

## ACF Nationals 2016

Packet by Minnesota (Shan Kothari, Sam Bailey, Jason Asher, Sam Levin) and Berkeley B (Eric Chen, Michael Coates, Jonchee Kao, James Wang)

### Tossups

1. Proclus's commentary on Euclid states that one member of this school of philosophy believed that all mathematical theorems are Platonic Forms since they include "unlimited figures" within "defined loci." Joannes Stobaeus's *Eclogae* records that the founder of this school stated that *lekta* or "sayables" were not "*some things* or *qualified things*, but were rather *quasi-some things* and *quasi-qualified things*." According to this school's cosmology, at the end of a "Great year" an *ekpyrosis*, or great conflagration, would destroy the universe, and fill it with *pneuma*, a vital organizing substance. A Greek-speaking slave who taught this philosophy argued that almost all things were without inherent value, except for virtuous living through controlling one's own volition, or *prohairesis*, in both his *Handbook* and *Discourses*. For 10 points, name this school whose adherents included Epictetus and Zeno of Citium.

ANSWER: **Stoicism** [accept word forms]

2. In weather forecasting, semi-Lagrangian models avoid this phenomenon by replacing advection terms with Lagrangian transport. One way to deal with this phenomenon in general is to set Fourier amplitudes larger than "two thirds" of the maximum range to 0. That technique is truncation, and is similar to the "three halves" rule or padding of wavenumbers. This phenomenon causes an excess of energy to be accumulated in short wavenumbers because the finite difference scheme cannot resolve wavelengths shorter than twice the mesh size according to the Nyquist theorem. Visually, the "temporal" form of this phenomenon leads to the "wagon-wheel effect." A simple example of this phenomenon is using a spacing interval of 1 when trying to reconstruct the sine function. For 10 points, name this phenomenon in which there exists undesired frequencies in a signal due to poor sampling.

ANSWER: **aliasing**

3. One story by this author opens with the chilling line "Her honeymoon was one long, cold shudder." Margaret Sayers Peden translated a story by this writer in which a group of characters sit on a bench and stare at a brick wall for most of the day. This author wrote his first book *Corals* after returning from France and founding the Consistory of the Gay Sabre. Jordan slashes the title object of one of this author's stories, and finds a large, swollen animal that had sucked the life out of his wife Alicia. This author wrote a story in which the children of Mazzini and Berta are left mentally challenged after they contracted meningitis in infancy. In that story by him, those four brothers watch as a servant handles the title animal, which inspires them to murder their younger sister. For 10 points, name this author of "The Feather Pillow" and "The Decapitated Chicken," a Uruguayan master of horror.

ANSWER: Horacio **Quiroga** [or Horacio Silvestre **Quiroga** Forteza]

4. This man is the second listed on a 1970 paper that discusses two ways of ordering the riskiness of probability distributions called first-order and second-order stochastic dominance. This non-Indian economist co-wrote a paper on optimum product variety that invented a now widely-used model for monopolistic competition. In lectures delivered during the fall of the Soviet Union, he argued market socialism would have been a viable policy if the assumptions of general equilibrium theory were true. This author of *Whither Socialism?* argued that sharecropping can be understood as a way of risk-sharing when labor cannot be perfectly monitored. He made a similar argument in a model that explains equilibrium unemployment as a means of preventing unmonitored workers from shirking, his “efficiency wages” hypothesis developed with Carl Shapiro. For 10 points, name this author of *Globalization and its Discontents*, an American economist who won the Nobel with Michael Spence and George Akerlof.

ANSWER: Joseph [Eugene] **Stiglitz**

5. In the early 20th century, this city was the home of doctor Generous Henderson, an expert on venereal diseases. The architecture firm of Thomas Wight and William Wight built several landmarks in this city, where a last-minute change to the design of hanger rods caused two walkways in the Hyatt Regency to collapse in 1981, killing 114 people. A museum in this city has four 18-foot shuttlecock sculptures sitting on its front lawn, and its longest boulevard is modeled on and named for Mexico City’s Paseo de la Reforma. Home to the Nelson-Atkins Museum of Art, this city’s first Black mayor, Emanuel Cleaver, revitalized its neighborhoods with the Negro Leagues Baseball Museum. The Jackson County Democratic Club controlled this city during the Great Depression under the chairmanship of Tom Pendergast. For 10 points, name this city home to Gates Bar-B-Q, which is located in Missouri despite being named for another state.

ANSWER: **Kansas City**, Missouri [Do not accept or prompt on "Kansas"]

6. In a piece dedicated to Jacques Charlot, Debussy counterpoints a simplification of *La Marseillaise* with this melody. This melody appears in the second piece of the *En blanc et noir* suite. A composition named for this melody opens with a chorale fantasia built around a melody consisting of a pair of phrases played twice, followed by four shorter phrases, followed by the second phrase again; all nine phrases being first articulated by the oboe. This melody is the basis of several movements in BWV 80b and is quoted in the prelude of an 1836 opera in which it also appears as the tune of a prayer sung by Marcel. A flute introduces this melody solo and is joined by the rest of the orchestra in playing this melody in full in the finale of a symphony written to commemorate the 300th anniversary of the Augsburg Confession. For 10 points, name this tune featured in Meyerbeer’s *Les Huguenots* and the final movement of Mendelssohn’s *Reformation Symphony*, from a hymn attributed to Martin Luther.

ANSWER: "A **Mighty Fortress** is Our God" [or "*Ein **Feste Burg** ist unser Gott*"]

7. Pekka Hämäläinen's history of these people claims they set up a distinctly non-Western empire, and their leaders used a network of "formal friends" called *haits*. One of their earliest known chiefs was called "Green Horn" due to the horned headdress he wore in battle. These people, who signed a treaty with German farmer John Meusebach, were originally divided into the Yamparikas or "root-eaters," the Jupes, and the Kotsotekas. Under chief Ten Bears, these people, along with the Kiowa and Apache, were put on reservations by the Medicine Lodge Treaty. Their last independent chief was the son of Cynthia Parker, a white woman captured as a child by these people in the Fort Parker massacre. They share their name with George Custer's horse who survived Little Bighorn. Their last major defeat was at Palo Duro Canyon in 1874. These "Lords of the Southern Plains" have a namesake trail in Big Bend National Park. For 10 points, name this American Indian tribe largely based in Texas and Oklahoma.

ANSWER: **Comanche**

8. One method for calculating this quantity splits it into a "combinatorial" term due to entropic and geometric considerations, and a "residual" term based on interactions between functional groups. Another method for calculating this quantity is divided into "two-suffix" and "three-suffix" terms which model two-body and three-body interactions. UNIFAC is used to compute this quantity. The natural log of this quantity equals the derivative of the excess Gibbs free energy divided by  $RT$  with respect to mole fraction, a fact utilized to calculate it by the van Laar and Margules models. For an electrolyte, the natural log of this quantity scales with the product of the cation and anion charges times the square root of the ionic strength, according to the Debye-Huckel equation. For 10 points, name this quantity symbolized gamma, which represents deviations from ideality in a solution.

ANSWER: **activity coefficients** [prompt on "activity"]

9. This place was ruled by King Parahu and Queen Aty, who both allegedly had a case of gout when they were visited by the chancellor Nehsi. This place, sometimes referred to as Ta Netjer, was first recorded on King Sahure's inscription on the Palermo Stone. According to legend, this location was home to a great serpent who introduces himself as Lord of this place, but says this place will turn into water after you leave it, in a text called the "Tale of the Shipwrecked Sailor." A state named in honor of this place was led in the early 20th century by the Warsangali Sultanate and was centered at Garowe. This kingdom is often referred to as the land of myrrh trees on temple reliefs, as well as a land full of ebony, gold, ivory, and blackwood. For 10 points, name this semi-mythical kingdom to which expeditions were sent by Hatshepsut, and which lends its name to a modern day land in Somalia.

ANSWER: Kingdom of **Punt** [accept **Puntland** or **Pwenet** or **Pwene**]

10. A character created by this author threatens to “write Whore / with this penknife in your face” while forcing his wife to write a letter. This man’s first play is set largely in St. James’s Park and ends its first act with a song sung by Lady Flippant that earned this author the patronage of the Duchess of Cleveland. In another of his plays, the merchant James Formal’s obsession with Spanish customs allows Gerrard to seduce his daughter Hippolita while posing as the title instructor. A jilting at the hands of Olivia, who instead marries Vernish, fuels the misanthropy of Captain Manly in a play by this author, whose most famous play includes a scene where Ladies Fidget and Squeamish use double entendres that slyly refer to sex with the word “china.” That play by this man centers on Horner, who feigns impotence in a ploy to have sex with married women. For 10 points, name this Restoration dramatist of *Love in a Wood*, *The Gentleman Dancing-Master*, *The Plain Dealer*, and *The Country Wife*.

ANSWER: William **Wycherley**

11. One shrine at this place consists of a chamber of iron inside of which is a marble chamber, a lead chamber, a copper chamber, a tin chamber, a silver chamber, and a golden slab. The largest ever bell in the world was once at this location, but it was destroyed when the warlord Philip de Brito removed it; that bell caused his raft to sink. A “sein-bu” or “diamond bud” holding 4,351 diamonds can be found at the very top of this site, causing light to refract onto the four devotional halls of *tazaung* surrounding it. According to legend, two brothers named Tapusa and Hpalika buried the remains of three prior *buddhas* and eight hairs of the Buddha at the site of this religious complex. 8688 sheets of gold were used to build the lower *stupa* at this site, which was occupied by monks protesting the Saffron Revolution. For 10 points, name this pagoda, the largest temple in Yangon, Myanmar.

ANSWER: **Shwedagon** Pagoda [or **Schwedagon** Pagoda or **Great Dragon** Pagoda or the **Golden** Pagoda]

12. As a youth, this ruler was tutored in political philosophy by Frédéric-César La Harpe. A term derived from the name of this ruler’s war minister later became a slur used to refer to the policing of daily life. That minister, who was infamous for executing his subordinates by burying them up to their neck and letting them starve, was Aleksei Arakcheev, who ordered this ruler’s troops to cross the frozen Gulf of Finland to attack the Aland Islands. Under this man’s rule, his nation obtained a swath of territory by the Treaty of Gulistan. This ruler’s belief in a “universal religion” led him to ally his country with Austria and Prussia in the so-called “Holy Alliance” to ensure a Christian peace. After this ruler died, his younger brother Constantine refused to ascend the throne, which sparked the Decembrist revolt. For 10 points, name this son and successor of Emperor Paul I, who ruled Russia from 1801 to 1825 and was succeeded by his brother Nicholas I.

ANSWER: Tsar **Alexander I** of Russia [prompt on Alexander]

13. Deotare et al. used one-dimensional photonic crystal mirrors to create a region with an “ultra-high” value of this quantity. The rate of spontaneous emission is proportional to wavelength cubed times this quantity divided by the mode volume, according to the Purcell effect. Cobalt-doped zinc selenide and cobalt-doped spinel crystals are used in saturable absorbers which modulate this quantity in a “passive” manner. This quantity is used to measure the selectivity of a band-pass filter. On a graph of power vs frequency, this quantity equals the frequency at the peak divided by the width of the peak. This quantity equals the resonant frequency times the inductance divided by the resistance for a series RLC circuit. For 10 points, name this quantity, the ratio of the energy stored in an oscillator to the energy dissipated in one cycle, thus quantifying the degree to which the oscillation is damped.

ANSWER: **Q**-factor [or **quality** factor]

14. In this piece's first movement, the first horn plays two solos marked “marcato ma dolce” that bounce between concert Cs, Fs, and Gs. In a review of a performance of this piece addressed to “Ossip,” Harold Schonberg called that performance’s conductor “The Peter Pan of music.” The start of the recapitulation of this piece’s 6/4 Maestoso first movement has a timpani roll on D that recalls the opening D minor pedal; however, that timpani roll is interrupted by the soloist playing in E major. Bassoons playing in thirds introduce the melody of this piece’s second movement Adagio, which may have been a musical portrait of Clara Schumann. A 1962 New York Philharmonic performance of this piece garnered controversy for Leonard Bernstein’s prefatory remarks distancing himself from Glenn Gould’s slow tempi. For 10 points, name this first keyboard concertante work by the composer of the *Academic Festival Overture*.

ANSWER: **Piano Concerto** No. **1** by Johannes **Brahms** [prompt on partial answer; accept Johannes **Brahms's Opus 15**]

15. An author with this surname created the CIA-led “King Alfred Plan,” a fictional plot to intern African-Americans, in his novel about the expat journalist Max Reddick, *The Man Who Cried I Am*. Another author with this surname wrote a novel whose title character dies as the phrase “What did you expect?” runs through his mind, and split a National Book Award with John Barth for his historical novel *Augustus*. That author with this surname created a character who majors in literature after reading Shakespeare’s Sonnet 73 and later clashes with the villainous Hollis Lomax at the University of Missouri. Another author with this surname penned a play in which Violet threatens to lobotomize Catherine Holly, who eventually explains the death-by-cannibalism suffered by her homosexual cousin Sebastian Venable. For 10 points, give the surname shared by the novelist of *Stoner* and the playwright of *Suddenly*, *Last Summer* and *The Glass Menagerie*.

ANSWER: **Williams** [accept John A(lfred) **Williams**, John (Edward) **Williams**, Tennessee **Williams**, or Thomas Lanier **Williams III**]

16. This ruler created a personal bodyguard unit called the Ribauds tasked with monitoring prostitution. In a letter, he warned his ally to “look to yourself; the devil is loose” after another king was set free. During this man’s reign, Peter of Nemours ordered Master Ralph to infiltrate a pantheist sect, the Amalricians. This ruler agreed not to fortify the manor of Andeli, owned by Walter de Coutances, in the Treaty of Louviers with England. This ruler, crowned by his uncle William of the White Hands, set fire to the city of Lille and took 20 hostages from Douai as revenge against Flanders. This king’s life was written by the chronicler Rigord, who gave him his most famous nickname. He also chartered the Sorbonne and built the second medieval wall around Paris, but he’s best known for a battle in which he defeated the Holy Roman Emperor Otto IV. For 10 points, name this Capetian king of France who won the Battle of Bouvines in 1214 CE over King John of England.

ANSWER: **Philip II** of France [or **Philip Augustus**; or **Philippe II**; or **Philippe Auguste**; prompt on **Philip**]

17. This character probably dies due to an illness acquired by kissing the foot of the dead prostitute Steinum. After having once looked at a burning building, this character walks barefoot to Nidaros cathedral and experiences great happiness while standing on the Hill of Joy. Eline uses poison to try to kill this character, but her husband uses a knife to threaten Eline into drinking her own poison. The “witch-wife” Fru Aashild aids this character, whose first child is named Naakkve. This woman’s husband is tortured on the rack for plotting the overthrow of the king in the second novel in which she appears. This character grows up in Jorundgard and is betrothed to Simon Darre, though she ends up moving to Husaby, after she marries Erlend Nikaulasson. She joins a convent and dies of the plague in *The Cross*. For 10 points, name this character who titles a trilogy of novels by Sigrid Undset.

ANSWER: **Kristin Lavransdatter** [accept either underlined answer]

18. William Smith Tillett discovered the thrombolytic effects of a kinase produced by members of this genus; that kinase can be used as an alternative to tissue plasminogen activator. The pan-genome concept was developed by comparing shared genomic components of six strains of species in this genus. Its *agalactiae* species can be identified with the CAMP test. These bacteria produce the M protein as a virulence factor. The Lancefield grouping classifies members of this genus based on their hemolytic properties. The *mutans* and *sobrinus* species of this genus are the main causative agents of dental cavities. This Gram-positive and catalase-negative genus tends to grow in chains, giving it its name. Its *pyogenes* species causes scarlet fever, and its *pneumoniae* species is the main cause of bacterial pneumonia. For 10 points, name this spherical bacterial genus that causes a namesake type of sore throat.

ANSWER: **Streptococcus** [prompt on “strep”]

19. A 2014 restoration of this painting exposed two extra inches on its left side and revealed that the pearl earring of the central female figure is actually a diamond. Scaffolding in the background of this painting suggests the recency of its buildings, one of which bears a faint pharmacy sign on its façade. A man carrying a ladder can be seen between the central figures of this painting. What was at the time called the Carrefour de Moscou but is now the Place de Dublin is the setting of this painting, whose bottom left quadrant is dominated by cobblestones. A long, green streetlamp in the center of this painting separates the couple in the foreground on the right from the Baron Haussmann-designed buildings on the left. A man in a top-hat and a veiled woman in a brown dress walk under an umbrella along the titular locale in, for 10 points, what best-known painting of Gustave Caillebotte?

ANSWER: Paris Street; Rainy Day [or Paris, A Rainy Day; or Paris Street; Rainy Weather; or Rue de Paris, temps de pluie]

20. This character becomes infuriated when a servant wakes him to tell him that his horse is eating a wheat field and, in retaliation, tears the servant's ears off. In that story, this man follows a ram through a desert to a spring and bisects a sorceress after coming across an abandoned feast before eventually capturing Olad and making him his guide. This character kills his evil half-brother by firing an arrow all the way through a tree and into him after that half-brother arranged this man's death by falling into a pit lined with swords. In an earlier story, he travels to Mazanderan, where he defeats Arzhang and the White Demon. This owner of the horse Rakhsh was born after his father Zal was taught to perform a C-section by the Simurgh. He undertakes seven labors in order to save the captured Kay Kavous. For 10 points, name this son of Zal, a hero from the *Shahnameh* who accidentally kills his own son Sohrab.

ANSWER: Rostam [or Rustam]

Tiebreaker. In an essay on this condition, a message board poster named "Gerri" is one of the few people the narrator meets who shares her anger. In that work, a result of this condition's "relentless brightsiding" is its transformation "into a rite of passage." A man who studied this condition re-named the young Einer Gustafson "Jimmy" as part of a PR campaign and received support from Mary Lasker. A book about it criticizes literary works like Auden's poem "Miss Gee" for promoting the idea that this condition comes from emotional or sexual repression. According to one work, the attitudes that used to surround another disease in the 19th century were transferred to insanity and this disease. Barbara Ehrenreich criticized the over-sentimentalization of it in a 2001 *Harper's* article, "Welcome to [this]-land." That essay also calls the support groups surrounding it "a cult of pink kitsch." For 10 points, name this disease which Susan Sontag discusses alongside TB in *Illness as Metaphor*, and whose history is documented in Siddhartha Mukherjee's *The Emperor of All Maladies*.

ANSWER: cancer [or breast cancer; don't accept other varieties]

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### Bonuses

1. The section containing these things is followed by a passage about how “men forgot that All deities reside in the human breast” and then by the section “A Memorable Fancy.” For 10 points each:

[10] Identify this series of passages, examples of which include “Joys laugh not! Sorrows weep not!”, “The road of excess leads to the palace of wisdom,” and “The tigers of wrath are wiser than the horses of instruction.”

ANSWER: the **Proverbs of Hell** [prompt on partial answers]

[10] The Proverbs of Hell are found in *The Marriage of Heaven and Hell*, an anti-Swedenborgian book by this English poet of *Songs of Innocence and Experience*.

ANSWER: William **Blake**

[10] One of the title entities of this Blake poem claims that “Love seeketh not itself to please” and thus “builds a heaven in hell’s despair,” though the other title entity counters that “Love seeketh only Self to please” and thus “builds a hell in heaven’s despite.”

ANSWER: “The **Clod and the Pebble**”

2. John the Deacon claims this office was first established in 726 CE, taking the place of the tribune. For 10 points each:

[10] Name this chief magistrate of a certain Italian city, who ruled from a palace connected to the Bridge of Sighs. This office was held by the blind Enrico Dandolo, a leader of the Fourth Crusade.

ANSWER: **Doge** of Venice [accept **Duke of Venice**, or **Duca of Venice**, or **Doge** di Venezia; prompt on **Duke**]

[10] This highly-decorated galley was used by the Doge to perform an annual ceremony called the “Wedding of the Sea,” in which the Doge throws a ring off this ship on Ascension Day. It was symbolically destroyed by Napoleon in 1798.

ANSWER: the **bucentaur** [or **bucintoro**, prompt on the **barge**]

[10] After the Bajamonte Tiepolo against the Doge in 1310, this secretive council was created, named for the original number of its members, and given emergency powers in Venice. It was led by men called *Capi* who were confined to live in the Doge’s Palace.

ANSWER: Council of **Ten** [or The **Ten**]



3. In August 2015, the National Labor Relations Board declared this company to be a joint employer with its temp agency, Leadpoint. For 10 points each:

[10] Name this waste disposal company that was disbanded in 1999.

ANSWER: **Browning-Ferris** Industries of California, Inc. [or **BFI** Newby Island Recyclery]

[10] The NLRB decision heartened activists trying to unionize workers in companies with this business model. Companies with this model like McDonald's consist of individually-owned retail locations which pay a royalty fee to a separate company for use of the brand.

ANSWER: **franchises** [or word forms like "**franchising**"]

[10] The case against BFI was brought by the Teamsters, who are a part of this larger coalition of unions. This coalition, which also includes the SEIU, split from the AFL-CIO in 2005 due to dissatisfaction with that group's organizing efforts.

ANSWER: **Change to Win** Federation

4. These objects can come in "valve" and "sieve" types, which are generally less efficient but also much less expensive than their "bubble cap" types. For 10 points each:

[10] Name these objects, whose weirs cause liquid to build up, allowing for vapor-liquid equilibrium as vapor flows upward through their perforations.

ANSWER: distillation **trays**

[10] The number of distillation trays required to produce a given separation can be calculated using the McCabe-Thiele method, which relies on this assumption that all of the liquid flowrates are equal to all of the corresponding vapor flowrates in both the rectifying and stripping sections.

ANSWER: **constant molal overflow** [or **constant molar overflow**, prompt on "**constant overflow**"]

[10] One of the requirements for constant molal overflow to be valid is that the change in this quantity per mole during vaporization remains roughly the same as the composition of the mixture changes. This quantity is defined as internal energy plus the product of pressure and volume.

ANSWER: **enthalpy** [or **H**]

5. This character claims to have "come to inspect the stermaphors" before playing "a secret bugle call that only admirals are allowed to hear" in an effort to get another character's attention. For 10 points each:

[10] Name this character whose son Lionel frequently runs away from home, most recently because he overheard Sandra call his father "a big sloppy kike."

ANSWER: **Beatrice "Boo Boo" Glass Tannenbaum** [accept any underlined portion; prompt on "**Glass**" or "**B. Glass**"]

[10] Boo Boo, like her brothers Buddy and Seymour, is a member of the Glass family created by this author of *Franny and Zooey*.

ANSWER: J.D. **Salinger** [or Jerome David **Salinger**]

[10] In another story, Buddy discovers a message in Boo Boo's handwriting on Seymour's mirror that begins with this six-word phrase. Boo Boo attributes this phrase to "Irving Sappho" and follows it with an admonition to "be happy happy *happy* with your beautiful Muriel."

ANSWER: "**Raise high the roof beam, carpenters**. Like Ares comes the bridegroom, taller far than a tall man."

6. In *Thinking About Thinking*, this thinker discusses a man named Hamish MacDonald who reads the article “Brighton Sex Maniac Strikes Again” to illustrate a fallacy in which a claim cannot be disproven. For 10 points each:

[10] Name this philosopher who attacked the “No True Scotsman” argument. Late in life, he shocked the philosophy world by writing *There is a God*, in which he argued that an Aristotelian God does exist.

ANSWER: Antony [Garrad Newton] **Flew**

[10] *There is a God* notoriously repudiated Flew’s belief in this idea, which holds that God does not exist. Its other proponents include Richard Dawkins.

ANSWER: **atheism**

[10] In another book about God, Flew argues that the existence of multiverses does not explain why the universe has this property. The anthropic principle holds that the universe has this property and is suited to life.

ANSWER: **fine-tuned** universe [accept **finely-tuned** universe or really any word forms of **finely-tuned**]

7. Ibn Fartuwa wrote two chronicles about the conquests of this man. For 10 points each:

[10] Name this successor of Aissa Killi, the most famous mai, or king, of the Kanem-Bornu Empire. He used Turkish mercenaries to defeat the Tuaregs and, according to legend, won over a thousand battles.

ANSWER: **Idris Aloomā** [accept Alauma for Aloomā, prompt on just “Idris”]

[10] The Kanem-Bornu Empire originated in this country, around the area of its namesake lake. This country disputes the Aouzou Strip with the country to its north, Libya, which it defeated in the Toyota War.

ANSWER: Republic of **Chad** [or *Jumhūrīyat Tshād*; or *République du Tchad*]

[10] This empire to the east of Bornu became a regional power under Abd al-Karim Sabun. It later annexed the Sultanate of Bagirmi, but collapsed after its capital of Abéché was captured by France in 1909 during a namesake war.

ANSWER: **Wadai** Empire [accept **Ouaddai** Empire]

8. Cenotes are essentially sinkholes that form in this kind of topography. For 10 points each:

[10] Name this term, which refers to landscapes formed by the dissolving of limestone or gypsum. Caves are often found in this kind of topography.

ANSWER: **karst** topography [accept **karst** landscape, **karst** regions etc. or even **karst** and agatio]

[10] Syngenetic karst refers to karst topography formed as the source rock is also formed. The most common source rock of syngenetic karst is this lithified form of wind-deposited sediment, which is also called kurkar or miliolite.

ANSWER: **aeolianite** [or **eolianite**; prompt on *gres dunaire*]

[10] Deposits of this other rock are often common in karst topographies, This sedimentary rock consists mostly of lithified volcanic ash.

ANSWER: **tufa** or **tuff**

9. In “Photography and Sociology,” Howard Becker remarks on this collection’s ethnographic qualities and its tendency to label photos by location and organizational type. For 10 points each:  
[10] Name this photography book with an introduction by Jack Kerouac. Its cover shows passengers gazing out of a segregated trolley and also includes a blurred image of workers at the River Rouge Ford plant.

ANSWER: *The Americans* [by Robert Frank]

[10] *The Americans* photographer Robert Frank was a student of this photographer, who documented the Great Depression for the FSA. He collaborated with James Agee on *Let Us Now Praise Famous Men*.

ANSWER: Walker Evans

[10] Images from *The Americans* appear on the cover of an album by this band, whose American tour in 1972 was depicted in Frank’s film *Cocksucker Blues*. A 1970 Maysles brothers-Charlotte Zwerin documentary captures the murder of Meredith Hunter at a concert headlined by this band.

ANSWER: The Rolling Stones [prompt on “the Stones”]

10. James Clifford and George Marcus ignited a debate over a supposed postmodern turn in anthropology with an edited volume on “Writing [this concept].” For 10 points each:

[10] Name this concept central to a branch of anthropology often contrasted with physical anthropology. Ruth Benedict and Margaret Mead viewed it as “personality writ large.”

ANSWER: cultures

[10] Clifford and Marcus’s *Writing Cultures* helped promote this concept in ethnographic writing, wherein anthropologists and sociologists consider how their own background influences their relationship to their subjects.

ANSWER: ethnographic reflexivity [accept word forms such as reflexive]

[10] Two of the chapter authors of *Writing Cultures*, Vincent Crapanzano and Paul Rabinow, have written landmark ethnographies about this country. Clifford Geertz compared the form of Islam practiced in this country to Indonesia in *Islam Observed*.

ANSWER: Kingdom of Morocco

11. The transverse size of one of these phenomena is given by the Molière radius. For 10 points each:

[10] Name these phenomena, which come in electromagnetic and hadronic types and are produced in particle calorimeters. They occur when a high-energy particle interacts with matter, producing large amounts of secondary particles via processes like bremsstrahlung and pair production.

ANSWER: particle showers

[10] Because these particles do not produce particle showers in particle calorimeters, a separate spectrometer is needed to detect them. These leptons are intermediate in mass between electrons and taus.

ANSWER: muons

[10] Muons can theoretically be used to catalyze nuclear fusion since the incorporation of muons instead of electrons in hydrogen atoms makes the atoms smaller, thus lowering the “barrier” to fusion named for this scientist.

ANSWER: Charles-Augustin de Coulomb

12. Together with Ella Baker and Bob Moses, this woman founded the Mississippi Freedom Democratic Party, and once famously remarked “I am sick and tired of being sick and tired.” For 10 points each:

[10] Name this woman who was recruited by SNCC after singing hymns as an activist in Mississippi, and trained many of the volunteers of Freedom Summer.

ANSWER: Fannie Lou **Hamer** [or Fanny Lou **Townsend**]

[10] Hamer mentored Wendell Paris and Sammy Younge Jr., two students at this university established in Alabama by Booker T. Washington, which was home to George Washington Carver.

ANSWER: **Tuskegee** University [or **Tuskegee** Institute]

[10] The volunteers at Freedom Summer included this Italian who led the Free Speech Movement at UC-Berkeley, and famously exhorted people to “put your bodies upon the gears” during a sit-in speech in 1964.

ANSWER: Mario **Savio**

13. This artist’s *Evolution* depicts the spiritual progression of a blue female figure. For 10 points each:

[10] Name this painter who began producing a series of “lozenge compositions” in the mid-1920s. Yves Saint Laurent’s Fall 1965 collection included six dresses inspired by this artist’s most iconic works.

ANSWER: Piet **Mondrian** [or Pieter Cornelis **Mondriaan**]

[10] This Mondrian painting was inspired by syncopated jazz rhythms and represents the Manhattan city grid. Unlike his earlier *New York City I*, this painting’s yellow lines are interrupted by red, blue, and gray squares.

ANSWER: **Broadway Boogie-Woogie**

[10] Mondrian influenced this Hungarian painter, who designed the cover of the first issue of *De Stijl*. His works include *Old Woman with Perambulator* and *Mechano-Dancer*, which shows a brown robot-like figure with a cubical head.

ANSWER: Vilmos **Huszár**

14. To get to the bottom of this area, Virgil flatters the giant Antaeus with continued fame. For 10 points each:

[10] Name this Circle of Hell, which is largely frozen over in ice in its section Judecca. This lowest circle features Lucifer sucking on Brutus, Cassius and Judas with his three mouths.

ANSWER: **Ninth** Circle [or Circle **9**, accept equivalents mentioning **nine**]

[10] This third realm in the ninth circle is occupied by Fra Alberigo, who betrayed his guests. Sinners in this location are prematurely brought to hell, while husks of their existence on Earth are occupied by demons.

ANSWER: **Ptolomea**

[10] In the second realm in the ninth circle, Dante meets this person, who gnaws at the skull of Ruggieri, the man who imprisoned him with his children and left them to starve.

ANSWER: **Ugolino** della **Gherardesca** [accept either underlined answer]

15. An article by Alex Ross describes this piece as a thematic successor to its composer's *Dark Waves* and notes that the music reverses itself at bar 316, forming a palindrome. For 10 points each:

[10] Name this composition in which a piano plays throughout to provide a rippling effect. It was commissioned by the Seattle Symphony Orchestra to raise awareness of global climate change, and it won a 2015 Grammy.

ANSWER: **Become Ocean**

[10] *Become Ocean* is a Pulitzer-winning composition by an Alaskan composer of this first and last name. Another composer of this first and last name won a Pulitzer for *On the Transmigration of Souls* and wrote the opera *Doctor Atomic*.

ANSWER: **John Adams** [prompt on partial answer; accept **John** Luther **Adams** or **John** Coolidge **Adams**; prompt on inattentive players who just say **John**; prompt on those same folks who just say **Adams**]

[10] The latter John Adams composed this “fanfare for orchestra” for the Pittsburgh Symphony Orchestra’s Great Woods Festival in 1986. It features a woodblock ostinato that forms a so-called “rhythmic tunnel.”

ANSWER: **Short Ride in a Fast Machine** [prompt on "*Fanfare for Great Woods*"]

16. Miraculously, this man survived the bombing of Hiroshima even though he was living inside the blast zone. For 10 points each:

[10] Name this Jesuit priest who served as the Superior General of Jesuits from 1965-1983. This man argued that the goal of Jesuit education should be “men for others.”

ANSWER: Very Reverend Pedro **Arrupe** S. J.

[10] Arrupe argued that being “men for others” followed from Ignatius of Loyola’s teachings in this book. The “Principle and Foundation” in this book begins, “Man is created to praise, revere and serve God.”

ANSWER: **Spiritual Exercises** [or **Exercitia spiritua**]

[10] Many Latin American Jesuits identified “men for others” with the preferential option for the poor, a doctrine espoused by this founder of liberation theology in *On the Side of the Poor* and *We Drink from the Wells*.

ANSWER: Gustavo **Gutiérrez** Merino

17. This scientist ignited the “single large or several small” debate by proposing some design principles for natural reserves. For 10 points each:

[10] Name this scientist, whose set of “assembly rules” for constructing ecological communities takes into account forbidden species combinations.

ANSWER: Jared Mason **Diamond**

[10] Diamond’s proposals for natural reserve design were grounded in MacArthur and Wilson’s theory of the biogeography of these ecosystems, which exhibit heavy geographic isolation.

ANSWER: **islands**

[10] The number of species on an island, or really any ecosystem, can be expressed as a power law in terms of this variable raised to an exponent denoted z. In general, the species richness of an island increases as this variable increases.

ANSWER: **area** [prompt on “size”]

18. This god was traded as a peaceful hostage to the Vanir, who beheaded him after his fellow hostage Hoenir proved tremendously indecisive. For 10 points each:

[10] Name this god whose severed head later gave advice to Odin. He names the location where Odin sacrificed his eye to receive wisdom.

ANSWER: **Mimir**

[10] Mimir's namesake well is located under one of the three roots of this gigantic ash tree that spans the nine worlds and is home to, among others, Ratatosk the squirrel.

ANSWER: **Yggdrasil**

[10] Based on a passage in the *Havamal*, some scholars suggest that Mimir is the otherwise-unnamed brother of this goddess, Odin's mother.

ANSWER: **Bestla**

19. It borrows the mysterious cry “tekeli-li” from Poe’s *The Narrative of Arthur Gordon Pym*. For 10 points each:

[10] Name this novella in which Danforth and Professor Dyer encounter Elder Things during an Antarctic expedition.

ANSWER: **At the Mountains of Madness**

[10] *At the Mountains of Madness* forms part of the Cthulhu Mythos created by this American horror writer. He wrote “the oldest and strongest kind of fear is fear of the unknown” in his essay “Supernatural Horror in Literature.”

ANSWER: Howard Phillips **Lovecraft**

[10] This Irish fantasy writer's “The Hashish Man” provided the title to *At the Mountains of Madness*. Many of this lord’s incredibly bizarre fantasy stories are collected in *The Book of Wonder* and *The Gods of Pagana*.

ANSWER: Lord **Dunsany** [or Edward John Moreton Drax **Plunkett**]

20. The first namesake goal of this platform was the removal of Soviet troops from Afghanistan, followed by the “condemnation of the aid given by the United States to Latin American dictatorships.” For 10 points each:

[10] Name this platform of the 1981 Socialist party that led to its author’s election as President of France.

ANSWER: **110 Propositions** for France

[10] The 110 Propositions were authored by this Socialist president of France from 1981 to 1995. This longest-serving president of France was succeeded by Jacques Chirac.

ANSWER: Francois [Maurice Adrien Marie] **Mitterand**

[10] The thirteenth of the 110 propositions called for the creation of a “Union for the Mediterranean,” which was initially done in 1995 by a process named for this city. The May Days of 1937 were a series of street protests centered in this city during the Spanish Civil War.

ANSWER: **Barcelona**