FLopen 2020
Packet L: Not included in this set: a TU on being **closed** and **open** and **Florida**
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Tossups

1. **The left hand plays A major chords while the right hand plays passages in this scale in the "Esercizio" from Ferruccio Busconi's *An die Jugend*. Though it has less than twelve tones, the opening passage of the first of Alban Berg's *Seven Early Songs* uses this scale in its melody. This scale's association with evil in Romantic-era Russian music derives in part from its use in Chernomor's leitmotif in Glinka's *Ruslan and Ludmilla*. This scale is identical to the first of Olivier Messiaen's ("mess-YAWN's") modes of limited transposition. All the tones of this scale can be played by playing two (*)** augmented triads with roots a major second apart. An 1889 gamelan performance inspired Claude Debussy to use this scale in his prelude "Voiles." Starting on C, this hexatonic scale consists of the notes C, D, E, F-sharp, G-sharp, A-sharp, C. Often used to indicate dream sequences in TV and film, for 10 points, what scale uses no half steps?
ANSWER: **whole tone** scale [prompt on hexatonic scale until it is read]
<Classical Music, TH>

2. **The so-called "HST method" of observing these objects monitors the field in the V-band at 12 to 15 epochs and then the I-band at 3 to 5 epochs to account for reddening. A method first used on these objects that relates angular diameter to shell expansion velocity is named for Baade and Wesselink. In 2016, some of these objects in the Large Magellanic Cloud were used as calibrators by Reiss et al. to determine the local Hubble constant to 2.4%. Eta Aquilae is one of these objects, in which layers of (*)** doubly ionized helium heat up and become layers of singly ionized helium, which then cool down. Using these objects, Edwin Hubble proved that the Andromeda galaxy was a galaxy. These stars have higher luminosities than RR Lyrae stars. For 10 points, Henrietta Leavitt discovered what stars with a well-defined period-luminosity relationship?
ANSWER: **Cepheid**s [or **Cepheid variable**s; accept bump **Cepheid**s; accept subtypes: **classical Cepheid**s, **type II Cepheid**s, **anomalous Cepheid**s, **double-mode Cepheid**s; prompt on variable stars; prompt on pulsating variable stars; prompt on intrinsic variable stars; prompt on standard candles; prompt on stars until it is read]
<Other Science: Astronomy, ND>

3. **Along with their sister Maryam, a person with this first name used their massive inheritance from their merchant father to build a mosque and school during the reign of Idris II. After being expelled from present day Tunisia along with their family, that 9th-century person with this first name settled in Fez and founded the University of al-Qarawiyyin, the oldest continuously operating university in the world. Another person with this name gave the Sermon of (*)** Fadak during a dispute over her inheritance. According to some sources, Umar caused a woman with this name to have a miscarriage when he forced his way into a house following the election of Abu Bakr. A woman with this first name was the mother of Hasan and Husayn. For 10 points, give the name of the daughter of Muhammad and wife of Ali, who names a caliphate ruled from Cairo.
ANSWER: **Fatima**h [accept **Fatima** al-Fihri; accept **Fatimah** bint Mumammad; accept **Fatimah** al-Zahra]
<Other History, TH>

4. **A brief poem by this author translated by Vyt Bakaitis calls Apollo "god of the press corp" who rewards "anyone giving a faithful account of the facts." In a poem contrasting Jesus and Dionysus, this poet calls bread "the fruit of the Earth" but notes that "from the thundering god comes the joy of wine." This author's affair with the wife of his employer, Susette Gontard, may have inspired his recurring character of (*)** Diotima. This poet drew inspiration from his older contemporaries Klopstock and Schiller in his cycle of Tübingen Hymns. This poet's tendency to combine Christian and ancient Greek imagery can be seen in a poem in which the speaker notes "God is near, and / difficult to grasp" while receiving revelations on the title island. "Bread and Wine" is by, for 10 points, what German Romantic poet who wrote the poem "Patmos" and the epistolary novel *Hyperion*?
ANSWER: Friedrich **Hölderlin** [or Johann Christian Friedrich **Hölderlin**]
<Poetry, TH>

5. **Cressida Heyes used a concept first explained by this thinker to argue that all women share a commonality in her book *Line Drawings*. Norman Malcolm, a major interpreter of this thinker, used his methodology to claim that dreams were not genuine experiences in his book *Dreaming*. Moritz Schlick commissioned Friedrich Waismann to write a book making this thinker's thought more comprehensible to people who hadn't studied (*)** Fregean logic, resulting in *The Principles of Linguistic Philosophy*. The work of O. K. Bouwsma, like most ordinary language philosophers, primarily draws on the work of this thinker. The "linguistic turn" in the analytic tradition can be seen in the transition of this thinker's early atomic positivism to his later use of the theory of meaning. For 10 points, name this philosopher who wrote about private languages in *Philosophical Investigations*.
ANSWER: Ludwig **Wittgenstein** [or Ludwig Josef Johann **Wittgenstein**]
<Philosophy, TH>

6. **A large example of one of these features nicknames a wedge-shaped, postmodern building in Tokyo designed by Kengo Kuma. Adolf Loos's jokey design for the Chicago Tribune building proposed turning its top half into a giant one of these features. Vitruvius proposed adding half metopes to resolve a design problem referred to as these features' "corner conflict." Skeuomorphic (*)** triglyphs appear directly above these specific features. Examples of these features at the Temple of Hera I ("one") at Paestum feature exaggerated entasis. Palladio used these features in the ground-floor of his Palazzo Chiericati while he used a different, more ornamented feature on the second. These features typically lined the exterior of stoas, rested directly on the stylobate, and featured circular capitals. For 10 points, name these unadorned, load bearing features used in a Greek architectural order simpler than the Ionic and Corinthian.
ANSWER: **Doric column**s [prompt on columns]
<Other Arts: Visual, TH>

7. **A character created by this author writes a wrought letter calling a woman "the erotic equivalent of bread and circuses" after he is expelled from her room for rubbing cold cream on her neck. One of this author's characters meets a fictionalized version of geneticist Barbara McClintock while living at a biological research facility with her manic-depressive boyfriend Leonard. That Jane Austen-inspired novel by this author is partially set at Brown University and focuses on Madeleine Hanna. This author also wrote a novel narrated by the grandchild of (*)** Lefty and Desdemona, married siblings who moved to Detroit during the Great Depression. The narrator of that novel by this author loves a girl nicknamed the "Obscure Object" and claims to have been "born twice: as a baby girl and a teenage boy." For 10 points, name this Greek-American author of *The Marriage Plot* and *Middlesex*.
ANSWER: Jeffrey **Eugenides** [or Jeffrey Kent **Eugenides**]
<Long Fiction, WG>

8. **It's not a throne or a chariot, but in a pseudepigraphic apocalypse narrative that survives only in Slavonic, 24 busts and a face "as if carved from fire" are arranged around one of these objects explained by Sariel. In the first chapter of his *De somniis*, Philo of Alexandria gave four interpretations of one of these objects, one of which commented on movements corresponding to compassion and distress. According to emic tradition, the present day settlement of Beit El was the site of a (*)** vision of one of these things, which also titles a thirty-part manual on ascetic monasticism by John Climacus. Sarah Flower Adams's hymn "Nearer, my God, to Thee" relates a vision of one of these objects dreamt about by a man on the road to Haran after tricking his brother Esau out of his inheritance. For 10 points, in Genesis 28, Jacob has a vision of angels climbing and descending what sort of object?
ANSWER: **ladder** [accept **Jacob's Ladder**; accept **staircase**; accept *The **Ladder** of Divine Descent*; accept ***Ladder** of Jacob*; accept ***Sūllām*** *Yaʿaqōv*]
<Religion, TH>

9. **This problem is essentially reformulated into a radius stabilization problem in the ADD model of Arkani-Hamed, Dimopoulos, and Dvali. In another model that solves this problem, the metric has a warp factor equal to an exponential function of the compactification radius. In the bulk of the Randall–Sundrum brane model that solves this problem, only Kaluza–Klein particles propagate. One approach to solving this problem associates each fermion with (*)** two complex scalars with the same coupling strength. By cancelling a quadratic UV divergence, supersymmetry solves this problem. This problem requires fine-tuning the Higgs mass in the Standard Model. A large difference in the electro·weak scale and the Planck scale causes this problem. For 10 points, name this problem arising from the fact that the weak force is much, much stronger than gravity.
ANSWER: **hierarchy** problem [prompt on **naturalness** problem; prompt on **fine-tuning** problem until "fine-tuning"]
<Physics, LM>

10. **These people no longer practice a ceremony that balanced the knowledge of 12 peace and 12 war leaders to make a collective decision called *Naachid*. A few months after Major Brooks slaughtered these people's cattle, one of them killed Brooks' Black slave, causing renewed US aggression. A chief of these people who helped negotiate the never-ratified Bear Springs Treaty was murdered in the Narbona pass named for him. Although these people were able to hold out at Fortress Rock under their chiefs Barboncito and (*)** Manuelito, most of them ended up surrendering at Fort Defiance after the Battle of Canyon de Chelly ("shay"). These people were held in a concentration camp at Fort Sumner after Kit Carson forced them on their "Long Walk" to Bosque Redondo. For 10 points, name these Southwestern Indigenous people whose reservation covers much of northeastern Arizona.
ANSWER: **Navajo** [or **Diné**; or **Naabeehó**; prompt on **Indigenous** peoples of America; prompt on American **Indian**s; prompt on **Native American**s; prompt on **Amerindian**s; reject "First Nations"]
<US History, ZK>

11. **Thick impasto green and orange clouds dominate a painting titled for cottages and these objects that its artist subtitled "Reminiscent of the North." In another painting, two dark haired women in white and purple dresses clutch flowers as they gaze to the viewer's left while standing in front of an oblique row of these objects. A crescent moon and a bright star are separated by one of these objects in a painting that also features two peasants walking toward the viewer on a white-green road. In a letter to his brother (*)** Theo, an artist described the "beauty of line" of these objects and compared them to "Egyptian obelisks." Two of these objects lean against each other behind a wheat field in a painting created while its artist was staying at an asylum at Saint-Rémy-de-Provence ("san ray-MEE duh pro-VONS"). For 10 points, name this type of tall, narrow tree that dominates the foreground left of Vincent van Gogh's *Starry Night*.
ANSWER: **cypress** trees [accept Provencal **cypress**es; accept *Wheat Field with **Cypresses***; accept *Road with **Cypress** and Star*; prompt on trees until read]
<Painting/Sculpture, TH>

12. **A book on this language family by Francis Whyte Ellis notes the pronounced tripartite diglossia between one language's old, formal, and colloquial forms. A hypothesis championed by David McAlpin proposes a linkage between a predecessor to this language family and the language of ancient Elam. A language in this family uses two superclasses of grammatical gender: "rational," applied to deities and humans, and "irrational," applied to all other nouns. (*)** Brahui ("bruh-HOO-ee") and Kurukh ("KOO-rook") are languages from this family, which is the origin of retroflex constants that entered *another* family spoken geographically to the north of this one. English loanwords from this language family include bamboo, mango, and catamaran. For 10 points, name this language family that includes Kannada, Malayalam, Telugu, and Tamil, all primarily spoken in southern India.
ANSWER: **Dravidian** languages
<Social Science: Linguistics, TH>

13. **Advection past embayments creates this process's namesake "shadows," which are the sites with the highest primary productivity in Eastern Boundary [this process] Systems. Along the continental shelf of western North America, Feely et al. observed that this process had enhanced the effects of ocean acidification, causing the entire water column to become undersaturated with respect to aragonite. This process is often studied in the Canary, Benguela, California, and Humboldt systems. This process drives the formation of a "cold tongue" in the eastern Pacific where the (*)** Equatorial Undercurrent shoals. The easterlies create poleward Ekman transport, causing this process to occur at the equator. During El Niño, Peruvian fisheries are devastated by the weakening of this process. For 10 points, cold, nutrient-rich water rises to the surface in what process?
ANSWER: **upwelling** [accept equatorial **upwelling**; accept coastal **upwelling**]
<Other Science: Earth Science, TH>

14. **A novella by this author ends as a sickly man watched a baby in a pram gleefully shake a rattle in front of the setting sun after bonding with a woman during a Wagner piano recital. In another story by this author, a cuckolded husband performs in drag as "Little Lizzy" while accompanied by his singer wife and her musician lover. In another story by this author, a lonely old man slashes his dog with a knife while trying to feed him bread. This author of the novella (*)** *Tristan* and the story "Tobias Mindernickel" satirized the rise of Fascism in a story in which the narrator and his family encounter the hypnotist Cipolla as they vacation in Torre di Venere. Another vacationeer created by this author dies after eating some bad strawberries and spies on the Polish boy Tadzio. For 10 points, name this German author of "Mario and the Magician" and "Death in Venice."
ANSWER: Thomas **Mann** [or Paul Thomas **Mann**]
<Short Fiction, TH>

15. **According to Giles Tremlett's 2010 biography, the discovery of this person's blackened organs and the presence of a hardened black substance on their corpse started a rumor they were poisoned. This person may have had a secret relationship with the Holy Roman Empire ambassador Eustace Chapuys ("SHAP-wee"). This person discussed the plight of the Jewish community in a secret correspondence with Juan Luis Vives When this person died at (*)** Kimbolton Castle, the entirety of their country wore yellow clothing as a symbol of remembrance. This person sent a piece of a blood-stained coat belonging to James IV to Hampton Court Palace after the Battle of Flodden Field. This person allied themselves with Thomas Wolsey against the rising influence of Thomas Cramner and sent letters to Pope Clement VII to overturn their annulment. For 10 points, name this first queen consort of Henry VIII.
ANSWER: **Catherine of Aragon** [prompt on Catherine]
<Post-500 European History, ZF>

16. **People with a PiZZ ("P-I-Z-Z") genotype are especially vulnerable to this toxin because of the tendency of the Z form of a protein to polymerize. In response to long-term exposure to this toxin, mice deficient in MMP-12 do not display tissue degradation. Six minute walking distance and mMRC dyspnea are two of the factors of the BODE ("bode") index used to predict the outcomes of a disease caused by this toxin. This toxin oxidizes Met358 within the reactive center loop domain of alpha-one (*)** anti·trypsin, inhibiting the binding of serine proteases to it. This toxin is linked with a decrease in severity of ulcerative colitis. A molecule in this toxin changes brain physiology by up·regulating a namesake class of acetyl·choline receptors. For 10 points, COPD is caused by the intake of what toxic aerosol that contains nicotine?
ANSWER: **tobacco smoke** [or **cigarette smoke**; accept environmental **tobacco smoke**; accept **secondhand smoke**; prompt on nicotine with "as a part of what substance?"; prompt on smoke by asking "from what substance?"; prompt on tobacco by asking "in what form?"; reject "vapor" or anything to do with "vaping"]
<Biology, JS>

17. **Representative Hank Johnson introduced a House bill prohibiting funds to police in this country after the deaths of Joel Palacios Lino and Elvis Armando García. Rollbacks of indigenous rights in this country have been opposed by OFRANEH ("OH-fra-nay"). An activist in this country appeared on a FUSINA hit list, as detailed by Nina Lakhani. In this country, members of COPINH ("coh-PEEN") prevented Sinohydro and DESA from constructing the (*)** Agua Zarca dam on the Gualcarque River, sacred to the indigenous Lenca. After receiving the Goldman Environmental Prize in 2015, an activist from this country was murdered by gunmen in her bedroom. For 10 points, indigenous activist Berta Cáceres was murdered in what Central American country, where violence stemming from the Juan Orlando Hernández administration led migrant caravans to flee Tegucigalpa?
ANSWER: **Honduras** [or Republic of **Honduras**; or República de **Honduras**]
<Zeitgeist, GP>

18. **In a narrative poem titled for this place, Enareto instructs the lovelorn Clonico to abandon his love of wisdom before Clonico finds an urn filled with the ashes of his lover. In another book titled for this place, two men are informed of the kidnapping of a Lydian princess by the Queen of Persia, but decide to let her languish in prison for a year before rescuing her. A 1480 poem by Jacopo Sannazaro titled for this place inspired the settings of Honoré d'Urfé's ("oh-noh-RAY door-FAY's")** *Astrea* **and Jorge de Montemayor's (*)** *Diana*. In a book titled for this place, a king, his queen, and their daughter all fall in love with a prince disguised as an Amazon. Pyrocles and Musidorus appear in two 16th-century prose works named for this place, the newer one of which is usually named for its author's sister, the Countess of Pembroke. For 10 points, name this title pastoral setting of two long prose works by Philip Sidney.
ANSWER: **Arcadia** [accept Old *Arcadia*; accept New *Arcadia*; accept *The Countess of Pembroke's Arcadia*]
<Other Literature, TH>

19. **Ottmar Hörl's 2009 installation *Dance With the Devil* depicts this non-praying action using over 1,000 garden gnomes. Each photograph in Anselm Kiefer's *Heroic Symbols* depicts this action. In 2013, Nicolas Anelka was criticized for performing a French comedian's riff on this action called the "quenelle" ("kuh-NEL"). In a film, a character tries desperately to screw bottle caps while performing this action every time a photograph passes by him on a (*)** conveyor belt. In another film, a wheelchair-using man struggles to *not* perform this action while describing a population of ten women for every man after nuclear war. Walter Gobitas's name was misspelled in a Supreme Court case about a rule requiring Jehovah's Witnesses to perform this action. For 10 points, Francis Bellamy's version of what gesture accompanying the Pledge of Allegiance was very similar a Nazi greeting?
ANSWER: **salute** [or Nazi **salute**; or Roman **salute**; accept **saluting** the American flag; accept Bellamy **salute**; accept **Sieg Heil**; accept **quenelle** until it is read; prompt on reading or reciting the Pledge of Allegiance by asking "what physical action was being done while reading it?"] (The first film is *Der Fuehrer's Face*, featuring Donald Duck, and the second film is *Dr. Strangelove*.)
<Other Academic, AP>

20. **A piano concerto by this composer serves as the music for *Harbinger*, Eliot Feld's debut work as choreographer. Two pieces by this composer score Anthony Tudor's *Gala Performance*. Yuri Grigorovich challenged the formalist notions of the dream-ballet with his choreography to a ballet by this composer focusing on a stone cutter menaced by a stomping hunchback. Leonid Lavrovsky controversially altered the score to the 1940 Kirov production of a ballet by this composer that gave (*)** Galina Ulanova her breakthrough role. This composer wrote the music for *The Prodigal Son*, first performed by Diaghilev's Ballet Russes. Frederick Ashton played the Ugly Sister in his choreography to a ballet by this composer, while another ballet by this composer includes "The Dance of the Knights." For 10 points, name this 20th-century Russian composer who wrote the ballets *Cinderella* and *Romeo and Juliet*.
ANSWER: Sergei **Prokofiev** (The ballet in the third clue is *The Stone Flower*.)
<Other Arts: Visual, TH>

21. **Agents of this organization sprayed modified fentanyl into a target's ear in a nearly-successful assassination attempt. Explosives hidden in bars of soap were used to send booby-trapped packages to German scientists by an agent of this organization, Wolfgang Lotz. This organization was accused of using poisoned chocolates to kill the planner of an attack carried out with assault rifles hidden in violin cases. An innocent Moroccan (*)** waiter was killed walking back from the cinema with his wife by this organization in the Lillehammer affair, but they eventually killed the intended target, Ali Hassan Salameh. Agents of Shin Bet and this organization arrested a man with the pseudonym Ricardo Klement in Argentina. In Operation Wrath of God, this organization targeted members of Black September and the PLO. For 10 points, name this Israeli national intelligence service.
ANSWER: **Mossad** [accept al-**Mōsād**; accept **Institute for Intelligence and Special Operations**; accept **HaMossad leModiʿin uleTafkidim Meyuḥadim**; prompt on the Institute] (The first clue refers to the attack on Khaled Meshaal.)
<World History, ZK>

22. **A subject in this experiment repeated the phrase "I don't know" while hiding her face in turn with a book and then her hand. This experiment was designed to test its formulator's diagnosogenic theory of a certain behavior, which fit into his larger theory of general semantics. Because none of the data from this experiment was ever published in scientific journals, all the known information about it comes from Mary (*)** Tudor's master's thesis. The subjects in one group of this experiment heard harsh phrases like "you must try to stop yourself immediately" and "the type of interruptions which you have are very undesirable." In this experiment, 22 children at a Davenport, Iowa orphanage were placed into groups receiving positive and negative speech therapy. Wendell Johnson oversaw, for 10 points, what controversial 1939 study on the origins of stuttering?
ANSWER: **Monster** Study [accept **Johnson stuttering** study until "Wendell"; accept Mary **Tudor stutter**ing study until "Tudor"; prompt on answers mentioning stuttering study until "stuttering"]
<Social Science: Psychology, TH>

Bonuses

1. President Enrique Peña Nieto started construction on a train line from Mexico City to this city, some 35 miles away, but budget overruns meant that the line was still under construction at the end of his term. For 10 points each:
[h] Name this city whose Manuel M. Villada Museum of Natural History contains the mummified remains of Father Botello, a fake priest hanged for his blasphemy. It is the capital of the State of Mexico.
ANSWER: **Toluca** [or **Toluca** de Lerdo]
[e] Peña Nieto's government also planned to build a train from Mérida to this popular tourist city on the northeast coast of the Yucatán Peninsula.
ANSWER: **Cancún** [or **Cancún** Island; or Ciudad **Cancún**; or Isla **Cancún**]
[m] While in this tourist site in Chiapas, Peña Nieto's successor AMLO presided over a ritual involving copal incense to announce another new train project. This site is smaller than Tikal and Chichen Itza, and its most popular attraction is the Temple of the Inscriptions.
ANSWER: **Palenque**
<Geography, MB>

2. A sleazy businessman from this country got his start by seducing opera singer Claudia Muzio and getting her to smoke his women's cigarette brand in Buenos Aires. For 10 points each:
[m] Name this country. A shipping magnate from this country entered into a lucrative arrangement known as Project Omega with a junta known as the Regime of the Colonels.
ANSWER: **Greece** [or **Hellas**; or **Hellenic** Republic; or **Ellinikí** Dimokratía]
[e] Both Jackie Kennedy's second husband Aristotle Onassis and his rival Stavros Niarchos benefited massively from the crisis surrounding the closure of this Middle Eastern waterway through which most of Europe's oil passed.
ANSWER: **Suez** Canal [accept **Suez** Crisis]
[h] After buying the company that manages the Monte Carlo Casino, Onassis clashed with this Monégasque monarch over their visions for Monaco's economy. Hollywood icon Grace Kelly retired from acting after her marriage to this monarch at age 26.
ANSWER: **Rainier III** [or **Rainier** Louis Henri Maxence Bertrand **Grimaldi**; accept **Prince Rainier** of Monaco; prompt on Rainier]
<Other History, AP>

3. The superstition surrounding actors wearing green supposedly originates from this event. For 10 points each:
[m] Name this event preceded by two bouts of coughing and hemorrhaging while its subject was playing a character who tries to get his daughter to marry a doctor so he can use the doctor's medical services at any time.
ANSWER: the **death** of **Molière** [accept the **death** of Jean-Baptiste **Poquelin**; prompt on a performance of or a death at *The Imaginary Invadlid* or *The Hypochondriac* or *Le malade imaginaire* by asking "involving which person?"]
[e] Molière and his contemporaries Pierre Corneille ("cor-NAY") and Jean Racine all wrote and died during this century, which also saw the early to mid-reign of Louis XIV.
ANSWER: **17**th century [or **1600s**]
[h] The title doctor convinces the villagers of Saint-Maurice that they are suffering from an obscure illness in *Knock*, a play by this French author of the 8,000-page *Men of Good Will*, a novel written in a style he called "unanimism."
ANSWER: Jules **Romains** ("roh-MAN") [accept Louis Henri Jean **Farigoule**]
<Drama, TH>

4. Answer the following about surpassing the diffraction limit, for 10 points each.
[e] The diffraction limit is a limit on this quantity given by the Rayleigh criterion as 1.22 times wavelength over aperture diameter. This quantity describes whether or not objects in an image can be visually separated.
ANSWER: **resolution** [accept angular **resolution**; accept image **resolution**; accept spatial **resolution**]
[h] Unlike stimulated emission depletion microscopy, this technique creates superresolved images without using sample-damaging lasers. Like PALM ("palm"), this technique makes a super-resolved image out of multiple images containing just a few activated fluorophores.
ANSWER: **STORM** ("storm") [or **stochastic optical reconstruction microscopy**]
[m] STORM fluorophores go through hundreds of on/off cycles before this process occurs. The membrane-imaging technique FRAP ("frap") uses a light pulse to induce this process that makes fluorophores permanently inactive.
ANSWER: photo**bleaching** [accept **fading**]
<Chemistry, JS>

5. The Public Resource Center, co-founded by Zack de la Rocha and Rudy Ramirez, is also known as the Centro de [this word]. For 10 points each:
[h] Name this Spanish word used by Francisca Flores for the title of her journal, which featured work by the art collective Asco. The Flores Magón brothers published a newspaper of this name that was the organ of the PLM.
ANSWER: **regeneración** [prompt on regeneration by asking "what is the Spanish language equivalent?"]
[m] The Flores Magón brothers published their newspaper *Regeneración* in this city, where it was distributed by the anarchist bookstore La Aurora. The building of a different newspaper in this city was bombed due to it and its publisher Harrison Gray Otis's anti-union efforts.
ANSWER: **Los Angeles** [or **LA**] (The Public Resource Center is also in Los Angeles.)
[e] This Jewish anarchist advocated for the Flores Magón brothers in her journal *Mother Earth*. She was eventually deported to the USSR along with Alexander Berkman.
ANSWER: Emma **Goldman**
<US History, JS>

6. Answer the following about painter and art theorist Jay Hambidge, for 10 points each.
[h] This artist used Hambidge's notion of "dynamic symmetry" in his bestselling print of a nude girl leaning over a sleeping woman. This American artist is known for his lush, pastel-colored fantastical landscapes like *Ecstasy* and *The Dinky Bird*.
ANSWER: Maxfield **Parrish**
[e] Hambidge's ideas inspired Helen Hokinson to create many of these artworks that appear alongside text in *The New Yorker*, such as a famous one by Peter Steiner captioned "On the internet, nobody knows you're a dog."
ANSWER: **cartoon**s [accept **drawing**s or **illustration**s; or **comic**s]
[m] Hambidge was born in this country, also home to the artist of *The Jack Pine*. Emily Carr is sometimes associated with a circle of landscape painters from this country known as the Group of Seven.
ANSWER: **Canada** (*The Jack Pine* is by Tom Thomson.)
<Painting/Sculpture, TH>

7. Nozières and Schmitt-Rink were the first to calculate the superfluid transition temperature during this phenomenon by introducing Gaussian fluctuations around the mean-field saddle point. For 10 points each:
[h] Name this phenomenon realized by using Feshbach resonance to create a state of diatomic molecules from a state of weakly-correlated pairs of fermions without a phase transition.
ANSWER: **BCS–BEC crossover** [accept **BEC–BCS crossover**; accept **crossover** from **Bardeen–Cooper–Schrieffer** state to a **Bose–Einstein condensate** or vice versa]
[e] The crossover is possible because a mean-field description of this function in the BCS regime and this function in the BEC regime is smoothly connected. This function's time evolution is given by the Schrödinger equation.
ANSWER: **wave** function [or **psi**]
[m] During the BCS–BEC crossover, this quantity decreases monotonically from the Fermi energy to a negative value, approaching the pair binding energy. This quantity, volume, and temperature are the fundamental variables of the grand canonical ensemble.
ANSWER: **chemical potential** [or **mu**]
<Physics, LL>

8. British author Alexandra Fuller, who now lives in a yurt in this US state, wrote of her childhood spent on a farm during the Rhodesian Bush War in her memoir *Don't Let's Go to the Dogs Tonight*. For 10 points each:
[h] Name this US state that is the setting of the short stories "Job History" and "55 Miles to the Gas Pump," a retelling of the Bluebeard tale. Both of those stories are contained in the collection *Close Range*.
ANSWER: **Wyoming**
[m] *Close Range* is a collection by this American author, who also wrote a story in which Ennis del Mar and Jack Twist fall in love while herding sheep near the title Wyoming landform.
ANSWER: E. Annie **Proulx** ("proo") (The story is "Brokeback Mountain.")
[e] A Wyoming ranch hand is the protagonist of *The Virginian*, a novel by Owen Wister often considered the first example of a novel in this genre also strongly associated with Zane Grey.
ANSWER: **Western** novels
<Other Literature, AP>

9. A 2017 Met Breuer exhibition of a Brazilian artist with this given name titled "A Multitude of Forms" staged a piece in which a crowd walk together with their heads protruding from a huge white sheet. For 10 points each:
[h] Give this first name shared by the artist of *Divisor* and a different Brazilian artist who gave a title meaning "critters" to a set of hinged metal assemblies meant to be manipulated by viewers.
ANSWER: **Lygia** ("LEE-zhuh") [accept **Lygia** Pape or **Lygia** Clark] (The Lygia Clark work is *Bichos*.)
[m] Lygias Pape and Clark led an art movement that prefixes this word with "neo." Lygia Fagundes Telles and the de Campos brothers belonged to a literary school named for this word, which describes poems whose typographical form conveys meaning.
ANSWER: **concrete** [accept **Concretism** or **Concretismo** or **Neoconcretismo**; accept **concrete** poetry; prompt on shape poems or visual poems; anti-prompt on altar poetry]
[e] Lygia Clark's work *Walking* consists of a paper with this shape that viewers cut lengthwise repeatedly until it is too thin to cut. This non-orientable shape is constructed by giving the paper a half-twist and taping its ends.
ANSWER: **Möbius** strip [or **Möbius** band; or **Möbius** loop]
<Other Academic, AP>

10. An episode involving this activity is recounted in the "Sabha Parva," or "Book of the Assembly Hall." For 10 points each:
[m] Name this activity in which Śakuni ("SHUH-koo-nee") defeats Yudhishthira ("yoo-DISH-tih-ruh"), leading to the twelve-year exile of the Pāndavas. Some versions of the episode involving this activity state the items used in it were made of the bones of Śakuni's family members.
ANSWER: playing a game of **dice** [prompt on gambling]
[e] Duhshāsana ("doo-SHAH-shuh-nuh") tries to disrobe this woman after the game, but Krishna prevents it by infinitely extending her sari. She is married to all five of the Pāndavas.
ANSWER: **Draupadi** [or **Pānchālī**; or **Krishnā**]
[h] During the dice game, Duryodhana directs this lewd gesture at Draupadī, infuriating the Pāndavas. Bhīma threatens to break the body part central to this action, which is likened to the stem of a plantain tree and the trunk of an elephant.
ANSWER: **slap**ping his **thigh** [accept **exposing** his **thigh**; accept synonyms for **slap**ping or **exposing** like **reveal**ing, **showing**, **hit**ting, or **striking**; accept **lap** in place of **thigh**; prompt on answers mentioning his leg and any of the other synonyms by asking "what part of the leg?"]
<Mythology, AD>

11. K-lines, nomes, and nemes are some of the simplest agents in this theory, which was co-developed by Seymour Papert at the MIT Artificial Intelligence Lab while working with a robotic arm. For 10 points each:
[h] Name this theory about natural intelligence developed by Marvin Minsky in a 1986 book of the same name. It asserts that advanced cognitive processes like memory, language and consciousness build up from the interaction of simple, data-structure-like units called agents.
ANSWER: the theory of the **Society of Mind**
[m] Minsky's aphorism "Minds are what brains do" is a pithy summation of this position in the philosophy of mind endorsed by thinkers like Jerry Fodor. This viewpoint rejects both the identity theory and behaviorism in stating that mental states can be defined only by their causal relationship to other mental states.
ANSWER: **functionalism** [accept **functionalist** theory of mind; accept psycho-**functionalism**; accept analytic **functionalism**; accept Homuncular **functionalism**]
[e] This thought experiment first presented by John Searle ("surl") argues against functionalism by imagining a person able to translate between languages without understanding the symbols.
ANSWER: **Chinese room** thought experiment
<Philosophy, TH>

12. An engineering student cleans out a once-prominent bookstore in this country in Kaouther Adimi's novel *Our Riches*. For 10 points each:
[e] Name this country that is also the setting of *The Plague* by Albert Camus, who was born in the French colony that became this country.
ANSWER: **Algeria** [or **Algérie**]
[h] This Algerian feminist novelist wrote about a group of Muhammad's female companions in her novel *Women of Medina*. This woman was the first author from the Maghreb to be admitted to the Académie Française ("frawn-SEZ"), partly on the strength of her novel *Women of Algiers in Their Apartment*.
ANSWER: Assia **Djebar** [or Fatima-Zohra **Imalayen**]
[m] Another contemporary Algerian novelist, Yasmina Khadra, is best known for his tetralogy of books about Llob ("yob"), a man of this profession. Mma ("mah") Precious Ramotswe proclaims herself to be the "number one" female one of these people in Botswana in a series of novels by Alexander McCall Smith.
ANSWER: **detective** [or **inspector**; accept private **investigator** or **P.I.**; accept police **detector**; accept *No 1. Ladies' **Detective** Agency*; prompt on police officer]
<Long Fiction, TH>

13. A female composer from this country wrote *Metacosmos*, a microtonal symphonic poem meant to evoke a black hole. For 10 points each:
[h] Name this country also home to a film composer who scored *Mandy*, *Arrival*, and *The Theory of Everything* before his 2018 death.
ANSWER: **Iceland** [or **Ísland**] (The film composer is Jóhann Jóhannsson.)
[e] The title of Icelandic composer Anna Thorvaldsdóttir's *Metacosmos* might allude to *Mikrokosmos*, a series of piano pieces by this Hungarian composer who also wrote a *Concerto for Orchestra*.
ANSWER: Béla **Bartók** [or Béla Viktor János **Bartók**]
[m] Bartók's *Mikrokosmos* and the constellations of the zodiac inspired *Makrokosmos*, a collection of piano pieces by this American composer who interpolated Schubert's *Death and the Maiden* into his *Black Angels* string quartet.
ANSWER: George **Crumb** [or George Henry Jr. **Crumb**]
<Classical Music, TH>

14. William Phelan describes this international organization as *sui generis* because it does not allow for member states to retaliate against each other in trade disputes. For 10 points each:
[e] Name this international organization that has both intergovernmental and supranational aspects. The United Kingdom left this organization in January 2020, leaving it with 27 member states.
ANSWER: **European Union** [or **EU**]
[m] In an effort to increase the democratic legitimacy of the EU, this document granted the European Parliament powers over the EU budget with the European Council. This treaty abolished the "pillar system" of the EU and ended the requirement of unanimity for most decisions of the European Council.
ANSWER: Treaty of **Lisbon**
[h] Original language term required. This system, whereby the president of the European Commission is selected by the largest party of the European Parliament, was begrudgingly accepted in 2014, but in 2019 the European Council completely ignored this system and proposed their preferred candidate instead.
ANSWER: *spitzenkandidat*
<Social Science: Political, ZK>

15. In this book, the author writes that he believes in the title concept "as I believe that the sun has risen: not only because I see it, but because by it I see everything else." For 10 points each:
[m] Name this book of apologetics stating that the title concept "if false, is of no importance, and if true, [is] of infinite importance. The only thing it cannot be is moderately important."
ANSWER: *__Mere Christianity__*
[e] *Mere Christianity* is a work by this author who also explored Christianity in *The Great Divorce* and *The Screwtape Letters*.
ANSWER: C. S. **Lewis** [or Clive Staples **Lewis**]
[h] In this allegorical work, written shortly after Lewis' conversion in 1933, John meets personifications of Facism, Communism, and Hedonism before encountering a woman representing the Church on the Acropolis.
ANSWER: The *__Pilgrim's Regress__*
<Religion, ND>

16. The speaker hears "the hard trail telephone a far-off horse's feet" in a Rudyard Kipling poem set in one of these places. For 10 points each:
[h] Name this type of place that titles a poem from *Leaves of Grass* whose speaker thinks "this globe enough, till there sprang out so noiseless around me myriads of other globes" while admiring the stars above one of these places.
ANSWER: a **prairie** [accept "The **Prairie**"; accept "Night on the **Prairies**"]
[e] This Romantic-era American poet called prairies "gardens of the desert [...] which the speech of England has no name" in his prairie-praising poem "The Prairies." He also wrote "Thanatopsis."
ANSWER: William Cullen **Bryant**
[m] This author compares youth to "wild roses" against the tedium of prairie life in her poem "Prairie Spring" from her collection *April Twilights*. A novel by this author named for a Whitman poem is divided into sections like "The Wild Land" and "The White Mulberry Tree."
ANSWER: Willa **Cather** [or Willa Sibert **Cather**] (The novel is *O, Pioneers*.)
<Poetry, TH>

17. Bongani Ndodana-Breen's 2011 work *Winnie* is discussed in Naomi André's 2018 book on the racial history and contemporary status of this art form, mainly in the U.S. and post-apartheid South Africa. For 10 points each:
[e] Name this art form. In 2015, a New York company made the uncommon decision to *not* have tenor Aleksandrs Antonenko wear blackface while playing the title character of a work in this art form based on Shakespeare's *Othello.*
ANSWER: **opera** [accept *Black **Opera**: History, Power, Engagement*; accept solo-**opera**] (The clue refers to the Metropolitan Opera's 2015 production of Verdi's *Otello*.)
[m] By playing Ulrica in the Metropolitan Opera's 1955 production of *Un ballo in maschera*, this contralto became the first African-American to sing at the Met. Earlier, this singer gave a famed outdoor performance at the Lincoln Memorial.
ANSWER: Marian **Anderson**
[h] A nearly all-black cast is required for this contemporary composer's vignette-based opera *X, the Life and Times of Malcolm X*. This composer's opera *The Central Park Five* won the Pulitzer Prize for Music in 2020.
ANSWER: Anthony **Davis** (no relation to the NBA player)
<Other Arts: Auditory, TM>

18. Preemptive algorithms for this task stop lower priority processes to run higher priority processes. For 10 points each:
[m] Name this task performed by round-robin algorithms, in which each process gets equal time. Operating systems perform this task to allocate processes to available CPUs.
ANSWER: **scheduling** [or **schedule**]
[h] Rate-monotonic schedulers are optimal for this type of operation system when tasks are independent and periodic. Embedded systems developed with hard constraints require this type of OS to meet every deadline.
ANSWER: **real-time** operating system [or **RTOS** ("AR-toss")]
[e] Operating systems are typically written in a mix of assembly and this language favored by system programmers. Bjarne Stroustrup developed an "improvement" of this language that allows for object-oriented programming.
ANSWER: **C** [reject "C++"]
<Other Science: Computer Science, JS>

19. While living in Paris, this journalist published *Rehlat Abou Naddara Zar'a*, the first Arabic language magazine to feature political cartoons. For 10 points each:
[h] Name this Jewish Egyptian journalist and comedic dramatist who excoriated Arab morals and praised France in his salons and plays. His liberal pamphlets were popular among the soldiers who carried out the Urabi revolt.
ANSWER: Yaqub **Sanu** [accept James **Sanua**; accept **Abu Naddara**]
[m] Sanu repeatedly criticized the sexual morality of Ismail the Magnificent, the last ruler with this title to keep a harem. This title was used by the rulers of Egypt in the 19th century, beginning with Muhammud Ali Pasha.
ANSWER: **khedive**
[e] Another reformer active in Egypt in the 1870s, the peripatetic Jamal Al-Din, likely had origins in this other country. The Durrani dynasty ruled this country after uniting the Pashtun tribes.
ANSWER: **Afghanistan** [accept Jamal al-Din al-**Afghani**]
<World History, TH>

20. Partially because it swims via pectoral fin oscillation, the moonfish has a near whole-body type of this ability. For 10 points each:
[e] Name this type of thermoregulation in which animals use metabolic processes to regulate their body temperature.
ANSWER: **endothermy** [accept word forms like **endothermic** or **endotherm**s; accept **warm-blooded**; prompt on homeothermy or homeotherms]
[h] The moonfish's gills are surrounded by one of these net-like bundles of veins and arteries that act as a countercurrent heat exchangers. In bony fish, these structures supply arterial blood to capillary networks underlying both the pigment cell layer of the retina and the gas gland of swim bladders.
ANSWER: **rete mirabile** [accept **retia mirabilia**; prompt on "wonderful net"]
[m] Bony fish sense pressure differentials using an organ described by this adjective made up of mechano·receptive units called neuromasts. Generally, this anatomical adjective has the opposite meaning of medial.
ANSWER: **lateral** [accept **lateral** line system; accept **lateral** line organ]
<Biology, TH>

21. The title of a 1975 Smokey Robinson album names this subgenre of music and a radio format associated with it. For 10 points each:
[m] Name this blend of jazz fusion, R&B, and pop that often has romantic subject matter and a smooth sound. Artists such as Luther Vandross and Anita Baker are known for their work in this style, whose two-word name suggests both serenity and intensity.
ANSWER: **Quiet Storm** [prompt on slow jams]
[h] This singer's songs "Your Love is King" and "No Ordinary Love" are staples of the Quiet Storm radio format. This Nigerian-born British artist is known for her contralto voice and the song "Smooth Operator."
ANSWER: **Sade** ("shah-DAY") [or Sade **Adu**; or Helen Folasade **Adu**]
[e] Sade and this artist are said to both recognize "the enormous power in holding back" in a *Grantland* article about her debut album *LP1*. Her other releases include *M3LL155X* ("melissa") and *MAGDALENE*.
ANSWER: **FKA Twigs** [or Tahliah Debrett **Barnett**]
<Pop Culture, AD>

22. Home Secretary David Maxwell-Fyfe commissioned this document that focused on interviews with Carl Winter, Patrick Trevor-Roper, and Peter Wildeblood. For 10 points each:
[m] Name this 1957 document. Harold Macmillan's government initially rejected the findings of this document, which advocated for the decriminalization of homosexuality in Great Britain.
ANSWER: **Wolfenden** report [accept **Report of the Departmental Committee on Homosexual Offences and Prostitution**]
[h] This Labour Home Secretary oversaw the passage of the Sexual Offences Act in 1967, which partially decriminalized homosexuality, in addition to laws legalizing abortion and banning capital punishment.
ANSWER: Roy **Jenkins** [or Roy Harris **Jenkins**, Baron Jenkins of Hillhead]
[e] Among the Conservative lawmakers to vote in favor of the Sexual Offences Act was this future Prime Minister nicknamed the "Iron Lady."
ANSWER: Margaret **Thatcher**
<Post-500 European History, GP>