2025 ACF Regionals
Packet O by Editors
Edited and written by Jeremy Cummings, Ani Perumalla, Erik Christensen, Henry Goff, Taylor Harvey, Amogh Kulkarni, Tim Morrison, Noah Sheidlower, Munir Siddiqui, Abigail Tan, Maxwell Ye, JinAh Kim, Ophir Lifshitz, and Abhinav Rachakonda

Tossups

1. This culture supplanted a [emphasize] *previous* culture's iconographic "Oculate Being," depicted on textiles, with its so-called "Anthropomorphic Mythical Being." Depictions of women wearing ankle-length mantles increased suddenly during this culture's Phase 5, which was called "Transitional" for bridging the Monumental and Proliferous phases. Some of this culture's "head jars" may have been made to replace the heads of decapitated people. This culture, which had an empty ceremonial center at Cahuachi, created a system of trenches and tunnels called *puquio*s ("poo-KEE-ohs") for transporting water. This culture was influenced by the earlier Paracas culture in creating many zoomorphic geoglyphs. For 10 points, name this Peruvian culture that created images in the ground known as their namesake "lines."
ANSWER: **Nazca** culture [or **Nazca** lines; prompt on Early Intermediate period]
<AT, Other History>

2. A feast dedicated to the "protections" of this person allegedly began after Andrew the Fool had a vision of this person that saved Constantinople from invasion by the Rus' ("roose"). In Eastern Orthodoxy, the Nativity Fast is relaxed on the day of a feast dedicated to the "presentation" of this person. Odysseas Elytis ("eh-LEET-iss") took the title of his poem *Axion Esti* from a set of hymns dedicated to this person, who is referred to by the Greek term *panagia*. A key tenet of Nestorianism rejected at the Council of Ephesus involved his disuse of a term referring to this person, the speaker of the Magnificat hymn. Eastern Orthodoxy gives this person the title of "God-bearer," or *Theotokos*. For 10 points, name this woman venerated in Eastern Christianity as the mother of Jesus.
ANSWER: **Mary** [or **Mary**, mother of Jesus; or Virgin **Mary**; or **Madonna**; accept **Theotokos** until read; accept Presentation of the Blessed Virgin **Mary**; accept Entry of the Most Holy **Theotokos** until "Theotokos" is read; accept Intercession of the **Theotokos** until "Theotokos" is read]
<AK, Religion>

3. These structures were converted into energetically unfavorable bis(organyl)metal complexes using a rhodium(I) ("rhodium-one") catalyst by Suggs and Jun. A common reaction that forms these structures may replace a substituent with a "dummy ligand" such as a cyanide group to prevent an organocopper byproduct. Alkyl halides are reacted with two equivalents of sodium metal to form these structures in the Wurtz reaction. Reactions that form these structures follow cycles of oxidative addition, transmetallation, and reductive elimination and often use a palladium catalyst, such as in the Heck and Suzuki reactions. These structures can be formed using compounds of the form RMgX, such as the formation of a tertiary alcohol from a ketone in the Grignard reaction. For 10 points, name these bonds that form the backbone of organic molecules.
ANSWER: **carbon–carbon** single bonds [or **C–C** bonds; prompt on single bonds or sigma bonds; prompt on chemical bonds until read]
<MY, Chemistry>

4. A 2014 ROH production of this opera projects chalk-drawn handwriting onto the front facade of its black and white set. Eberhard Wächter ("VESH-turr") plays the title character of this opera in a 1959 recording conducted by Carlo Maria Giulini. Felice Ponziani's role in this opera's Prague premiere inspired the declaration that he is "all too familiar" with a performance at a banquet that quotes one of the composer's previous operas. This opera's title character is told "a cenar teco" ("ah chay-NAR TAY-ko") by a character whose three knocks are accompanied by loud D minor chords from the overture. In this opera, Leporello sings about 1003 Spanish women to Donna Elvira, detailing his master's seduction in its "Catalogue" aria. For 10 points, a statue of the Commendatore drags the title character of what Mozart opera to hell?
ANSWER: ***Don Giovanni***
<MY, Other Fine Arts>

5. Time spent living with her husband José in this transnational region inspired a book of autobiographical "stories" by the Taiwanese writer Sanmao. A linguistics professor visiting this region has his tongue cut out and is made to dance while wearing a costume made of tin cans in the story "A Distant Episode." This transnational region is the setting of both a 1980 novel by J. M. G. Le Clézio and a travelogue he wrote with his wife Jémia, *The Cloud People*. The American woman Kit Moresby becomes the concubine of a local in this region after her husband dies of typhoid in Paul Bowles's novel *The Sheltering Sky*. The title character is burned on most of his body after his plane crashes in this region in *The English Patient*. For 10 points, the oral literature of the Berber was spread across what vast desert?
ANSWER: **Sahara** Desert [accept Western **Sahara**; accept *Stories of the **Sahara***; prompt on North **Africa** or the **Maghreb** or **Morocco** or **Algeria**] ("A Distant Episode" is by Paul Bowles. The Le Clézio novel is *Désert*. *The English Patient* is by Michael Ondaatje.)
<TH, World Literature>

6. This adjective denotes a type of imaginary field of which there exist nine with unique factorization, which is the "n equals one" case of the class number problem. An integer x is a type of number denoted by this adjective with respect to a prime p if and only if x to the "p-minus-one over 2" is congruent to one mod p, by Euler's criterion. A result with this adjective in its name concerns the Legendre symbol of "p over q" times the Legendre symbol of "q over p." That theorem about modular congruences, which can be used to find "residues" described by this adjective, was proved by Gauss and is named for this type of "reciprocity." This adjective denotes a formula whose discriminant is "b-squared minus 4 a c." For 10 points, what adjective denotes polynomials whose leading term is x-squared?
ANSWER: **quadratic** [accept **quadratic** number field; accept **quadratic** residue; accept **quadratic** reciprocity; accept **quadratic** formula or **quadratic** equation]
<TM, Other Science>

7. The speaker of this poem lists "the lime trees' agitated shade" and "the thin cricket-sound / of consolation's parting word" after realizing that "nothing I counted mine, out of my life, is mine to take." This poem ends by imagining a monument depicting the speaker crying tears of melted snow. This poem considers how "Mary Magdalene beat her breast and sobbed" after Jesus urges, "Mother, I beg you, do not weep for me." A woman "with lips blue from cold" asks this poem's speaker "can you describe this?" as they wait in line outside a prison in this poem's first section, "Instead of a Preface." This poem's penultimate section, "Crucifixion," alludes to the arrest of the author's son Lev by the NKVD. For 10 points, name this long elegiac poem with a musical title by Anna Akhmatova ("ock-MAH-toh-vah").
ANSWER: "**Requiem**" [or "**Rekviem**"]
<HG, European Literature>

8. A book titled for this thinker borrows a Freudian term for multiple lines of causation in its chapter "Contradiction and Overdetermination." Three "myths" associated with this thinker are critiqued in a book whose title riffs on one of this thinker's sayings, written by Raymond Aron. An author who posited an "epistemological break" in this thinker's ideas co-wrote a book on one of this thinker's works with, among others, Jacques Rancière ("rons-YAIR") and Étienne Balibar. A book partly titled for this thinker by Jacques Derrida coined the term "hauntology." A "structural" school named for this thinker was led by Louis Althusser ("all-too-SAIR"), who borrowed this thinker's ideas of the base and superstructure and the relations of production. For 10 points, name this author of *The Eighteenth Brumaire of Louis Napoleon* and *Das Kapital*.
ANSWER: Karl **Marx** [or Karl Heinrich **Marx**] (The book in the first sentence is Althusser's *For Marx*. Raymond Aron's book is *The Opium of the Intellectuals*, and Jacques Derrida's book is *Specters of Marx*.)
<TM, Philosophy>

9. In this city, David Hosack opened the Elgin Botanic Garden for medical students to cultivate plants with medicinal properties. Under Mother Angela Hughes, the Sisters of Charity opened a teaching facility called Saint Vincent's in this city. Robert F. Kennedy used the term "snake pit" for a facility in this city for children with disabilities called Willowbrook. This city's Infirmary for Women and Children was opened by a woman who received a medical degree from Geneva Medical College. The first American M.D. degree was distributed by this city's King's College. Overcrowding at this city's Bellevue Hospital led officials to open a smallpox hospital on Roosevelt Island. For 10 points, name this city where Elizabeth Blackwell operated on patients in Manhattan.
ANSWER: **New York** City [or **NYC**]
<NS, American History>

10. A goddess of these places used her martial arts skills to defeat the demons Qianliyan ("ch'YEN-lee-yen") and Shunfeng'er ("shoon-FUNG-ar"), making them the guardians of her temple. After Fujiwara no Hidesato uses his saliva to kill a giant centipede, an attendant of a god of these places gives him a bottomless bag of rice. After failing to procure a monkey's liver, a creature living in one of these places has its bones crushed. A god of these places, whose palace has a garden with sections for each season, was visited by the grandfather of Japan's first emperor. After saving the daughter of that god of these places, Urashima Tarō is given a box that prevents him from aging. In *Journey to the West*, Ao Guang is one of four Dragon Kings who rule over these places. For 10 points, Ryūjin uses a pair of jewels to control the tides of what places?
ANSWER: **sea**s [or **ocean**s; prompt on bodies of water]
<MS, Mythology>

11. The narrator of a story by this author scribbles a quote from *The Brothers Karamazov* under an inscription reading, "Dear God, life is hell." In another story by this author, the title character quotes a haiku about "the voice of the cicada" and explains Vedantic reincarnation before possibly drowning during a swimming lesson. The five-year-old Charles entertains himself with the riddle "what did one wall say to the other wall?" in a story by this author, which ends as "Sergeant X" receives a wristwatch from the title English choirgirl. The protagonist of a story by this author describes how the title animals eat themselves to death during a day at the beach with Sybil Carpenter. For 10 points, name this author of "For Esmé – with Love & Squalor" and "A Perfect Day For Bananafish."
ANSWER: J. D. **Salinger** [or Jerome David **Salinger**] (The story in the second sentence is "Teddy.")
<HG, American Literature>

12. L. David Mech ("meech") began his study of these animals at Purdue University as part of a project initiated by Durward Allen. The term "landscape of fear" was first used to describe effects caused by these animals. In a debated example of a top-down trophic cascade, these animals facilitated the recovery of riparian vegetation such as willow trees and cottonwoods. Introgression via interbreeding with a related species is a threat to reintroducing the extirpated "red" species of these animals in the southeastern US. The oscillatory population cycles of these animals and moose are studied in the world's longest running predator–prey study on Lake Superior's Isle Royale. For 10 points, what keystone species and apex predator was reintroduced in the 1990s to Yellowstone National Park?
ANSWER: **wolves** [or **wolf**; accept specific species like gray **wolves** or red **wolves** or _**Canis lupus**_ or _**Canis rufus**_; prompt on _canis_ or _canid_s or _canine_s]
<MS, Biology>

13. An extended metaphor in this poem compares the dismembering of a right leg to an old tree uprooting from a cliffside and rolling down it. A catalog of mounted depictions of the Seven Deadly Sins in this poem includes Lechery riding a "bearded goat" and Gluttony atop a "filthie swyne" ("filthy swine") in the train of the female demon Lucifera. Antagonists in this poem include the shapeshifting Archimago and the giant Despair. This poem was the first to be written in a mixed-meter nine-line stanza form now named for its author. The middle sections of this poem center on the themes of chastity and friendship and feature the heroine Britomart. The most read of this poem's six completed books is its first, which features Una and the Redcrosse Knight. For 10 points, name this epic poem by Edmund Spenser.
ANSWER: _The **Faerie Queene**_
<TH, British Literature>

14. A woman based in this city was "ambushed" in a New York office by spies aided by Joseph Kabila, according to a report by _+972 Magazine_ and _Local Call_. That report found that Fatou Bensouda was subject to six years of surveillance while working in this city. A man working in this city was sent a letter signed by 12 Republican Senators that cited the American Service-Members' Protection Act, which is sometimes nicknamed this city's "Invasion Act." Karim Khan works for an institution in this city that named Yoav Gallant in an arrest warrant over an ongoing conflict. That conflict is subject to a lawsuit brought by South Africa and heard in this city's Peace Palace. For 10 points, legal cases regarding the war in Gaza have been levied by the ICC and ICJ, which are located in what city in the Netherlands?
ANSWER: The **Hague** [or Den **Haag**; or 's-**Gravenhage**]
<EC, Current Events>

15. Adam Gordon stares at a painting of this scene every day while high on pills as the "first phase" of his artistic "project" in Ben Lerner's novel _Leaving the Atocha Station_. A tall, crowded depiction of this scene was painted by the founder of the first School of Fontainebleau, Rosso Fiorentino, and is usually named for the town of Volterra. A group of people in light blues and pinks stand in the back of a depiction of this scene by Jacopo Pontormo. In a painting of this scene, the pose of the central figure resembles a crossbow to reflect its commission by a guild of archers. In that version of this scene by Rogier van der Weyden, Mary faints as Nicodemus and Joseph of Arimathea hold a dead body. For 10 points, name this scene in which Christ is lowered from the cross.
ANSWER: **Descent** from the Cross [of **Deposition** of Christ; accept **Entombment** of Christ; prompt on descriptions of taking Christ off the cross]
<TM, Painting and Sculpture>

16. Many graduates of this modern-day country's Mohyla Academy became itinerant tutors called *diak* that gained a reputation for singing and beer guzzling. A town in this country hosted negotiations to form the "Republic of Three Nations" through the Treaty of Hadiach ("HOD-yotch"). A group predominantly in this modern-day country coalesced around fortifications called *sich* ("seech") built in forest clearings of a region named for its location "beyond the rapids." Independence for that group predominantly from this modern-day country was sought by their leader Ivan Mazepa. In this modern-day country's Left Bank, a semi-independent Hetmanate was founded after the Khmelnytsky Uprising. For 10 points, name this modern-day country where the Zaporozhian Host of Cossacks settled along the Dnieper River.
ANSWER: **Ukraine** [or **Ukraina**]
<EC, European History>

17. A lyrical E-flat major piece in this genre is the first of seven by Johann Nepomuk Hummel. Charles Rosen used the "tinkling" sonority of a period instrument to explain its prominence in a set of works in this genre. The widow Rebecca Schroeter was the dedicatee of three pieces in this genre numbered 38 through 40, one of which is nicknamed for the use of *verbunkos* dance and other Hungarian effects in its Rondo finale. Three pieces in this genre comprise Beethoven's Opus 1. A later Beethoven piece in this genre was nicknamed for an eerie slow movement that reminded Carl Czerny of the opening scene of *Hamlet*, while yet another is named for its dedication to Rudolph of Austria. For 10 points, Beethoven's *Ghost* and *Archduke* are in what chamber genre that features violin, cello, and a namesake keyboard instrument?
ANSWER: **piano trio** [prompt on trio]
<JC, Classical Music>

18. Far-field approximations in multipole expansions allow for sub-quadratic complexity in this system, such as in the Barnes–Hut treecode algorithm. Small perturbations in this system lead to large changes in motion in the first-studied "small denominators" problem, which in simulations can be adjusted by applying a "softening parameter" to the potential. The Jacobi integral is an invariant for a form of this system that is "restricted," which produces five equilibrium points named for Lagrange. In the simplest form of this system, one can fix a reference frame about the center of mass and use the reduced mass, allowing one to derive Kepler's three laws for a form of this system. For 10 points, name this system concerning the orbits of objects in gravitational central force problems.
ANSWER: **n-body** problem [accept **two-body** problem or **three-body** problem or accept **planetary** problem; prompt on orbits until read]
<MY, Physics>

19. A work rejecting Aristotle's influence on this discipline, titled *Concerning the Supposed Dependence of* [this discipline] *upon Philosophy*, was written by Ali Qushji. An Ilkhanate scholar based in Maragheh developed the "Tusi-couple" in a commentary on a work in this discipline. The triquetrum was one of many devices used in this discipline described in a treatise by Jamshid al-Kashi. A work on this discipline that introduced Indian numerals to the Arabic world was named after the region of Sindh and worked on by al-Khwarizmi. Islamic books on this discipline were often based on the "Handy Tables" expanding on the *Almagest*; those books were known as *zij* ("zeej"), such as the *Zij-i Sultani*. For 10 points, Ulugh Beg set up a school for what discipline in Samarkand at an observatory?
ANSWER: **astronomy** [accept **stargazing** or **observing star**s or equivalents; accept **_zij_** until read; accept *Concerning the Supposed Dependence of **Astronomy** upon Philosophy*; prompt on mathematics or geometry or arithmetic by asking "what discipline were those used in?"; prompt on science; reject "astrology"] (The second line refers to al-Tusi's *Commentary on the Almagest*.)
<AK, World History>

20. This prefix denotes a research program that titles a Duranton and Puga paper analyzing sharing, matching, and learning mechanisms of urban agglomeration. Decision analyst Ronald Howard created a unit that uses this prefix to measure a type of risk. Robert Lucas claimed Keynesian economics lacked principles whose name begins with this prefix. A branch of economics named for this prefix was expanded by John Hicks's book *Value and Capital*. "Foundations" named for this prefix study agents' behavior in the context of a whole economy. A branch of economics with this prefix is applied to evaluate a society's well-being in welfare economics. For 10 points, name this prefix that names a branch of economics studying the decisions of firms and individuals.
ANSWER: **micro**- [or **micro**foundations; or **micro**economics; or **micro**mort]
<NS, Social Science>

Bonuses

1. A model named for this property assumes that electrostatic interactions are sufficiently screened and that the probability of collision is inversely proportional to relaxation time. For 10 points each:
[10m] Name this property of electrons in the Drude–Sommerfeld model, an extension of which is named for electrons that "nearly" have this property. Electrons with this property are not bound to atoms.
ANSWER: **free** [accept (nearly) **free** electron model]
[10e] The free electron model also assumes this result in which each quantum state contains at most one electron.
ANSWER: **Pauli exclusion** principle
[10h] The nearly free electron model can be derived by adding a small perturbation to this other model that contains a vanishingly small periodic potential, which allows free electrons to travel unperturbed.
ANSWER: **empty lattice** model [or **empty lattice** approximation]
<MY, Physics>

2. The *Nātyaśāstra* ("NAHT-yuh-SHAH-struh") explains how *prahasana* examples of this art form impart "good counsel" to people from all walks of life by allowing *rasa* ("RUH-suh") to be cultivated by the *bhāva* ("BAH-vuh"), or mood, of its participants. For 10 points each:
[10m] Name this art form of a work known in English as *The Hermit and the Harlot*. The *Nātyaśāstra* reports how works in this form were viewed in square, rectangular, or triangular venues.
ANSWER: **drama** [or **theater**; accept **play**s; accept **act**ing; accept **dance**] (*The Hermit and the Harlot* is a common translation of *Bhagavadajjukam*.)
[10e] *The Hermit and the Harlot* and other early Sanskrit dramas in this broad genre included a stock character called the *vidūshaka* ("vih-DOO-shuck-uh"). In Greek drama, this genre was represented by the muse Thalia.
ANSWER: **comedy** [or **farce**]
[10h] A series of comedic misunderstandings pervade this ten-act Sanskrit play by Shudraka ("SHOO-druh-kuh"). In this play, the courtesan Vasantasenā ("vuh-sun-tuh-SAY-nah") uses an object belonging to her impoverished lover to store her jewels.
ANSWER: The **Little Clay Cart** [or **Mrcchakatika**]
<TH, World Literature>

3. Answer the following about examples in the philosophy of language that involve the planet Venus, for 10 points each.
[10m] The description of Venus as both the "morning star" and the "evening star" is a classic example from this Gottlob Frege ("FRAY-guh") paper. Its two title concepts respectively denote what a name expresses and what object it indicates.
ANSWER: "On **Sense and Reference**" [or "On **Sense and Nominatum**"; or "On **Sense and Denotation**"; or "Über **Sinn und Bedeutung**"]
[10e] Hilary Putnam wrote that the claim "Venus has carbon dioxide in its atmosphere" should be able to have this property regardless of one's theory. Two terms must both have this Boolean value for their logical conjunction, or AND, to have it.
ANSWER: **true** [or word forms like **truth**]
[10h] Scott's claim about Venus being an "inferior planet" recurs throughout a Donald Davidson paper titled "On Saying [this word]." David Kaplan prefixed this word with the letter "d" to form a reference-fixing operator.
ANSWER: **that** [accept "On Saying **That**"; accept **dthat** ("D-that")]
<TM, Philosophy>

4. Two brothers with this family name, Lifu and Guofu, founded the CC Clique, an extreme faction of the Kuomintang. For 10 points each:
[10h] A governor with the given name Yi and what family name was executed for his role in suppressing the 228 incident?
ANSWER: **Chen** [or **Chan**; accept **Chen** Yi; accept **Chen** Lifu; accept **Chen** Guofu]
[10m] The influential "four big families" of the Republic of China included the Chen family and this family. Sun Yat-sen married the middle of three famous sisters belonging to this family.
ANSWER: **Soong** [or **Sòng**; accept **Soong** sisters; accept **Soong** Ai-ling; accept **Soong** Ching-ling; accept **Soong** Mei-ling]
[10e] This patriarch of one of the "four big families" extended his influence by marrying the youngest of the Soong sisters, Mei-ling. This leader of the Kuomintang retreated to Taiwan after his defeat in the Chinese Civil War.
ANSWER: **Chiang** Kai-shek [or **Jiang** Jieshi; or **Chiang** Chung-cheng]
<AK, World History>

5. A collection of jars found at Deir el-Medina depict a deity of this domain clutching snakes in each hand; that deity of this domain was also depicted as a lion standing on its hind quarters. For 10 points each:
[10h] Name this domain embodied by a god depicted above Horus on the Metternich Stela. A deity of this domain is shown protecting Sobek in the *Book of the Faiyum*, and is often given the epithet "Mistress of the Horizon."
ANSWER: child**birth** [or **midwifery** or **obstetrics**; or word forms; accept **motherhood** or **maternity** or **fertility** or **pregnancy**]
[10m] The childbirth god Bes is often depicted alongside this childbirth goddess who has a crocodile tail, sagging breasts, and the head of a hippopotamus.
ANSWER: **Taweret** [or **Tawaret**; or **Taueret**; or **Taurt**; or **Tuat**; or **Tuart**; or **Twert**; or **Thoeris**; or **Taouris**; or **Toeris**]
[10e] In another myth, the goddess Nut is only able to give birth after this ibis-headed god of knowledge and wisdom gambles with the moon for five extra days of the year.
ANSWER: **Thoth**
<MS, Mythology>

6. Polybius extolled a queen of this kingdom as the "mother of four sons," two of which visited her city of origin in an episode similar to the story of Cleobis and Biton. For 10 points each:
[10m] Name this kingdom whose queen Apollonis ("app-uh-LO-nis") was given divine honors in a Teos inscription calling her "Eusebes Apobateria" ("yoo-seh-BEEZ app-oh-buh-TEE-ree-uh"), or "pious, she who disembarks." The Attalid dynasty ruled this kingdom.
ANSWER: **Pergamon** [or **Pergamum**; accept **Pergamene** Kingdom; accept **Attalid** kingdom until read]
[10h] Dolores Mirón has discussed how Apollonis represented an ideal to citizen Greek women, as she was not of royal blood, but was a native of this city. Mindarus died in a 410 BCE naval battle near this Mysian ("MIZ-ee-un") city that was won by Athens.
ANSWER: **Cyzicus** ("SIZ-ick-us") [or **Kyzikos** or **Kúzikos**; accept **Aydıncık**; accept Battle of **Cyzicus**; accept Apollonis of **Cyzicus**]
[10e] Apollonis's epithet of Apobateria has been linked to Aphrodite, who was associated with many queens of this period. This period of Greek history followed the Classical period and began with the death of Alexander the Great.
ANSWER: **Hellenistic** period [reject "Hellenic period"]
<AT, Other History>

7. This word opens the titles of all four woodcuts in the series *Meltdown*, which reduce famous artworks into 4-by-3 pixel grids. For 10 points each:
[10h] Name this word that appears first in the title of a 1981 "rephotography" series by a member of the Pictures Generation. That series titled for this word includes an image of the sharecropper's wife Allie Mae Burroughs.
ANSWER: **after** [accept *After* Walker Evans]
[10e] Sherrie Levine's series *After Walker Evans* rephotographs Evans's images from this period, during which Dorothea Lange shot *Migrant Mother*.
ANSWER: Great **Depression** [accept **Dust Bowl**]
[10m] Levine added the subtitle "Buddha" in a bronze feminist reproduction of this artwork, which may have been created by Elsa von Freytag-Loringhoven. Alfred Stieglitz photographed this artwork for the journal *The Blind Man*.
ANSWER: ***Fountain*** (by Marcel Duchamp)
<TM, Painting and Sculpture>

8. In a movie by this director, Nani is murdered and reincarnated as a housefly, which doesn't stop him from protecting his neighbour Bindu. For 10 points each:
[10h] Name this director of *Eega*. In a movie by this director shot in two languages, soldiers form a ball with their shields after being launched over a city's walls with a catapult.
ANSWER: S. S. **Rajamouli** ("RAH-juh-mao-lee") [or Koduri Srisaila Sri **Rajamouli**] (The latter movie is *Baahubali*.)
[10m] Rajamouli received international recognition for this Telugu-language movie. This 2022 movie imagines the real-life revolutionaries Alluri Sitarama Raju and Komaram Bheem teaming up to save a girl from Bheem's village.
ANSWER: ***RRR*** [or ***Roudram Ranam Rudhiram***]
[10e] *RRR*'s musical number "Naatu Naatu" is the second song in an Indian language to win an Oscar for Best Original Song. The first was A. R. Rahman's song "Jai Ho" from this 2008 film about a game show contestant.
ANSWER: ***Slumdog Millionaire***
<AR, Pop Culture>

9. *Note to moderator: Read the answerline carefully.* Popular open-source firmware suites for this functionality include Paparazzi, PX4, and one prefixed "Ardu." For 10 points each:
[10h] Name this functionality provided by firmwares that use the MAVLink protocol to communicate with tools like Mission Planner on ground control stations. Firmware for this functionality must work in many configurations, such as VTOL ("V-toll").
ANSWER: **autopilot**s [accept **flight controller**s or **flight control** software; accept **flight management**; accept **UAV controller**s; accept **fly**ing **aircraft**, **plane**s, **UAV**s, **drone**s, or **autonomous** vehicles; accept **pilot**ing **aircraft**, **plane**s, **UAV**s, **drone**s, or **autonomous** vehicles; prompt on ArduPilot; prompt on flying or piloting; prompt on actuation by asking "for what purpose?"]
[10m] A PixHawk standard named for this word dictates how flight controllers should interface with base board hardware. This word follows "Universal Serial" in the name of devices often compatible with Thunderbolt ports.
ANSWER: **bus** [accept Universal Serial **Bus**]
[10e] Flight controllers often use measurement units described by this term that contain accelerometers and gyroscopes. This term refers to an object's tendency to maintain its current motion in the absence of external forces.
ANSWER: **inertia** [accept **inertial** measurement units]
<AP, Other Science>

10. This author dithers over whether to purchase a Christmas tree in a poetic record of his thoughts during December 1963, *Tape for the Turn of the Year*. For 10 points each:
[10h] Name this American poet whose work generously employed colons. A book-length poem by this author was inspired by the "secularized sacred rite" he observed while driving past a landfill in Florida.
ANSWER: A. R. **Ammons** [or Archie **Ammons**; or Archibald Randolph **Ammons**] (The poem is *Garbage*.)
[10e] Harold Bloom's monograph *The Ringers in the Tower* praises Ammons for creating "alternate realities" like this poet. This poet's collection *Harmonium* includes "Thirteen Ways of Looking at a Blackbird."
ANSWER: Wallace **Stevens**
[10m] Ammons wrote *Tape for the Turn of the Year* on a roll of tape used for one of these objects. Mr. Zero dies and is sent to the Elysian Fields in an Elmer Rice play titled for one of these objects.
ANSWER: **adding machine**s [accept *The **Adding Machine***; prompt on <u>calculator</u>s or <u>calculating machine</u>s or <u>machine</u>s]
<HG, American Literature>

11. Answer the following about Santali, a Munda language spoken around West Bengal unrelated to most Indian languages, for 10 points each.
[10m] Santali is the westernmost major language in this family that includes many minority languages spoken in inland pockets of Indochina. Vietnamese, Mon, and Khmer are the major branches of this language family.
ANSWER: **Austroasiatic** [reject "Austronesian"]
[10e] For Santali, Raghunath Murmu developed Ol Chiki, which is this type of writing system in which both vowels and consonants are independent letters. Vietnamese uses one of these scripts based on Latin.
ANSWER: **alphabet**s
[10h] Reconstructing Proto-Austroasiatic is difficult due to extensive language contact. Malcolm Ross coined this English term for a network of related languages that evolved from a dialect continuum, only share innovations with nearby neighbors, and poorly fit a tree model.
ANSWER: **linkage**s
<OL, Social Science>

12. Marjorie Joyner oversaw over 200 beauty schools founded by this woman before developing her own permanent wave machine. For 10 points each:
[10m] Name this woman who became the US's first female self-made millionaire through her cosmetics and hair care line for Black women.
ANSWER: Madam C. J. **Walker** [or Sarah **Breedlove**; accept Madam C. J. **Walker** Manufacturing Company]
[10e] Joyner achieved much of her success in this city, where she helped organize the Bud Billiken Day Parade and other fundraisers around the historically Black Bronzeville neighborhood in its South Side.
ANSWER: **Chicago**
[10h] Joyner developed the United Beauty School Owners and Teachers Association with this Florida-based activist, who founded the National Council of Negro Women and led a division of the National Youth Administration in the 1930s.
ANSWER: Mary McLeod **Bethune** ("muh-CLOUD beh-THOON") [or Mary Jane **McLeod**]
<NS, American History>

13. Answer the following about jazz albums whose covers were designed by the artist Paul Bacon, for 10 points each.
[10m] This musician recorded "Crepuscule With Nellie" for an album with a Bacon cover in which he sits in a red wagon. Sonny Rollins played saxophone on the complex title track of this musician's 1957 album *Brilliant Corners*.
ANSWER: Thelonious **Monk** [or Thelonious Sphere **Monk**; accept ***Monk**'s Music*]
[10h] Signed testimonials by George Shearing and Ahmad Jamal appear on Bacon's cover for an album titled *Everybody Digs* this musician. This musician briefly quit playing when his bassist died in a car crash at age 25.
ANSWER: Bill **Evans** [or William John **Evans**] (The bassist is Scott LaFaro, who died shortly after the recording of Sunday at the *Village Vanguard* and *Waltz for Debby*.)
[10e] Bacon overlaid an image of this instrument over a cornucopia on his cover for the LP *Horn of Plenty* by Dizzy Gillespie, who was known for playing a bent version of this brass instrument.
ANSWER: **trumpet**
<AP, Other Fine Arts>

14. To justify proclaiming a new kingdom, this ruler infamously interpreted abstentions and no votes predicated on religious freedom as yes votes. For 10 points each:
[10h] Name this ruler that sent his son of the same name to lead the Ten Days Campaign, which was stopped by French intervention. This ruler remained hostile to a new nation until signing the 1839 Treaty of London.
ANSWER: **William I** [or **Willem I**; or **Willem Frederik**; accept **William I** of the Netherlands; prompt on William or Willem; reject "William the Silent" or "William of Orange"]
[10m] Catholics and Liberals allied in the revolution against William I that formed this country. A riot over an opera set in Italy was the immediate spark of that revolution in this modern-day country.
ANSWER: **Belgium** [or Kingdom of **Belgium**; or **België**; or **Belgique**; or **Belgien**]
[10e] William I was the first king of this dynasty to rule the Kingdom of the Netherlands. This dynasty governed the Dutch Republic under William the Silent and Maurice.
ANSWER: **Orange** [or **Oranje**; or House of Orange-**Nassau**; or Huis van Oranje-**Nassau**]
<EC, European History>

15. The Freundlich equation models this process until a saturation pressure is reached, after which it fails to be accurate. For 10 points each:
[10m] Name this process modelled by the Langmuir ("LANG-myoor") isotherm. MOFs ("moffs") with high rates of this process are used in carbon capture mechanisms.
ANSWER: **adsorption** [accept word forms like **adsorb**; reject "absorption"]
[10e] The statistical mechanical derivation for the Langmuir model assumes that adsorbates behave as these substances, which are described by the equation "*PV* equals *nRT*."
ANSWER: **ideal gas**es [or **perfect gas**es]
[10h] These structures form when atoms adsorb onto the surface of a single crystal. These structures, which can be classified as "commensurate" or "incommensurate," are described by Wood's notation.
ANSWER: **overlayer**s
<MY, Chemistry>

16. Mikhail Bakhtin introduced "monologic" and "dialogic" subdivisions of this form, distinguishing stylistic agreement between authors and narrators within works in this form. For 10 points each:
[10h] Name this Russian literary form first codified by Boris Eikhenbaum. This form is characterized by stories with narration and dialect reminiscent of oral literature and folk tales.
ANSWER: *skaz*
[10e] Eikhenbaum first coined the concept of *skaz* in an essay about this Nikolai Gogol story, in which Akaky Akakievich loses the title garment.
ANSWER: "The **Overcoat**" [or "The **Cloak**" or "**Shinyel**"; accept "How Gogol's ***Overcoat*** Was Made"]
[10m] Walter Benjamin's essay "The Storyteller" praises the *skaz* stories of this author, such as "The Tale of Cross-eyed Lefty from Tula and the Steel Flea." A novella by this author analogizes Katerina Ismailova to a Shakespeare villainess.
ANSWER: Nikolai **Leskov** (The novella is *Lady Macbeth of the Mtsensk District*.)
<HG, European Literature>

17. This test requires constructing a contingency table whose values are the number of synonymous versus nonsynonymous substitutions and polymorphisms in the gene of interest. For 10 points each:
[10h] Name this doubly-eponymous statistical test used to distinguish between positive and negative forms of natural selection by comparing variation within a species and between species.
ANSWER: **McDonald–Kreitman** test [prompt on MKT]
[10m] Departure from the null hypothesis of the McDonald–Kreitman test is quantified by an index named for this adjective. A theory of molecular evolution described by this adjective was developed by Motoo ("mo-TOH") Kimura.
ANSWER: **neutral** [accept **neutral**ity index; accept **neutral** theory of molecular evolution]
[10e] McDonald and Kreitman developed their namesake test while studying the gene that codes for alcohol dehydrogenase, which oxidizes this two-carbon alcohol produced during fermentation into acetaldehyde.
ANSWER: **ethanol** [or **ethyl alcohol**; or **EtOH**; or **C2H6O**]
<MS, Biology>

18. Religious leaders in this location inherit a pair of brass knives, a brass bell, and brass cups and disks representing a set of mythical triplets. For 10 points each:
[10h] Name this geographic location where those religious leaders, known as *shimbang*, memorize and recite narratives of gods known as *bon-puri*.
ANSWER: **Jeju** Island [or **Jeju**do; prompt on Korea or Korean Peninsula]
[10e] Those Jejudo practices belong to a broad religious tradition of Korea centered on *mu*, who are often compared to these people. This generic term is used for religious figures who enter trances to contact the spirit world.
ANSWER: **shaman**s [accept **shaman**ism; accept **medium**s; prompt on psychics or seers]
[10m] Jejudo tradition venerates Munshin as the primary god of this domain, which *musok* traditions believe is protected by Gashin deities. Before the New Year, honey is often smeared on the lips of an effigy of a different god of this domain.
ANSWER: **house**hold [or **house**s or **home**s; accept specific places or rooms in **house**s like **kitchen**s; accept **door**s to the house; accept **Kitchen** God]
<AK, Religion>

19. Answer the following about the literary career of gay English author J. R. Ackerley, for 10 points each.
[10h] Ackerley wrote a 1968 memoir titled for one of these people "and Myself." One of these people is the first title figure of the best-known memoir by Edmund Gosse ("goss").
ANSWER: **father**s [or **dad**s; accept My **Father** and Myself or **Father** and Son; prompt on parents]
[10e] Ackerley wrote the travel book *Hindoo Holiday* after he was secured a passage to India by this other gay author. This was fitting, since this novelist wrote *A Passage to India*.
ANSWER: E. M. **Forster** [or Edward Morgan **Forster**]
[10m] Ackerley's best-known memoir details the bowel movements and sexual proclivities of Tulip, one of these characters. In a novel by Jerome K. Jerome, three men are accompanied down the Thames by a subtitular character of this type.
ANSWER: **dog**s [accept My **Dog** Tulip; accept **Alsatian** or **German Shepherd** or fox **terrier**; accept *Three Men in a Boat (To Say Nothing of the **Dog**)*]
<TH, British Literature>

20. In the much-delayed premiere of this symphony, Lou Harrison failed to restore the dissonant "shadow lines" its composer removed from the original pencil sketches. For 10 points each:
[10h] Name this symphony for chamber orchestra depicting the religious gatherings that also inspired its composer's fourth violin sonata. Fading church bells marked with five *p*'s end this symphony's "Communion" finale.
ANSWER: Charles **Ives**'s Symphony No. **3** [or Charles **Ives**'s **Third** Symphony; or The **Camp Meeting**]
[10e] Ives grumbled about "badges of mediocrity" after winning this prize for *The Camp Meeting*. Columbia University awarded William Schuman the first iteration of this prize alongside those for Letters and Drama.
ANSWER: **Pulitzer** Prize for Music
[10m] Jonathan Blumhofer declared "the finest symphony by an American composer before Ives" to be this Boston-based composer's E minor *Gaelic* Symphony.
ANSWER: Amy **Beach** [or Amy Marcy Cheney **Beach**]
<JC, Classical Music>