starts to doubt his own past life on Cordelia Street. A story set in this state includes a note stating that the events are "beyond the possibility of a doubt" because of the existence of a certificate signed with a cross by a judge. A character steals money from Denny & Carson's and runs away to this state in a story subtitled "A Study in Temperament," Willa Cather's "Paul's Case." At the end of a story set in this state, the title character notices an image of George Washington instead of George III on a sign when he returns from the sight of men playing nine-pins. Some stories set in this state are attributed to the fictional historian Diedrich Knickerbocker. For 10 points, name this state, the setting of Washington Irving's "Rip Van Winkle" and "The Legend of Sleepy Hollow."

ANSWER: **New York** [or **NY**]

<American Literature>

## Bonuses

1. According to this thinker, transcendence is achieved through awareness of that which is “intrinsic, the most essential” but “never expressed,” or what he termed “the ineffable.” For 10 points each:

[10] Name this theologian and philosopher who examined Jewish ideas about the relationship between God and people in works such as *Man Is Not Alone* and *God In Search of Man*.

ANSWER: Abraham Joshua **Heschel**

[10] Heschel frequently criticized the following of mitzvot (“meets-VOTE”) without any rationale, calling it a “religious” form of this intellectual approach, whose pioneers such as B. F. Skinner emphasized the role of operant conditioning in how people act.

ANSWER: **behaviorism** [or **behaviorist**; accept religious **behaviorism** or radical **behaviorism**]

[10] Heschel also often criticized this other Jewish philosopher’s views on prophetic revelation, writing at one point that “a lot has happened between the Bible and Hasidism that” this author of *I and Thou* “did not pay attention to.”

ANSWER: Martin **Buber**

<Philosophy>

2. An inscription on a double-pillar monument claims that victims of an accident on this island were sacrificed by “imperialist voracity.” For 10 points each:

[10] Name this island that the United States promised to not annex in the Teller Amendment.

ANSWER: **Cuba**

[10] During the Battle of Las Guasimas in Cuba, this former Confederate general and representative from Alabama nicknamed “Fighting Joe” yelled out in excitement “We’ve got the damn Yankees on the run again!”

ANSWER: Joseph **Wheeler**

[10] Wheeler is one of the few Confederate officers buried in this “national cemetery” in Virginia.

ANSWER: **Arlington** National Cemetery

<American History>

3. The enzyme that catalyzes this process binds to the TATA box in eukaryotic promoters and was crystallized for the first time by Roger Kornberg, who received a Nobel Prize for his work. For 10 points each:

[10] Name this process catalyzed by RNA polymerase in which RNA molecules are synthesized from a DNA template.

ANSWER: **transcription**

[10] RNA polymerase in prokaryotes requires one of these factors to initiate transcription. These factors are homologous to the eukaryotic TFIIB (“T-F-2-B”), and their 70-kilodalton variant controls transcription of housekeeping genes.

ANSWER: **sigma** factors

[10] This form of transcription results in the production of short, 2-to-15-base-pair RNA fragments. It occurs when the RNA polymerase cannot escape the promoter due to DNA scrunching.

ANSWER: **abortive** transcription [or **abortive** initiation]

<Biology>

4. The schoolteacher Wing Biddlebaum flees to this town after being accused of child molestation. For 10 points each:

[10] Name this fictional Ohio town whose inhabitants are described as “grotesques” at the beginning of a Sherwood Anderson book.

ANSWER: **Winesburg**, Ohio

[10] This protagonist of *Winesburg, Ohio* is a journalist for the Winesburg Eagle and befriends Wing Biddlebaum. He is attracted to his former teacher Kate Swift, who “recognizes the spark of genius” in him.

ANSWER: **George Willard** [accept either underlined portion]

[10] In this story from *Winesburg, Ohio*, the preacher Curtis Hartman becomes infatuated with Kate Swift after seeing her naked through a hole in the church's bell tower.

ANSWER: "The **Strength of God**"

<American Literature>

5. Answer the following about the pioneering street photographer and *flâneur* ("flaw-NURR") Eugène Atget ("aht-ZHAY"), for 10 points each.

[10] Most of Atget's work was done in this capital city. This city's Boulevard du Temple was where Louis Daguerre took the first candid photograph of a person.

ANSWER: **Paris**

[10] Atget's work was first "discovered" by Berenice Abbott and this surrealist, who depicted Kiki of Montparnasse with f-holes on her back in his photograph *Violon d'Ingres* ("vee-oh-LAWN DAN-gruh").

ANSWER: Man **Ray** [or Emmanuel **Radnitzky**]

[10] A meeting with Atget helped inspire this pseudonymous Hungarian-born artist, who was also tutored by André Kertész ("CARE-tace"), to take up photography. He published his first collection, *Paris by Night*, in 1933.

ANSWER: **Brassaï** [or Gyula **Halász**]

<Other Arts>

6. A book by this thinker argues that the "symbiotic milieu" caused by the title *Retreat of the State* has made it difficult to redress the "collective colonialism" administered by international organizations. For 10 points each:

[10] Name this British thinker who highlighted the political impact of global finance in works such as *States and Markets*, a key influence on the field of international political economy.

ANSWER: Susan **Strange**

[10] In an essay titled for a portmanteau of this international system with the word "failure," Strange argued that it makes socioeconomic polarization impossible to address. This system, in which nation-states have full sovereignty over their territory, is named after a 1648 treaty.

ANSWER: **Westphalian** system [or **Westphalia** system; accept **Westphalian** sovereignty]

[10] Strange's essay notes that global capital's use of "havens" such as the Cayman Islands and Luxembourg to avoid paying these things makes financial regulation under the Westphalian system extremely difficult.

ANSWER: **taxes** [accept more specific forms of **taxation**]

<Social Science>

7. Like the neighboring Ewe ("AY-way"), people of this ethnicity worship the female creator goddess Nana Buluku. For 10 points each:

[10] Name this ethnic group who venerate their ancestors by not burying them until three years after death and also pay tribute to the trickster deity Legba.

ANSWER: **Fon** people [or the **Dahomey**]

[10] The Fon traditionally use this word as the name of their religion. Slaves brought the name to the New World, and it is now the common name for a set of African diaspora religions prominent in places like Haiti and Louisiana.

ANSWER: **Vodun** [or **voodoo**]

[10] Though they have largely converted to Islam, some members of this African ethnic group still practice Bori, a traditional spirit religion. In northern Nigeria, they have undergone extensive mixing with the Fulani.

ANSWER: **Hausa**

<Religion>

8. The speaker of a poem by this author claims that "a sonnet is a moment's monument" to introduce his sonnet sequence *The House of Life*. For 10 points each:



[10] Name this English poet and painter who wrote about a woman who “leaned out from the gold bar of Heaven” in a poem published in *The Germ*.

ANSWER: Dante Gabriel Rossetti [or Gabriel Charles Dante Rossetti; prompt on Rossetti]

[10] Dante Gabriel Rossetti’s sister Christina wrote a narrative poem in which the sisters Laura and Lizzie encounter a market in which these sinister beings beckon them to “come buy, come buy” their fruits.

ANSWER: goblins [accept “Goblin Market”]

[10] At the end of “The Blessed Damozel,” the speaker states parenthetically that he heard some of these things. In “Goblin Market,” Laura drops one of these objects “more rare than pearl” when she cuts off a lock of her hair.

ANSWER: tears

<British Literature>

9. Diffusive equilibrium occurs when this quantity is the same between two systems in contact with each other. For 10 points each:

[10] Name this quantity that corresponds to energy lost or gained when particles are exchanged.

ANSWER: chemical potential [prompt on mu]

[10] The chemical potential and the reservoir temperature characterize this statistical formalism that allows for particles and heat to be exchanged with a reservoir.

ANSWER: grand canonical ensemble [do not accept or prompt on partial answer]

[10] In the grand canonical ensemble, the probability distribution named for this physicist includes chemical potential as well as energy. That distribution named for this physicist is normalized by the partition function and gives probabilities in thermal equilibrium.

ANSWER: Ludwig Boltzmann [accept Boltzmann distribution or Boltzmann factor]

<Physics>

10. This ruler had his golden earring ripped off along with his earlobe while being paraded during a Roman triumph. For 10 points each:

[10] Name this ruler who was captured due to the betrayal of his father-in-law Bocchus I.

ANSWER: Jugurtha

[10] Jugurtha was a ruler of this North African kingdom. The first ruler of this kingdom, Massinissa, was given its land because he allied with the Romans against the Carthage-aligned Syphax.

ANSWER: Numidia

[10] This future dictator and rival of Gaius Marius was responsible for the capture of Jugurtha. The first wave of mass proscriptions took place during his dictatorship.

ANSWER: Sulla [or Lucius Cornelius Sulla Felix]

<Ancient History>

11. When 589-nanometer light is used to measure this property, a subscript D, for the sodium D-line, is attached to the symbol that denotes it. For 10 points each:

[10] Name this property that is equal and opposite for dextrorotatory and levorotatory molecules. It is denoted by an alpha in brackets with a superscript and a subscript for the associated temperature and wavelength.

ANSWER: specific rotation [prompt on optical rotation; prompt on optical activity]

[10] Only molecules with this property have optical activity. Molecules with this property, from the Greek for “handedness,” are non-superimposable on their mirror images.

ANSWER: chirality (“kye-RAL-ih-tee”)

[10] This quantity, which is 0 percent for a racemic (“ruh-SEE-mick”) mixture, indicates the purity of a chiral (“KYE-rull”) sample by comparing the mole fractions of different enantiomers.

ANSWER: enantiomeric excess [or ee; prompt on enantiopurity]

<Chemistry>

12. In the best-known painting of this man, he reclines awkwardly on a chair with a vaguely phallic baton between his legs, staring at a Portuguese flag. For 10 points each:

[10] Name this politician who probably commissioned the artist of that portrait to paint a pair of “clothed” and “naked” majas (“MA-hahs”) for his home, which he entertainingly interchanged using an automated pulley system.

ANSWER: Manuel Godoy [or Manuel Godoy y Alvarez de Faria]

[10] Godoy was a close friend and patron of this Spanish artist. Godoy’s poor handling of the Peninsular War inspired this artist’s painting *Third of May, 1808* and his late *Black Paintings*.

ANSWER: Francisco de Goya

[10] Late in life, Godoy praised this series of 80 etchings by Goya, the publication of which he may have aided. Haunting owls attack a sleeping man in *The Sleep of Reason Produces Monsters*, a work from this series.

ANSWER: *Los* Caprichos [or *The* Caprices]

<Painting>

13. One of the first actors to play this role recalled taking a year to understand why the playwright said this character should wear checked trousers, despite being adored by women. For 10 points each:

[10] Name this character who receives a medallion inscribed with the words “If you ever need my life, come and take it” from an obsessive love interest in Act III of the play in which he appears.

ANSWER: Boris Trigorin [accept either underlined portion]

[10] Trigorin is a character from this Russian dramatist’s *The Seagull*.

ANSWER: Anton Chekhov [or Anton Pavlovich Chekhov]

[10] After a rocky premiere, *The Seagull* became popular after its staging at the Moscow Art Theatre by this man, who created a namesake acting method detailed in *An Actor Prepares*.

ANSWER: Konstantin Stanislavski [or Konstantin Sergeievich Alexeiev]

<European Literature>

14. Felix Mendelssohn and a 12-year-old Joseph Joachim (“YO-zef YO-ah-kim”) revived this composer’s violin concerto in 1844. For 10 points each:

[10] Name this composer whose Violin Concerto in D major begins with a solo timpani playing four beats. This composer also wrote a Triple Concerto in C major for violin, cello, and piano.

ANSWER: Ludwig van Beethoven

[10] Mendelssohn also revived this symphony after Robert Schumann brought him the score. Schumann described this symphony as having a “heavenly length,” though many orchestras of the time simply thought it was too long.

ANSWER: Symphony No. 9 by Franz Schubert [or the “Great” C major Symphony; or D. 944; prompt on partial answer; prompt on answers that describe it as Symphony No. 7 or 8]

[10] Mendelssohn most famously revived interest in this Baroque composer with a performance of his *St. Matthew Passion*. This composer also wrote the *Goldberg Variations*.

ANSWER: Johann Sebastian Bach [prompt on Bach]

<Music>

15. Upon the appointment of the Count of Polignac (“po-leen-YAHK”) as Prime Minister, this statesman immediately wrote that “The King rules, but does not govern.” For 10 points each:

[10] Name this statesman and later Prime Minister of France who founded the *National* as an opposition newspaper against Charles X.

ANSWER: Adolphe Thiers (“tee-AIR”) [or Marie Joseph Louis Adolphe Thiers]

[10] Adolphe Thiers met with this Duke of Orléans (“or-lay-AWN”) and helped convince him to take the crown during the July Revolution. He was known as the “Citizen-King.”

ANSWER: Louis Philippe I

[10] Louis Philippe was overthrown in February of this year. Nationalist movements broke out in Austria, Germany, and France in this year.

ANSWER: **1848**

<European History>

16. According to legend, because this building was built on a very narrow peninsula, it could be effectively guarded by three men standing side by side. For 10 points each:

[10] Name this building in Cornwall. A famous action performed in this building is taken while most of its forces are busy defending a siege of the nearby Dimilloc.

ANSWER: **Tintagel** (“tin-TADGE-ull”) Castle

[10] Uther Pendragon’s covert infiltration of Tintagel Castle and the subsequent conception of Arthur occurs in the 8th book of this man’s history of the kings of Britain, the first to contain a full account of Arthur’s life.

ANSWER: **Geoffrey** of Monmouth

[10] Uther enlists the help of this wizard to turn himself into Gorlois and sleep with Igraine. He later becomes eternally trapped in a tree by the Lady of the Lake.

ANSWER: **Merlin** [or **Merlinus**]

<Mythology>

17. Baby Kochamma converts to Catholicism to flatter Father Mulligan in this novel. For 10 points each:

[10] Name this 1997 novel about the fraternal twins Estha and Rahel, who live in Kerala (“CARE-uh-luh”). In a scene from this novel, Estha is molested by the Orangedrink Lemondrink Man.

ANSWER: *The **God of Small Things***

[10] The author of *The God of Small Things*, Arundhati Roy, contributed to the essay collection *Kashmir: The Case for Freedom*, which was published by this radical publishing house whose logo is a red V.

ANSWER: **Verso** Books

[10] The Verso Books volume *In Praise of Disobedience* collects some of the 1891 writings of this author, including “The Soul of Man Under Socialism” and excerpts from *The Picture of Dorian Gray*.

ANSWER: Oscar **Wilde** [or Oscar Fingal O’Flahertie Wills **Wilde**]

<World Literature>

18. One character in this film travels to a traditional shrine in a cave at Itomori, where he drinks three-year-old *kuchikamizake* in an effort to save the town of Itomori from a comet strike. For 10 points each:

[10] Name this 2016 animated movie in which the high schoolers Taki Tachibana and Mitsuha Miyamizu intermittently switch bodies.

ANSWER: ***Your Name*** [or ***Kimi no Na wa***]

[10] *Your Name* was directed by this man, whose other films include *5 Centimeters Per Second* and *The Garden of Words*.

ANSWER: Makoto **Shinkai**

[10] Shinkai’s early hand-animated short films include one in which he voiced one of these animals named Chobi. A twelve-legged one of these animals serves as a magical bus in the Hayao Miyazaki film *My Neighbor Totoro*.

ANSWER: **cat** [or ***neko***; accept **Catbus** or **Nekobasu**]

<Trash>

19. This man killed himself after he received an ultimatum to resign after he had his political opponent Carlos Lacerda killed. For 10 points each:

[10] Name this leader whose first presidency ended the “coffee with milk” era in his country.

ANSWER: Getúlio **Vargas** (“zhay-TOOL-yoo VAR-guss”) [or Getúlio Dornelles **Vargas**]

[10] Vargas was supported early in his presidency by the Integralists, a Brazilian movement that is often linked with this far-right political ideology whose name derives from a word for a bundle of rods.

ANSWER: **fascism** [or **fascist** movements]

[10] Vargas strongly advocated developmental and protectionist policies, including setting up this company. In the 1960s, a series of three memoranda by geologist Walter K. Link led to this company massively changing its operations.

ANSWER: **Petrobras**

<World History>

20. Nancy Grace Roman was an early advocate for this telescope, arguing that it would overcome the limits of terrestrial observatories. For 10 points each:

[10] Name this large telescope in low Earth orbit launched in 1990 that has taken many vivid images of galaxies and nebulae.

ANSWER: **Hubble** Space Telescope [or **HST**]

[10] In addition to spectrographs, Hubble carries several of these sensors for imaging. These sensors, which are widely used in astronomy, consist of tiny metal oxide capacitors and measure photoelectrons produced by incident light.

ANSWER: **CCDs** [or **charge-coupled devices**]

[10] While Hubble primarily images in the visible and near infrared, this other NASA observatory takes data deeper in the infrared. This telescope, which imaged the twisted Double Helix Nebula, is named for a plasma physicist who developed the stellarator and advocated for orbital telescopes.

ANSWER: **Spitzer** Space Telescope [or **SST**]

<Other Science (Astronomy)>

21. Answer the following about aggregation, for 10 points each.

[10] When aggregation is limited by this process, where particles move randomly, tending to equalize concentration, it forms fractal structures with dimension less than three.

ANSWER: **diffusion** [accept **diffusion** limited aggregation or **DLA**]

[10] Diffusion can be modeled as a process of this type, which can also model the shape of an ideal polymer chain. The average displacement in a process of this type is proportional to the square root of the number of steps.

ANSWER: **random walk**

[10] Diffusion limited aggregation produces structures with this property, which results in a simple power law for the scattering structure factor for scattering of light. Scale invariance is a stronger version of this property found in many fractals.

ANSWER: **self-similarity**

<Other Science (Mixed)>