

## Cal's Mid-Spring Tournament 2018

Written by members of the Berkeley Quizbowl Club, Weijia Cheng, Ryan Humphrey, Ike Jose, Eddie Kim, Will Nediger, and Jennie Yang

Edited by Weijia Cheng, Michael Coates, Aseem Keyal, Bruce Lou, Will Nediger, Ryan Humphrey, Eddie Kim, and Jennie Yang

Tossups

1. **The time derivative of this quantity was shown to always be positive by G. W. Gibbons due to the “rolling down” of the tachyon field. In the Taylor expansion for a ratio of two values of this quantity, the second-order term is equal to the opposite of the deceleration parameter. Blackbody temperature is inversely proportional to this quantity, since after normalizing this quantity, matter energy density is inversely proportional to this quantity to the third power and radiation energy density is inversely proportional to this quantity to the fourth power. The square of this quantity multiplies the (\*) spatial component of the FLRW metric, and the curvature parameter is divided by the square of this quantity in a term in the Friedmann equations. It's not wavelength, but the ratio of two values of this quantity is equal to one plus cosmological redshift. The time derivative of this quantity divided by this quantity is the Hubble parameter. Proper distance is equal to comoving distance times this quantity. For 10 points, name this quantity, symbolized by either a capital  $R$  or lowercase  $a$ , which represents the relative size of the universe.**

ANSWER: cosmic **scale factor** [or **scale parameter**; prompt on  $a$  or  $R$  until read]

<RD, Other Science (Astronomy)>

2. **These objects are referred to in the original title of a novel in which a man visits the Hall of Beauties and spends all his money in pursuit of the courtesan Jewel. The incarnated spirits of these objects appear in a novel about a journey to lands like the Country of the Intestineless People and the Country of the Sexless People. A man whose nickname derives from the tattoos of these objects that cover his upper body gains fame for uprooting a willow tree. A fantasy novel by (\*) Li Ruzhen (“roo-jun”) is named for these objects “in the mirror.” In an oft-reenacted scene, a woman buries some of these objects, weeping at their loss and composing an elegiac poem in their honor. Along with fruit, these objects name the mountain home to the magic stone from which Sun Wukong is born. In *Dream of the Red Chamber*, Lin Daiyu is a reincarnation of one of these objects, just as Jia Baoyu is the reincarnation of a stone. For 10 points, the *Water Margin* character Pan Jinlian, whose name means “Golden Lotus,” is named after what type of object?**

ANSWER: **flowers** [or **hua**; prompt on plants]

<JN, Long Fiction>

3. **The inverse of this quantity is multiplied by the ratio of solvent to feed rate to obtain a quantity symbolized by either  $E$  or  $S$ . The log of that quantity appears in the denominator of Kremser's equation, which is used to calculate the number of theoretical plates required for stripping processes. In drug discovery, the difference between the log of this quantity and the log of the IC50 (“eye-C-fifty”) must be large for a compound to have high lipophilic efficiency. This quantity is constant at a given temperature according to Nernst's Law. This quantity is equal to “ $V_1$  times one minus  $q$  divided by  $V_2$  times  $q$ .” The constant value of this quantity explains why doing multiple (\*) extractions is more efficient than one large extraction. The environmental safety of organic compounds is often quantified using the octanol-water type of this quantity. For 10 points, name this quantity, also called the distribution coefficient, which is defined as the ratio of the concentration of a compound in two immiscible phases.**

ANSWER: **partition coefficient** [or **distribution coefficient** until read; prompt on equilibrium constant or  $P$  or  $D$ ]

<RD, Chemistry>

4. After dating this man for six months, singer Evelyn Frechette (“fruh-SHET”) performed with his family for five years in a traveling show called “Crime Does Not Pay.” This man nearly died after swallowing his tongue while he was anesthetized (“uh-NESS-thuh-tized”) while undergoing plastic surgery conducted by doctors Wilhelm Loeser and Harold Cassidy. Many of his associates, such as Harry Pierpont and Charles Makley, were apprehended after a fire started in the basement of the Hotel Congress. A raid on this man at the (\*) Little Bohemia Lodge in Wisconsin turned into a full-on gunfight, during which Helen Gillis, the wife of his associate “Baby Face” Nelson, was captured. This man was pursued by Melvin Purvis and Samuel Cowley, and died after he was betrayed by brothel owner Ana Cumpanas, who was colloquially known as “The Lady in Red.” For 10 points, name this “Public Enemy Number One” who was shot by the FBI outside the Biograph Theater in Chicago.  
ANSWER: John Dillinger

<IJ, American History>

5. Martin Wight spent much of his career revising a book of this title originally published as a 68-page pamphlet in 1946 and still unfinished at Wight’s death in 1972. A book whose title ends with this phrase argues that the reach of states is limited by the “stopping power of water” and that war is more likely in situations of unbalanced multipolarity, as opposed to balanced multipolarity. Hans (\*) Morgenthau argued against a purely scientific, rationalist view of international relations in a book whose title opposes “scientific man” with this phrase. A book whose title ends with this phrase argues that threatened states prefer the strategy of buck-passing to the strategy of balancing, and outlines the author’s theory of offensive realism. For 10 points, name this phenomenon whose “tragedy” is the subject of a book by John Mearsheimer.

ANSWER: great power politics [accept *The Tragedy of Great Power Politics*]

<WN, Social Science>

6. A team led by Georg Schneider used this technique to measure the proton’s magnetic moment to an accuracy of three parts per billion in November 2017. The quotient of the maximum and minimum field strength is equal to the sine squared of the pitch angle, below which this process does not occur due to the creation of a “loss cone.” A device that accomplishes this process consists of an alternating square arrangement of endcap and ring elements. A method of this process pioneered by Arthur (\*) Ashkin can be applied to neutral targets, since it relies on differences in refractive index. Because the magnetic moment is an adiabatic invariant, magnetic mirroring can accomplish this process. The Zeeman effect is utilized by a device named for this process required for Bose-Einstein condensate production; that device which does this “magneto-optically” led to the creation of “optical tweezers.” Paul and Dehmelt created a device for achieving this task similar to one named for Penning that was central to the storage of antihydrogen. For 10 points, what process of fixing the location of particles often results from extreme cooling?

ANSWER: trapping [or ion trapping; or optical trapping or double-trap; accept confinement; accept magnetic mirroring until read; prompt on cooling by asking “by doing what to a particle?”]

<RK, Physics>

7. A debate between historians Aurel Stein and E. W. Marsden about the site of this battle centers on a central location in this battle called “Camel Hump Hill” today. Benjamin Ide Wheeler wrote that a Phocian (“FOH-kee-in”) named Patron attempted to warn this battle’s losing commander of impending treason in its aftermath by accepting a guard of Greek mercenaries. According to Plutarch, the drunken burning of a palace after this battle took place upon the instigation of an Attican woman named Thais (“thah-EESE”). The winning commander rejected a proposed (\*) night attack, correctly expecting the opposing army to stay up all night in anticipation. Light cavalry called *prodromoi* under the command of the general Aretes (“uh-RET-eez”) routed heavy Massagetae (“mass-uh-GET-ee”) cavalry during this battle. Though the ruler of the losing side of this battle managed to escape after the Companion Cavalry broke off pursuit to rescue Parmenion, he was eventually murdered by his satrap Bessus. For 10 points, the Achaemenid (“uh-KEE-muh-nid”) Empire collapsed after what decisive 331 BC battle won by Alexander the Great?

ANSWER: Battle of Gaugamela [accept Battle of Arbela]  
<CP, World History>

8. A film from this decade includes a scene in which two strangers fight a duel in a gymnasium, but instead of showing the outcome, the camera pulls out of the building to focus on snow falling on the roof. In that film, a character is captured while relaxing in a Turkish bath after a training exercise starts early, and protests that “war starts at midnight!” A film from this decade was shot entirely on a set, but nonetheless culminates in a scene in which (\*) Ruth falls off a cliff while attacking Sister Clodagh (“KLOH-duh”), who has just rung the bell calling her fellow nuns to prayer. At the end of a film from this decade, Julian removes the title articles of clothing from the dying ballerina Vicky Page. For 10 points, name this decade in which Michael Powell and Emeric Pressburger directed a string of acclaimed Technicolor films, including *The Life and Death of Colonel Blimp*, *Black Narcissus*, and *The Red Shoes*.

ANSWER: 1940s  
<WN, Other Art (Film)>

9. This character is told “I’ll make you perfect” by a middle-aged woman originally from Luxembourg, with whom he goes to Benton Harbor. This character espouses the idea that “you must be straight or else your existence is merely clownery” with respect to the “axial lines of life.” At the end of the novel in which he appears, this man sings with his maid Jacqueline and calls himself a “sort of Columbus.” This character adheres to Heraclitus’s principle that “a man’s character is his fate.” Under the influence of Grammick, this man becomes a union organizer after he invokes the wrath of (\*) Uncle Charlie for bringing Mimi to the hospital following an abortion attempt. In his youth, this character is raised by Grandma Lausch and falls under the sway of Einhorn. This character meets his future wife Stella in Mexico while training the eagle Caligula to catch lizards with Thea Fenchel. In the opening sentence, this man declares that he is “an American, Chicago born.” For 10 points, name this character whose “adventures” are the subject of a Saul Bellow novel.

ANSWER: Augie March [accept either underlined portion; accept *The Adventures of Augie March*]  
<JN, Long Fiction>

10. An essay discusses the “Christian Science”-like “weak mysticism” of this artistic movement, labeling its “decorative” aspects as producing “apocalyptic wallpaper.” A critic curated a LACMA exhibit for a successor to this movement featuring John Ferren and Jules Olitski titled for a Wölfflian (“vulf-LIN-ee-in”) term opposing the “linear.” Michel Tapié (“top-YAY”) popularized it in France, where it was called *Art Informel* (“ann-for-MEL”). Eighteen artists in this movement protesting the exhibit “American Painting Today” stood for a *Life* magazine photo titled (\*) “The Irascibles.” Peggy Guggenheim’s *Art of This Century* gallery exhibited European Surrealists with members of this American movement such as Clyfford Still and Ad Reinhardt. Post-painterly abstraction succeeded this movement written about by Harold Rosenberg and Clement Greenberg. The gestural branch of this movement included Franz Kline and Robert Motherwell, while artists like Barnett Newman painted expanses of color. For 10 points, name this movement including color field and action painting, with artists like Willem de Kooning and Jackson Pollock.

ANSWER: abstract expressionism [or AbEx; anti-prompt on action painting or color field; accept *Art informel* until read; accept *tachisme* or lyrical abstraction or painterly abstraction] (The first line quotes Harold Rosenberg’s “The American Action Painters.”)  
<AK, Painting/Sculpture>

11. An essay opposing these works, which distinguishes between “modern” and “modernist” writers, was written by Robert Graves and Laura Riding, and is called “A Pamphlet Against” these works. In a scene from *The Merry Wives of Windsor*, Abraham Slender looks for a book of riddles and one of these works. W. R. Paton translated one of these works discovered at the Palatine Library, which included a similar work by Maximus Planudes (“plah-NOO-daze”). The name for these works references the title of one of them by

(\*) Meleager of Gadara. One of these works published in 1557 by Richard Tottel helped popularize them in Britain. Frank Kermode (“KUR-mode”), Lionel Trilling, and Harold Bloom collaborated on one of these works published by Oxford that was abandoned due to the success of one edited by M. H. Abrams and Stephen Greenblatt, whose 2012 ninth edition includes passages from global writers like Hanif Kureishi and Zadie Smith. For 10 points, identify these collections of writings by different authors, one of which is named for W. W. Norton.

ANSWER: **anthology** [or **anthologies**; accept **miscellanies**] (The third sentence refers to the Greek Anthology.)  
<RK, Misc Literature>

12. **Some members of this country’s *gaing* cults may attempt to prolong life with alchemical substances called *datloun*. In this country, many venerate the Thirty-seven Lords, who were appointed as guardian spirits after suffering violent deaths. The Thirty-seven Lords are among this country’s *nat* spirits, who communicate with *nat* wives, mediums who are usually cis women, but sometimes trans women or queer men. S. N. Goenka, who taught (\*) Vipassana meditation in India, originally learned that technique in this country. This country experienced a series of monk-led protests in 2007 called the Saffron Revolution. In this country, the Buddhist nationalist 969 movement was founded by the monk Ashin Wirathu, an advocate of violence against Muslims. For 10 points, name this country with the second largest population of Theravada Buddhists, less than its eastern neighbor Thailand.**

ANSWER: **Burma** [or Republic of the Union of **Myanmar** or *Pyidaunzu Thanmāda Myāma Nainngandaw*]  
<WC, Religion>

13. **An essay named after this thing compares it to a “vertigo-tree” because it detaches itself from the horizontal axis of human life on earth, linking itself to the vertical axis along which vegetation develops. That essay from the volume *Visions of Excess* is by Georges Bataille (“zhorz buh-TIE”). This thing is the remnant of a faculty once possessed by members of the third root race, according to *The Secret Doctrine* by Helena Blavatsky. Perception is explained in terms of how (\*) animal spirits flow from this thing according to the *Treatise of Man*. An oft-reproduced woodcut from the book *Principles of Philosophy* illustrates how light rays from an arrow are transmitted to this thing, which then translates that stimulus into the act of pointing. This thing houses the *sensus communis* according to the 1649 treatise *The Passions of the Soul*. For 10 points, name this gland that Descartes considered to be the seat of the soul.**

ANSWER: **pineal** gland [accept the **pineal** eye; prompt on the third eye]  
<WN, Philosophy>

14. **In an article about “Sacral Kingship,” David Miller argues that this dynasty’s use of ox carts as a mode of royal transport came from an ancient fertility rite. A priest who advised this dynasty miraculously filled two jars of oil as part of the conversion of a “Moribund Pagan.” Historian Ian Wood wrote a monograph on this dynasty. The founder of this dynasty was buried with a cloak on which were hundreds of golden (\*) bees. An influential law code created during this dynasty notably included the tenet of agnatic succession, which excluded females from the line of succession. According to the *Chronicle of Fredegar*, a sea-monster called the Quinotaur fathered this dynasty’s namesake, whose grandson defeated a Roman rump state at the Battle of Soissons (“swah-SOHN”). Toward the end of this dynasty, “do-nothing” kings were dominated by their mayors of the palace. For 10 points, what Frankish dynasty was founded by Clovis I?**

ANSWER: **Merovingian** (“mair-oh-VIN-jee-in”) Dynasty  
<IJ, European History>

15. **A renowned botanist and physiologist made a literary splash with a 1732 poem about this geographical feature which was sharply criticized in Gottfried Lessing’s *Laokoon* (“lay-AH-koh-on”). A poem calls this feature “the ground where early Love his Psyche’s zone unbound” and says this feature has “reared a throne.” A poem about this geographical feature suggests that “power dwells apart in its tranquility” and ends on a rhetorical question suggesting “silence and solitude” are “vacancy.” A closet drama set here opens in “a (\*) Gothic Gallery” with its protagonist musing “The Tree of Knowledge is not that of Life” before**

summoning seven spirits. An ode pondering “the everlasting universe of things” was inspired by this region, which Wordsworth crosses in Book VI of his *Prelude*. For 10 points, name this region often crossed by Romantic poets on the Grand Tour, the setting of Byron’s *Manfred* and Percy Shelley’s “Mont Blanc.”

ANSWER: the Alps [accept Mont Blanc or the Valley of Chamonix; accept the Swiss Alps or the Graian Alps] (The second sentence comes from “Childe Harold’s Pilgrimage.”)

<RK, Poetry>

16. **Joseph Reagle associates a kind of “anxiety” with this organization’s work in a study of the norms of this organization’s work culture. In her most famous book, Jose Van Dijck (“von DIKE”) argues that this organization’s interconnections with for-profit firms have been key to its success, even if they may undermine some of this organization’s goals, and were made possible in part because of this organization’s perceived neutrality. This is the largest organization whose work is argued to be characteristic of a non-market networked peer-based mode of production in the book *The Wealth of Networks* by Yochai (“YO-high”) Benkler. This organization was extensively funded by the (\*) adult company Bomis after it was established with help from Larry Sanger, and its norms include injunctions to operate in “good faith” and maintain a “neutral point of view” by presenting ideas “in proportion to their representation in reliable sources.” This organization attempts to operate outside the market sphere by not accepting advertisements and relying on donations, which have at times been solicited using pictures of its founder. For 10 points, name this online organization, which Jimmy Wales established to produce an encyclopedia.**

ANSWER: Wikipedia [or the Wikimedia Foundation]

<MC, Current Events>

17. **A condition affecting this blood vessel is responsible for an excess build-up of abdominal fluid if a patient’s serum-ascites albumin gradient is greater than 1.1. It’s not associated with the umbilical cord, but that condition affecting this blood vessel will also cause patients to present with a distinctive murmur and an abdominal wall bruit in Cruveilhier–Baumgarten syndrome. A common complication of intra-abdominal sepsis is (\*) pylephlebitis, or an infective thrombosis of this blood vessel. When this blood vessel is dilated beyond thirteen millimeters, patients may also develop symptoms like spider angiomas and anorectal varices. That condition affecting this blood vessel may result from fibrosis of the Space of Disse or from chronic alcohol abuse. This blood vessel supplies the venules to its namesake “triad,” and hypertension of this blood vessel is one of the most severe complications of cirrhosis. For 10 points, name this blood vessel that carries deoxygenated blood *into* the liver.**

ANSWER: hepatic portal vein [do not accept or prompt on “liver” or “hepatic vein”] (Unless otherwise stated, all clues in this tossup refer directly to complications of portal hypertension.)

<RH, Biology>

18. **To avoid corruption, this ruler split his empire’s taxation system into “yellow” and “fish-scale” records. This ruler centralized power by appointing six Grand Secretaries who effectively controlled all written communications between him and the outside world. This ruler praised Islam in a short poem of twenty-five lines of four words each, called the “Hundred-Word Eulogy.” A military advisor to this ruler described various ingenious gunpowder weapons, such as the “underwater dragon-king” and the “divine fire-crow,” in a manual called the *Huolongjing*. This ruler’s designated successor, the (\*) Jianwen Emperor, was overthrown in the Jingnan campaign. In one of the largest naval battles in history, this ruler defeated Chen Youliang’s fleet at the Battle of Lake Poyang. This emperor ruled from Nanjing, but the capital was later moved to Beijing by his fourth son Yongle (“yohng-luh”). For 10 points, name this founder of the Ming Dynasty.**

ANSWER: Hongwu Emperor [or Zhu Yuanzhang; or Ming Taizu; prompt on Zhu; prompt on Taizu]

<BL, World History>

19. **Through a power granted by these animals, a man advised another to drink water with rust from a knife to cure his infertility, giving him the oxen of Iphiclus. Earlier, an ability granted by two of these animals allowed that man to learn about the imminent collapse of his prison cell from a pair of worms. According to Hyginus (“hiih-JY-nus”), a man gained secret knowledge in the house of Glaucus by seeing one of these animals bringing an herb to help another. In a fit of jealousy, Hera sent one of these animals in pursuit of (\*)** Leto (“LEE-toh”) during her pregnancy. Hygieia (“hy-JEE-uh”) is often depicted feeding one of these animals. By licking his ears, two of these animals granted the power to understand animals to Melampus. After reviving Hippolytus (“hip-ALL-it-us”), a man was turned into a constellation featuring one of these animals, which also appeared on his staff. The Pythian (“PITH-ee-in”) games were established after one of these animals was killed by Apollo. For 10 points, name these animals, one of which guarded the oracle of Delphi and was called Python.

ANSWER: snakes [accept serpents]

<JX, Legends>

20. **A piece by this composer includes a movement marked “con abbandono” that consists entirely of a single word, and then a very long melisma on the syllable “ah” that goes up to a high D. That same piece by this composer includes a D major aria that repeatedly alternates between 2/2, 3/2, and 4/2 time as the soprano soloist describes yoking herself rather than choose between love and chastity. Eugen Jochum (“OY-gun YO-koom”) led an acclaimed 1968 recording of a piece by this composer with the Deutsche Oper (“DOY-chuh OH-puh”) Berlin. A piece by this composer begins and ends with forceful *Pesante* sections in D minor and 3/1 time. A movement of that piece by this composer is interspersed with xylophone tremolos and high-pitched bassoon solos as a tenor soloist sings in (\*) falsetto to depict an idle and unfocused swan being roasted alive on a spit. This composer included “*Olim lacus colueram*” in his twenty-five-movement “scenic cantata” based on unchaste and lustful medieval poetry. For 10 points, name this composer of *Carmina Burana*, which includes “O Fortuna.”**

ANSWER: Carl Orff [or Carl Heinrich Maria Orff]

<EK, Classical Music>

## Bonuses

1. Sometimes, Beethoven wrote more than just notes in his scores. For 10 points each:

[10] On his score for this E-flat major symphony, Beethoven hand-wrote and later scratched out the subtitles “Titled Bonaparte” and “Written for Bonaparte” before eventually settling on dedicating it to “the memory of a great man.”

ANSWER: Eroica Symphony [or Symphony No. 3 in E-flat major, Op. 55; or Heroic Symphony]

[10] Above the first three chords of this piano sonata, Beethoven wrote the syllables “Le-be-wohl (“lay-buh-VOHL”).” Beethoven composed this piano sonata after Napoleon attacked Vienna in 1809 and dedicated it to Archduke Rudolf.

ANSWER: Les Adieux (“layz ah-DYOO”) [or Piano Sonata No. 26 in E-flat major, Op. 81a]

[10] In this string quartet’s finale, Beethoven labeled the opening of the *grave* introduction with the question “*Muss es sein?*” (“moose is ZYNE”) Beethoven composed this string quartet after completing three quartets commissioned by Prince Galitzin.

ANSWER: String Quartet No. 16 in F major, Op. 135 [accept either underlined part]

<JY, Classical Music>

2. This author satirized Idi Amin as the tyrannical Dr. Kamini in 1984’s *A Play of Giants*. For 10 points each:

[10] Name this Nobel-winning Nigerian playwright who also criticized dictators in works like *King Baabu* and *Kongi’s Harvest*.

ANSWER: Wole Sovinka [or Akinwande Oluwole Babatunde Sovinka]

[10] A personality disorder leads Christopher to believe he is Idi Amin’s son in a Joe Penhall play titled for these two colors that Christopher mistakes for one another.

ANSWER: blue and orange [accept in either order; accept Blue/Orange]

[10] Chiwetel Ejiofor (“CHEW-uh-tell EDGE-ee-oh-for”), who played Christopher in the premiere of *Blue/Orange*, starred as Patrice Lumumba in The Young Vic’s 2013 production of this 1966 play that concerns Lumumba’s fall and eventual assassination.

ANSWER: A Season in the Congo [or *Une saison au Congo*] (by Aimé Césaire)

<RK, Drama>

3. This rebellion was sparked by a letter that Todor Kableshkov signed with the blood of an assassinated Ottoman governor. For 10 points each:

[10] Name this Bulgarian uprising that began in its namesake month in 1876. William Gladstone described the brutal suppression of this uprising as the Bulgarian Horrors in a pamphlet stating “Let the Turks now carry away their abuses in the only possible manner, namely, by carrying off themselves.”

ANSWER: April Uprising [or Aprilsko vǎstanie]

[10] The Principality of Bulgaria gained *de facto* independence in 1878 under the Treaty of San Stefano, but its size was greatly reduced as a result of a Congress of Great Powers which met in this city. This city also hosted an 1884 conference that ignited the Scramble for Africa.

ANSWER: Berlin [accept Treaty of Berlin; accept Congress of Berlin; accept Berlin Conference]

[10] Bulgaria soon established its first constitution in this city, which briefly served as its capital until it relocated to Sofia. This city was also the capital of the Second Bulgarian Empire until it was captured by Bayezid I.

ANSWER: Veliko Tarnovo [or Great Tarnovo]

<EC, European History>

4. In this process, a figure was modeled in clay and covered in a layer of the namesake material followed by an outer layer of clay. For 10 points each:

[10] Name this indirect process of creating bronzes used by the Greeks in which the middle layer was removed. It superseded a direct process of the same name that produced a solid bronze statue.

ANSWER: indirect lost-wax process

[10] One of the best known Greek bronzes is a statue of either this god or Poseidon throwing a weapon. A colossal chryselephantine (“criss-el-uh-FAN-teen”) statue of this god enthroned stood in his temple at Olympia and was sculpted by Phidias (“FID-ee-us”).

ANSWER: **Zeus**

[10] Two well preserved full-size Greek bronzes were discovered off the coast of this Italian city in 1972 and are now housed in the National Archaeological Museum of Reggio Calabria (“RAY-joh kah-LOB-ree-uh”).

ANSWER: **Riace** (“ree-AH-chay”), Italy [or **Riace** bronzes; or **Riace** warriors]

<AK, Painting/Sculpture>

5. One of these functional groups is the bidentate ligand in Crabtree’s catalyst. For 10 points each:

[10] Name this functional group that coordinates to transition metals through a combination of sigma donation and backbonding according to the Dewar-Chatt-Duncanson model.

ANSWER: **alkenes** [or **olefins**]

[10] Zeise’s salt, a transition metal alkene complex, contains a trichlorinated platinum atom bonded to this simplest alkene, with formula C<sub>2</sub>H<sub>4</sub>.

ANSWER: **ethylene** [or **ethene**]

[10] This kind of reaction, the reverse of a beta-hydride elimination, often occurs when alkenes complex with transition metals. Unfilled and reactive coordination sites are represented as boxes for the “migratory” kind of these reactions.

ANSWER: migratory **insertions**

<AK, Chemistry>

6. Gerd Gigerenzer analogized our use of these constructs to the “untutored mind... running on shoddy software” and described them as “fast and frugal.” For 10 points each:

[10] Name these general “rules of thumb” often contrasted with algorithms. Ones named for “availability” and “representativeness” were identified by Kahneman and Tversky, who theorized that they lead to cognitive biases.

ANSWER: **heuristics**

[10] Gerd Gigerenzer co-wrote a 2001 book that attempted to reframe this concept within an “adaptive toolbox.” This concept arises from our use of heuristics and their associated biases, a behavior described as “satisficing.”

ANSWER: **bounded rationality**

[10] “Satisficers” are noted to be happier than “maximizers” in this psychologist’s 2004 book *The Paradox of Choice*, which argues that freedom of choice leads to greater dissatisfaction.

ANSWER: Barry **Schwartz**

<RK, Social Science>

7. Answer some questions about the defense of Little Round Top, for 10 points each:

[10] This all-volunteer group under the command of Joshua Chamberlain staved off Confederate attacks on Little Round Top, culminating in a downhill bayonet charge.

ANSWER: **20th Maine** Volunteer Infantry Regiment

[10] The defense of Little Round Top was a key moment in this three-day battle in southern Pennsylvania. George Meade was criticized for not pursuing Robert E. Lee’s retreating Army of Northern Virginia after this battle.

ANSWER: Battle of **Gettysburg**

[10] A photograph with a dead Confederate soldier of this type was staged by Alexander Gardner behind a stone barrier facing Little Round Top. Hiram Berdan organized two regiments of these soldiers who were instrumental in sowing chaos in Confederate lines at Gettysburg.

ANSWER: **sharpshooters** [or **snipers**]

<BL, American History>



8. This group, which often toured with Duke Ellington, preceded its bandleader's later "Concert Jazz Band." For 10 points each:

[10] Name this jazz group that recorded hits like "Walkin' Shoes" and a rendition of "My Funny Valentine." It featured Chico Hamilton on drums and Chet Baker on trumpet, and was known for lacking a key instrument.

ANSWER: Gerry ("Jerry") **Mulligan**'s "pianoless" **quartet** [prompt on pianoless quartet or quartet]

[10] Gerry Mulligan's quartet pioneered this form of jazz, which Mulligan also advanced by writing "Venus de Milo," "Jeru," and "Rocker" for a Miles Davis album titled for the *Birth of [this style]*.

ANSWER: **cool** jazz [accept ***Birth of the Cool***; anti-prompt on West Coast jazz]

[10] In the same year as *Birth of the Cool*, Miles Davis distanced himself from the predominantly West Coast style of cool jazz, helping create this style with the release of his album *Walkin'*. This style, which used elements of gospel and blues, was played by Horace Silver and Art Blakey's Jazz Messengers in hits like "Moanin'."

ANSWER: **hard bop** [prompt on bop; prompt on funk or soul; do not accept or prompt on "bebop"]

<RK, Other Art (Jazz)>

9. Konishiki failed to achieve this feat because a fifteen-member deliberation council felt that as a foreigner, he lacked the necessary quality of *hinkaku*, or grace and dignity. For 10 points each:

[10] Name this athletic feat later accomplished by the Hawaiian Akebono in 1993. In January 2017, Kisenosato became the first Japanese person in nineteen years to achieve this feat after winning the Hatsu *basho* as an *ōzeki* with a 14–1 record.

ANSWER: becoming ***yokozuna*** [prompt on but DO NOT REVEAL descriptive answers like achieving the highest rank in sumo]

[10] *Yokozuna* is the highest rank in this national sport of Japan. In November 2017, the *yokozuna* Harumafuji retired from this sport after he hit the lower-ranked Takanoiwa in the head with a beer bottle, fracturing his skull.

ANSWER: **sumo** wrestling

[10] Before Kisenosato, the four previous sumo wrestlers to become *yokozuna* all came from this country. The Naadam festival in this country includes competitions in its "Three Manly Skills" of wrestling, horse racing, and archery.

ANSWER: **Mongolia** [or ***Mongol Ulus***]

<EC, Other Academic>

10. A function that is holomorphic within an annulus can be written as one of these series within that annulus. For 10 points each:

[10] Name this kind of series that expresses a function about a point  $c$  as the sum of terms containing coefficients " $a$ -sub- $n$  times quantity  $z$  minus  $c$  to the  $n$ th power," with  $n$  ranging from negative to positive infinity. The " $n$  equals negative-one" coefficient of this series is the residue at the singularity  $c$ .

ANSWER: **Laurent** series [prompt on power series]

[10] Laurent series are useful because a function cannot be written out as one of these series about a point if the neighborhood of that point contains a singularity. This series is a power series with coefficients proportional to a function's derivatives, and a Maclaurin series is one of them centered at zero.

ANSWER: **Taylor** series [or **Taylor** expansion]

[10] For a holomorphic function  $f$  and a point  $a$ , if the principal part, or negative degree terms, of the Laurent series has infinitely many terms, then the point  $a$  is one of these points.

ANSWER: **essential singularity** [prompt on singularity]

<AK, Math>

11. According to a hadith, every instance of this concept "is misguidance, and all misguidance leads to hellfire." For 10 points each:

[10] Name this Islamic concept that refers to religious innovations. According to some Muslim scholars, the veneration of Sufi saints at shrines is an example of this concept.

ANSWER: **bid'ah**

[10] Another example of *bid'ah* oft-cited by Salafis is the celebration of this holiday that commemorates Muhammad's birthday.

ANSWER: **Mawlid** an-Nabi

[10] The Qur'anic basis against *bid'ah* is given by a verse of Al-Ma'ida, the surah of this number, asserting that "Today I have perfected your religion for you." This is also the number of obligatory daily prayers for *salat*.

ANSWER: **five**

<WC, Religion>

12. In dielectric materials, a term equal to the time derivative of polarization is added to this quantity. For 10 points each:

[10] Name this quantity that, in a vacuum, is equal to permittivity of free space multiplied by the time derivative of electric field. It is also the time derivative of electric flux density.

ANSWER: **displacement current** density

[10] Displacement current density appears in Maxwell's correction to Ampère's law, whose differential form states that the curl of this quantity is equal to the product of current density and magnetic permeability.

ANSWER: **magnetic field** [or **B-field**]

[10] Combining Maxwell's equations produces two differential equations that can be solved to find the wave equations of light. In a vacuum, one of the equations states that [read slowly] the second time derivative of the magnetic field is equal to this expression, in terms of a differential operator, the magnetic field, and the speed of light.

ANSWER: **Laplacian of magnetic field times speed of light squared** [accept "**del-squared B times c-squared**"; accept "**divergence of the gradient**" instead of "Laplacian" or "del-squared"]

<RD, Physics>

13. In a story titled for this period "in a day," Margot is locked in a closet before a spectacular astronomical event on Venus, which experiences only rain. For 10 points each:

[10] Name this time whose "Farewell" titles a novel in which Douglas Spaulding comes of age. That novel is a sequel to *Dandelion Wine*, whose title is a metaphor for this time.

ANSWER: **summer** [accept "All **Summer** in a Day"; accept *Farewell Summer*]

[10] This science fiction author of "All Summer in a Day" and *Dandelion Wine* was inspired by his childhood in Waukegan ("waw-KEE-gun"), Illinois to write books like *Something Wicked This Way Comes*.

ANSWER: Ray **Bradbury** [or Ray Douglas **Bradbury**]

[10] Bradbury's script for the hundredth *Twilight Zone* episode was the basis for this story, in which a family acquires a robotic grandmother. This story, originally called "The Beautiful One Is Here," titles a 1969 collection by Bradbury.

ANSWER: "**I Sing the Body Electric!**"

<RK, Short Fiction>

14. Sheila Fitzpatrick argued that events like the Shakhty ("SHOCK-tee") Trial and the activities of groups like RAPP contributed to one of these events which took place in the Soviet Union from 1928–1931. For 10 points each:

[10] Name this type of event. Roderick MacFarquhar ("muk-FAR-kwar") wrote a three-volume work on the "origins" of another one of these events, which focuses on elite politics and begins in 1956.

ANSWER: **cultural revolutions** [prompt on revolutions]

[10] MacFarquhar begins his history of the Chinese Cultural Revolution in 1956 because that was the year of the Secret Speech, which Mao saw as representing a deviation from orthodox Marxism denoted by this term. This term is also used to refer to a school of Western historians of the Soviet Union, which included Sheila Fitzpatrick, that reacted against the "totalitarian" school.

ANSWER: **reversionism** [or **reversionists**]

[10] As a part of the Chinese Cultural Revolution's effort to combat revisionism, an enormous number of copies of this pocket-sized, brightly-bound book were printed. Its contents were a series of authoritative statements on topics like "People's War" and "Contradictions among the People."

ANSWER: *The Little Red Book* [or *Quotations from Chairman Mao Tse-tung*; or *Xiao hong shu*; or *Mao Zhuxi Yulu*]

<MC, Other History>

15. A thought experiment that seeks to illustrate this concept asks if you would help a child drowning in a shallow pond. For 10 points each:

[10] Name this concept proposed in W. E. H. Lecky's *History of European Morals*, which originally only included the family. A 1981 book titled for this concept tracks our "Moral Progress," beginning with "The Origins of Altruism."

ANSWER: expanding circle [prompt on moral circle]

[10] Peter Singer's *The Expanding Circle* deals with the implications of this field for ethics. The name of this field, which draws from evolutionary psychology to explain human behavior, was coined in a book subtitled *The New Synthesis*.

ANSWER: sociobiology

[10] Both Lecky and Singer believe that our expanding circles are just beginning to include these beings, whose "liberation" is advocated by Singer.

ANSWER: animals

<RK, Philosophy>

16. Answer the following about planting trees in urban spaces to mitigate the negative consequences of urbanization, for 10 points each:

[10] Planting trees along sidewalks and throughout cities is beneficial because their shading is very effective at mitigating an effect named for these locations, in which an urban area is significantly warmer than its surrounding rural areas. Robert MacArthur and E. O. Wilson coined the term for the biogeography of these isolated locations.

ANSWER: islands [accept urban heat island effect; prompt on UHI effect]

[10] A limiting factor in the use of trees in urban areas is their production of the "biogenic" variety of these compounds. Harmful tropospheric ozone is formed when these compounds, such as isoprene and its derivatives, react with sunlight and abundant NO<sub>x</sub> compounds produced in fossil fuel emission.

ANSWER: biogenic VOCs [or volatile organic compounds]

[10] A tree's relative impact on its environment may be estimated by calculating the "projection area" named for this portion of the tree. Consisting of the tree's outward-growing foliage and branches, this portion of the tree is also characterized by its namesake volume-index, radius, and height.

ANSWER: tree crown [accept crown projection area or crown radius or crown volume index or crown height]

<RH, Biology>

17. A chapter named after the "root canals" of this man includes a list of the characters who consider him "an unrecognized hero" and those who consider an argument about him "a palaver ("puh-LAV-er") over nuffin'." For 10 points each:

[10] Name this historical figure. A character who claims to be this man's great-grandson insists on a portrait of him being hung up in O'Connell's pub.

ANSWER: Mangal Pandey

[10] Samad Iqbal is obsessed with Mangal Pandey's resistance to the British in *White Teeth*, a novel by this British author of *NW*.

ANSWER: Zadie Smith

[10] *White Teeth* opens with Archie Jones trying to kill himself in this manner, only to be interrupted by a butcher swatting away pigeons. This is how Julian English kills himself at the end of *Appointment in Samarra*.

ANSWER: **gassing** himself by running his **car** in a closed garage [or **carbon monoxide** poisoning; accept clear knowledge equivalents]

<RK, Long Fiction>

18. In one myth, this weapon delivers Ea's ("AY-uh's") message telling its owner to cut off the Anzu bird's feathers. For 10 points each:

[10] Name this talking mace with a name meaning "smasher of thousands." In another myth, this weapon destroys the townspeople in the mountains, but then advises its owner to turn away seeing that their enemy Asag was unfazed.

ANSWER: **Sharur** [or **Šarur**; prompt on but DO NOT REVEAL Ninurta's mace or less specific answers]

[10] This owner of Sharur eventually defeats Anzu and Asag in those myths. This Mesopotamian god of law, hunting, and war was later syncretized with his brother Nergal.

ANSWER: **Ninurta** [or **Ningirsu**]

[10] The myth in which Ninurta defeats Asag is known as *Lugal-e*, a Sumerian word for these figures. A Sumerian list of these figures includes antediluvian ones who lived for thousands of years and semi-mythological ones like Gilgamesh.

ANSWER: **king**s [or **ruler**s and synonyms; or **king** list; accept **big man**]

<EC, Legends>

19. The second stanza of this poem is interrupted by the sentence "There is the world dimensional for those untwisted by the love of things irreconcilable...." For 10 points each:

[10] Name this poem which declares that "the mind has shown itself at times too much the baked and labeled dough divided by accepted multitudes."

ANSWER: "**For the Marriage of Faustus and Helen**"

[10] The third section of Hart Crane's "For the Marriage of Faustus and Helen" describes how "the wind settles" on sixteen of these structures. Crane also wrote a long poem named after one of these structures in New York.

ANSWER: **bridges** [accept *The Bridge*]

[10] "For the Marriage of Faustus and Helen" was published in this first collection by Crane, which also contains a cycle of six poems inspired by Crane's relationship with Emil Opffer, entitled "Voyages."

ANSWER: **White Buildings**

<JN, Poetry>

20. In a 2014 case under the Kleptocracy Asset Recovery Initiative, the U.S. Department of Justice forfeited more than 480 million dollars to Nigeria because this leader embezzled government funds. For 10 points each:

[10] Name this leader who led Nigeria's military regime between 1993 and 1998 after ousting Ernest Shonekan.

ANSWER: Sani **Abacha**

[10] During the regime of Sani Abacha, this president of the Movement for the Survival of the Ogoni People campaigned against Royal Dutch Shell's environmental abuses in the Niger River Delta. He was put to death along with eight other Ogoni leaders after a 1995 show trial.

ANSWER: Ken **Saro-Wiwa** [or Kenule Beeson **Saro-Wiwa**]

[10] This international human rights organization called for a criminal investigation in November 2017 into Royal Dutch Shell's involvement in the execution of the Ogoni Nine, among other human rights abuses in Nigeria. Its logo is a candle with barbed wire curving around it.

ANSWER: **Amnesty** International [or **AI**]

<CP, World History>