



# ACADEMIC COMPETITION FEDERATION

## 2023 ACF NATIONALS

**Prelims 3**

**Packet By**

**Florida A, Imperial A, Western A**

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## TOSSUPS

1. *Description acceptable.* An employee of this place responds “I will do nothing to harm you” after another character cryptically yells “You swear and I swear!” at him. A location in Toronto named for John P. Robarts likely inspired this place, which contains an object with the “power of a thousand scorpions.” A map of this place is marked with initials that stand for words like *Aegyptus*, *Gallia*, and *Yspania*. After solving a riddle by pressing the first and seventh letters of the word “quatuor,” a mirror in this place is revealed to be a door. After sneaking out of this place through the kitchen, a character has sex with a peasant girl who leaves him an ox heart. The lovers Malachi and his assistant Berengar are the only two people who can access this place and its secret room, the *finis Africae*. For 10 points, name this location where Jorge of Burgos eats a poisoned copy of Aristotle’s *Poetics* in a novel about Italian monks by Umberto Eco.

ANSWER: the **library** from *The Name of the Rose* [accept the *finis Africae* until read; accept *Il nome della rosa* in place of “*The Name of the Rose*”; prompt on **library** by asking “from what work of literature?”; prompt on the **Aedificium** by asking “what location within the Aedificium?”; prompt on the **abbey** from *The Name of the Rose* by asking “what location within the abbey?”]

<European Literature>

2. Taxi drivers in this city violently rioted in protest of a monopoly on airport transportation held by the Murray Hill Limousine Service. It’s not Boston, but thieves in this city stole 18 paintings, including *Landscape with Cottages* by Rembrandt, after rappelling from an art museum’s roof in the “Skylight Caper.” Sports fans in this city rioted on Saint Patrick’s Day after Clarence Campbell suspended a star player for the season. White Ribbon Day was founded to honor 14 victims in this city who were killed by an anti-feminist gunman at a polytechnical school. This city’s stock exchange was bombed by a domestic terrorist group emboldened by the “Quiet Revolution.” James Cross was abducted from his diplomatic residence in this city by the “Liberation Cell,” precipitating the October Crisis. For 10 points, name this Canadian city that endured tumultuous post-war years despite the success of Expo 67.

ANSWER: **Montreal** [or **Montréal**]

<Other History>

3. The proscription against using these words in ceremonial Tewa (“TAY-wah”) speech, which is enforced by physical punishment, is analyzed by Paul Kroskrity (“kross-KRIT-ee”) as a mechanism for maintaining highly conventionalized liturgical speech. A five-level scale for what types of words are likely to be used as this kind of word was created by Thomason and Kaufman. Heinrich Hübschmann’s identification of the large number of these words in Armenian allowed him to correct a mistaken classification made by earlier scholars. Words that are [emphasize] *unlikely* to be this kind of word make up the Leipzig–Jakarta list and the Swadesh list, which consist largely of core vocabulary. These words are similar to calques (“kalks”), except that they do not involve translation. For 10 points, linguistic purism often involves opposition to what words exemplified in English by “schadenfreude” and “kimono”?

ANSWER: **loan**words [or lexical **borrowings**; or **borrowed** words; or **importations**; accept **foreignisms** or **foreign words**] (Before Hübschmann, Armenian was wrongly thought to be an Iranian language, but it in fact just has a high proportion of Iranian loanwords.)

<Social Science>

4. During this activity, singers called *nahham* (“nah-HAHM”) performed *bahri* (“bah-ree”) songs that evolved into the genre of *fidjeri* (“FIDGE-ree”) music. “Skinning” after this activity was perfected by Moro villagers of Jolo loyal to the Sultan of Sulu. Forced chastity was believed to improve Lucayan slaves’ performance in this activity on Venezuela’s Cubagua (“koo-BAH-gwah”) island. Greased cotton and tortoise shells aid in this activity undertaken by the Paravar people around the Gulf of Mannar (“muh-NAR”). A pidgin language named for luggers has emerged in this activity’s global center at Broome in Western Australia. Mikimoto Kōkichi’s seeding innovations led to a higher demand of *amas* (“AH-mahs”) for this activity in Ise (“ee-SAY”) Bay. A trail including the Bu Mahir Fort commemorates this activity on Bahrain’s Muḥarraq (“moo-HAH-rahk”) Island. For 10 points, people who perform what activity “naked,” or without specialized equipment, may risk decompression sickness while retrieving a prized good from mollusks?

ANSWER: **pearl** fishing [or **pearling**; or **pearl** diving; or **pearl** harvesting; or word forms such as fishing for **pearls**; accept Bahrain **Pearling** Trail; accept **Pearling** Path; prompt on **fishing** or **diving** or word forms by asking “for what?”]

<Geography>

5. Industrial production of a form of this enzyme active at low pHs relies on *Kluyveromyces fragilis* (“cloy-VAIR-oh-MY-seez fra-JILL-iss”). A protocol to detect this enzyme involves alkalization of lysosomes followed by incubation with C12FDG. A form of this enzyme active at a pH of 6 is the most common biomarker for senescent cells. The pUC19 (“puck-nineteen”) plasmid codes for an N-terminal fragment of this enzyme and is used in a molecular cloning screen that exploits the association between this enzyme’s alpha and omega subunits. PETG (“pet-G”) inhibits this enzyme, while IPTG binds a repressor protein to induce the transcription of a polycistronic mRNA that encodes this enzyme, a permease (“PERM-ee-ace”), and a transacetylase (“trans-uh-SEE-tull-ace”). The blue/white screen and other colorimetric assays rely on this enzyme’s cleavage of X-gal. For 10 points, the *lacZ* gene encodes what enzyme that generates glucose and an eponymous monosaccharide by cleaving lactose?

ANSWER: **beta-galactosidase** [accept **lactase** until “lactose” is read; accept **LPH**; accept **lacZ** until read; prompt on **galactosidase**; prompt on glycoside **hydrolases**, glycosyl **hydrolases**, **GHS**, or **exoglycosidases**]

<Biology>

6. During this observance, Sakineh’s voice narrates much of the *nowheh* (“NO-heh”) poetry performed by girls. A central voice in poetic narrations during this observance is that of a woman who became the spiritual “conqueror of Damascus” after she addressed its court after the Night of the Dispossessed. Women’s gatherings during this observance occur in places called *zaynabiyyeh*. Vocalizing during this observance displays solidarity with a historical *jihād*, so an *imam* will intercede on the Day of Judgment for the people, often women, who ritually weep during it. *Ta’ziyeh* are reenactments of the event commemorated by this observance, which also involves *matam*, or chest-beating. The permissibility of *tatbir*, or self-flagellation, during this observance is contested. For 10 points, Āshūrā’ takes place on the tenth day of what month-long observance, during which Shias mourn the martyrs of the Battle of Karbala?

ANSWER: mourning of **Muharram** [accept **Azadari**; accept **Sogvari**; accept **Aza-e-Hussain**; accept **Āshūrā’** until read; prompt on **grieving Husayn** or **commemorating Husayn** or **remembering Husayn** or similar answers; until “Karbala” is read, prompt the dead from **Karbala** in place of “Husayn”]

<Religion>

7. A choreographer from this country created hundreds of dances in a few years for his troupe Choreographic Miniatures. This country's pantomime-heavy "dram-ballets" ("drahm-bal-ays") include one that contains a *pas de deux* between Jeanne and Philippe, *The Flames of Paris*. A member of this country's Messerer ("meh-seh-RAIR") family of dancers taught the star of Alberto Alonso's *Carmen Suite*. A woman from this country wrote *Basic Principles of Classical Ballet*, which details the slow-and-steady approach to her namesake method of teaching. A tea-house dancer sends a ship captain the title poppy in a ballet from this country with an oft-excerpted "Sailors' Dance." A composer from this country wrote "adagios" for his ballets *Gayane* ("gah-yah-NAY") and *Spartacus*. For 10 points, name this country whose biggest theaters included the Kirov and the Bolshoi.

ANSWER: **Soviet Union** [or **USSR** or Union of **Soviet** Socialist Republics; or **CCCP** or **SSSR** or Soyuz **Sovetskikh** Sotsialisticheskikh Respublik; accept **Russia** or **Rossiya**; accept **Russian** Federation or **Rossiyskaya** Federatsiya; accept Soviet **Armenia**, **Armenian** Soviet Socialist Republic, **Hayastan**, or **Haykakan**] (The clues include the choreographer Leonid Yakobson, the dancer Maya Plisetskaya, Agrippina Vaganova, *The Red Poppy*, and Aram Khachaturian.)

<Other Fine Arts>

8. This author wrote biographies of both Joseph Banks and Pablo Picasso, the latter of whom he befriended in Collioure ("call-YOOR"). A character created by this author feeds alcohol to a friend's sloth, prompting the friend to complain "You have debauched my sloth!" One of this author's characters elbows another in the ribs for beating time too enthusiastically during a performance of a string quartet by Pietro Locatelli on the island of Menorca. The cousins Sophia Williams and Diana Villiers are the wives of two friends created by this author who often play violin and cello together despite their sharply contrasting personalities. This author completed 20 historical novels about a Royal Navy captain and his ship's surgeon, including *The Fortune of War* and *Master and Commander*. For 10 points, name this author of the Aubrey–Maturin series.

ANSWER: Patrick **O'Brian** [or Richard Patrick **Russ**]

<British Literature>

9. Guillaume Boccara classed these people's military actions into vindictive attacks called *tautulun*, defensive wars called *weichan*, and a type of rapid supply raid. Catalina de Erauso received the rank of ensign while fighting these people, passing as a man, and later becoming immortalized as the "Lieutenant Nun." Pelantaro led an uprising of these people that ended in the Battle of Curalaba. These people launched *malón* cattle raids and had their toes cut off by a commander who was killed after the Battle of Tucapel by Caupolicán. Unrest among these people caused the "destruction of the seven cities" south of the Biobío River. An epic by Alonso de Ercilla fictionalized a leader of these people named Lautaro. The Tehuelche were "Araucanized" by these people, who were displaced during the Conquest of the Desert. For 10 points, Pedro de Valdivia conquered what native people of Southern Chile?

ANSWER: **Mapuche** [accept **Araucanians** or **Araucanos** or *La Araucana* until "Araucanized" is read]

<World History>

10. Labcyte's Echo devices create and eject these objects using acoustic energy. The McCarroll lab developed a protocol named for these objects that makes beads called STAMPs ("stamps") that are coated in RNA. These objects are made by vortexing Span-80, Tween-80, and sodium deoxycholate ("dee-oxy-KO-late") in a technique for high-throughput enzyme evolution called IVC. Reagents are added to these objects by picoinjectors. Flow focusing generates these objects by mixing two streams at a T- or Y-shaped junction on a chip. Digital PCR generates trillions of these objects, each of which contains zero or one copy of DNA. These objects act as mini-reactors in a common format for microfluidics, where they are formed by emulsifying picoliters of water in oil. A Taylor cone disperses bioanalytes into these objects during electrospray ionization. For 10 points, surface tension holds together what spherical beads of liquids?

ANSWER: liquid **droplet**s [accept **droplet** microfluidics; or **Drop**-seq; prompt on **emulsions** until read; prompt on **compartments**; prompt on **micelles**; prompt on **electrospray**]

<Chemistry>

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11. This man wrote an encouraging letter to his son that said “do you not know, my son, with how very little wisdom the world is governed?” This man sent his son to accompany and oppose the legate (“LEG-it”) Adler Salvius at a diplomatic conference. This man directed the government deliberations that caused his country to attack a region governed by Hannibal Sehested (“SAY-huh-sted”). This man corresponded extensively with the Dutch merchant Samuel Blommaert (“BLOM-art”) to set up a New World colony with his country’s “South Company.” This man negotiated the advantageous terms of the Truce of Altmark with the Polish–Lithuanian Commonwealth. This man directed the Heilbronn (“HILE-brohn”) League after a ruler whom he had advised died at the Battle of Lützen (“LOOT-sin”). For 10 points, what statesman acted as Lord High Chancellor in the courts of Queen Christina and Gustavus Adolphus of Sweden?

ANSWER: Axel **Oxenstierna** (“ook-sen-SHWANN-ah”) [or Axel Gustafsson **Oxenstierna** of Södermöre]  
<European History>

12. One of these objects is told “be quiet... lest Typhon seize you” on an amulet made of hematite, one of many amulets designed to control them. After a failed defense that hinged on Mary Glover owning a defective one of these objects, Edward Jordan wrote a treatise on their “Suffocation.” After he is betrayed by his daughters, King Lear feels one of these objects “[swell] up towards [his] heart.” Soranus of Ephesus contradicted Aretaeus of Cappadocia’s view that these objects, which he called the “animal within the animal,” moved and released venomous vapors. Joseph Campbell analogizes the tomb to one of these objects in a discussion of coming “full circle.” Hippocrates claimed that these objects engaged in “wandering” that caused ailments including hysteria, which takes its name from the Greek for this organ. For 10 points, Galen worried that what organ was suffocated by menstrual blood?

ANSWER: **wombs** [or **uterus** or **uteri**; accept wandering **womb**; accept **hyster** until “hysteria” is read; prompt on mother or *The Suffocation of the Mother*; prompt on matrix]  
<Other Academic>

13. The protagonist of a play by this author is rejected by her lover Freddy after he learns of her pregnancy, but later becomes a successful single mother who starts a thriving legal practice. A collection of three essays by this author includes “Writing While Black and Female” and “Black, Female, and the Superwoman Black Feminist.” In a novel by this author, the protagonist’s teacher takes her to a local urban center to sell ears of corn, where a white couple gives her ten pounds. This author of the play *She No Longer Weeps* opened a novel with the confession “I was not sorry when my brother died.” A novel by this author begins with the death of Nhamo, who had been studying away from home with his uncle Babamukuru and his cousin Nyasha. For 10 points, name this Zimbabwean author who wrote about Tambu’s efforts to attend school in her novel *Nervous Conditions*.

ANSWER: Tsitsi **Dangarembga** (The essay collection is “Black and Female.”)  
<World Literature>

14. A dotted-eighth, sixteenth, eighth, dotted-quarter rhythm in 6/8 (“six-eight”) time opens the dissonant E minor third movement of this work, named for an Italian folk dance. After critics complained about the levity of this work, its composer responded “The dead are sad enough, in their eternal silence.” In his orchestration, the composer of this work used an oboe solo for the rapidly cascading melody of its opening prelude, which is in 12/16 (“twelve-sixteen”) time. A soft, chordal musette serves as the trio of this work’s G major minuet, which follows a rigaudon. Zoltán Kocsis (“ZOL-tahn COACH-eesh”) orchestrated the fugue and toccata movements of this work, which its composer’s orchestration had omitted. This work’s composer dedicated each of its movements to a friend who had perished in World War I. For 10 points, what suite of piano pieces by Maurice Ravel is named for a deceased French Baroque composer?

ANSWER: *Le tombeau de Couperin* (“luh tom-BOH duh coop-RAN”) [or *The Grave of Couperin*, *The Tomb of Couperin*, *Couperin’s Tomb*, or similar translations]  
<Classical Music>

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15. James Currie and Jasper Kane discovered a way to circumvent this industry while developing a product for Pfizer. Walter Swingle contributed to a five-volume history of this industry with Herbert John Webber, who later led an “Experiment Station” that was eventually incorporated into the University of California, Riverside. The town of Upsala was founded by Swedish immigrants recruited to work primarily in this industry at Belair by Henry Shelton Sanford. An 1894 “Great Freeze” caused this industry to move south along new railroad tracks laid by Henry Flagler. On live television, Thom Higgins pied in the face a spokesperson for this industry who led the anti-gay “Save Our Children” campaign. Anita Bryant advertised this industry, which has navigated a namesake “greening” disease called *huánglóngbīng* and medfly infestations. For 10 points, name this industry whose fruit trees were introduced by the Spanish to Florida.

ANSWER: **orange** industry [or **orange** juice industry; accept **citrus** industry; accept **Citrus** Experiment Station; accept Florida **Citrus** Commission; accept **citrus** black spot or **citrus** canker; prompt on **limes** or **lemons** by asking “that industry is more broadly classified by what industry?”; prompt on **fruit** industry until “fruit” is read; prompt on **juice** industry; prompt on **farming** or **agriculture** or **orchards**]

<American History>

*Note to moderator: Read the answerline carefully.*

16. A measurable form of this quantity is given by the convolution of parton (“PAR-tawn”) distribution functions with the “hard” form of it. This quantity is given by the following: “one over the flux factor,” times the integral over Lorentz-invariant phase space of “some delta functions times the squared magnitude of the amplitude, denoted capital M.” In partial wave analysis, this quantity is: “four pi over  $k$  squared,” times the sum over  $L$  of the expression: “ $2L$  plus one,” all times “sine-squared of the  $L$ th phase shift.” This quantity equals “four pi over the wave number,” all times the “imaginary part of the scattering amplitude evaluated at 0” by the optical theorem. This quantity equals the integral over the solid angle of its differential, which is a function of the impact parameter and scattering angle. For 10 points, name this quantity that is the area of the target as seen by the incoming particle in a scattering process.

ANSWER: **cross section** [accept total **cross section** or integrated **cross section** or scattering **cross section**; accept partonic **cross section**, parton-parton **cross section**, parton collision **cross section**, or hard-scattering **cross section**; accept Lorentz-invariant **cross section**; after “differential” is read, accept **differential cross section**; until “differential” is read, reject “differential cross section”; reject any other more specific forms of cross section]

<Physics>

17. One of these objects titles a painting in which a boy holds a platter while gazing right at a standing woman in a nearly reflective blue top and white skirt; that painting is by Gerard ter Borch (“khuh-RART tair BOR-ukh”). A painting titled for one of these objects shows a woman pulling a green curtain aside to reveal a grisaille (“griz-EYE”) seascape and is part of a thematic pair by Gabriël Metsu (“HAH-bree-ell met-sue”). A version of Peter Lely’s *Finding of Moses* occupies the upper-right corner of a painting titled in English for one of these objects, in which a bored-looking woman in gray is illuminated from the upper left. One of these objects titles a painting in which a pair of discarded slippers rest near a broom and a crumpled mess of sheet music. In that painting, a seated woman who holds a lute and one of these objects looks up toward her standing maid. For 10 points, what paper objects are shown being created or inspected in a number of paintings by Jan Vermeer?

ANSWER: love **letters** [accept *The Love Letter* or *De liefdesbrief*; accept *Lady Writing a Letter With Her Maid*; accept *The Letter* or *De brief*; prompt on **papers** until “paper” is read]

<Painting & Sculpture>

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18. A thinker from this country wrote about the lives and deaths of two chameleons that she was given by an ambassador in Alexandria in a work that presents a vitalist theory of animal life. Frederick the Great delivered a eulogy for a philosopher from this country who was sheltered by the Prussian court after publishing controversial ideas about the continuity between humans and animals. Mechanistic early modern philosophers from this country include the authors of *Man a Machine* and *Syntagma Philosophicum*, the latter of whom tried to reconcile Epicurean atomism with Christian philosophy. The “beast machine” doctrine was introduced by a philosopher from this country whose book *Passions of the Soul* presents the pineal gland as the seat of the soul. For 10 points, name this home country of René Descartes.

ANSWER: **France** [or Kingdom of **France**; or Royaume de **France**] (The first three philosophers are Mademoiselle de Scudéry, Julien Offray de la Mettrie, and Pierre Gassendi.)

<Philosophy>

19. In a short story titled for this phenomenon, three men realize they have been walking in circles when they find two of their dead companions with fungus growing from their mouths. In a short story, this phenomenon drives Pickard insane, causing Simmons to shoot him before he also succumbs to this phenomenon and asks the lieutenant to abandon him on their journey to a dome. A short story titled for this phenomenon is set on the day of Mr. Featherstone’s birthday and the anniversary of Tilita’s marriage. This phenomenon [emphasize] *stops* once every seven years in a short story that ends with Margot’s classmates remembering they had locked her in a closet. In a short story set on August 4, 2026, an uninhabited automated house that has survived a nuclear bomb reads a poem titled for this phenomenon by Sara Teasdale. For 10 points, the title of a Ray Bradbury short story promises “There Will Come” what weather phenomenon?

ANSWER: **rain** [accept **rainstorm**; accept “There Will Come **Soft Rains**”; accept “The **Long Rain**”] (The fourth sentence refers to “All Summer in a Day.”)

<American Literature>

20. Two of these groups are isomorphic whenever their Ulm invariants are equal. By a corollary to Schur’s lemma, irreducible representations of these groups are one-dimensional. The torsion elements of one of these groups form a subgroup. In homological algebra, sequences of these groups and homomorphisms between them are the prototypical example of chain complexes. A theorem about these groups is generalized by the structure theorem for finitely generated modules over a principal ideal domain. A subgroup of one of these groups must be a normal subgroup. These groups are equal to their own center. Every finite one of these groups can be expressed as a direct sum of cyclic groups of prime power order. One example of these groups is the integers under addition. For 10 points, name these groups whose binary operation is commutative.

ANSWER: **abelian** (“uh-BEEL-ee-in”) groups [accept **commutative** group until “commutative” is read; until “representation” is read, prompt on **countable** group or  $p$ -groups by asking “what other type of group is being referred to?”; until “finite” is read, prompt on **finite** groups by asking “what other type of group is being referred to?”] (The theorem in the fifth sentence is the fundamental theorem of finite abelian groups, which is stated in the eighth sentence.)

<Other Science>

## BONUSES

1. In 2003, Mike Brown, Chad Trujillo (“troo-HEE-yo”) and David Rabinowitz observed this astronomical body at nearly 100 AU, which was further than any Solar System object previously observed. For 10 points each:

[10h] Name this body with an orbital period of about 11,000 years. The red color of this body is similar to that of Pholus.

ANSWER: **Sedna** [or 90377 **Sedna**; accept **2003 VB12**]

[10m] Sedna’s red surface coloration is likely caused by these compounds that are likened to complex organic gunk. Carl Sagan and Bishun Khare coined the name for these compounds while studying Titan’s atmosphere.

ANSWER: **tholins**

[10e] Sedna might be the first observed object from this hypothetical region. This region, which is far, far beyond the Kuiper (“KYE-pur”) belt, was proposed by its eponymous Dutch astronomer.

ANSWER: **Oort** (“ort”) **cloud** [accept Öpik–**Oort cloud**]

<Other Science>

2. Pope Alexander III (“the third”) sent his physician Philip as a failed papal envoy to this ruler. For 10 points each:  
[10m] Name this ruler of India who supposedly wrote a letter asking Manuel I Komnenos “if [he] held the right faith like us.” Otto of Freising’s (“FRY-sing’s”) *Chronicle* says that this Christian ruler had stormed Ecbatana “not many years ago.”

ANSWER: **Prester John** [or **Presbyter Johannes**; prompt on **John**]

[10e] John II of Portugal tasked this explorer with locating Prester John on a sea voyage, but sent Pêro da Covilhã (“koo-veel-YAH”) by land. While on the expedition, this explorer sailed around the Cape of Good Hope for the first time.

ANSWER: Bartolomeu **Dias**

[10h] At the Cape of Good Hope, Dias erected one of these monuments to mark his expedition’s progress. Explorers often marked notable stops with these stone pillars, which were topped with a cross and the Portuguese coat of arms.

ANSWER: **padrão** (“pah-DROW”) [or **padrões** (“pah-DROH-ays”)]

<Other History>

3. In the second-most common design for photovoltaic thin films, copper indium gallium selenide lies below a window layer of this element’s sulfide. For 10 points each:

[10m] Name this element that is [emphasize] *directly* bonded to tellurium in the most common photovoltaic thin film.

ANSWER: **cadmium** [or **Cd**]

[10e] The cadmium sulfide layer in a CIGS (“sigs”) solar cell lies underneath a conducting film of tin oxide that has this optical property. Indium tin oxide is used in electronics because it has this property of transmitting nearly all light.

ANSWER: **transparent** [or **transparency**; accept **transparent** conducting oxides]

[10h] The third-most common photovoltaic thin film absorber is amorphous silicon that has undergone this process to remove dangling bonds. Chemical formulas represent silicon that has undergone this process as: “Si,” then a colon, then a capital letter.

ANSWER: **hydrogenation** [or **hydrogen** incorporation or **hydrogen** impregnation; or alloying with **hydrogen**; accept any descriptions of the addition of **hydrogen** or **H**; accept **hydrogenated** amorphous silicon; prompt on **reduction** or word forms of **reduce**; prompt on **passivation** or word forms of **passive** or **passivate**]

<Chemistry>



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4. E. Ann Kaplan argues that Anne Baxter’s role in *The Blue Gardenia* is an exception to this genre’s typically male gaze. For 10 points each:

[10e] Name this genre of film whose seductive “femme fatale” characters include Mary Astor in *The Maltese Falcon* and Phyllis in *Double Indemnity*.

ANSWER: film **noir** [prompt on detective films]

[10m] This title femme fatale of a 1946 film performs a striptease to “Put the Blame on Mame” to anger her ex-lover, the gambler Johnny Farrell. Rita Hayworth plays this character, who is introduced with an iconic hair flip.

ANSWER: **Gilda** [or Gilda **Mundson**]

[10h] This woman gained fame for playing the femme fatale role in *They Drive By Night*. She became the sole female director of Hollywood noirs, tackling taboo subjects in films like *The Bigamist* and *The Hitch-Hiker*.

ANSWER: Ida **Lupino**

<Other Fine Arts>

5. The narrator of an essay constructs a metaphor about this place to explain why he spends his time copying politically inoffensive ancient inscriptions instead of writing. For 10 points each:

[10h] Identify this indestructible, windowless, metaphorical place described in the preface to a story collection. It is the subject of a dilemma in which you could let its sleeping residents suffocate painlessly or shout to wake them up to an agonizing death.

ANSWER: the **iron house** [or the **iron room**; or **tiě wū**; prompt on house or room or wū]

[10e] This writer compared China’s “spiritual malaise” to an iron house in *Call to Arms*, which includes this author’s “The True Story of Ah Q.”

ANSWER: **Lǚ Xùn** (“loo shwin”) [or **Lu** Hsün; or **Lu** Sun; or **Zhōu** Shùrén or **Chou** Shu-jen]

[10m] Ah Q is arrested despite failing to become a revolutionary and asked to sign his confession with one of these things, but he is mortified by not drawing this thing perfectly.

ANSWER: a **circle** [or **yuánquān**; prompt on shape; reject “sphere”]

<World Literature>

6. Al-Maghīlī “replied” to a series of seven “questions” posed by this ruler about the intersection of Islam and the state. For 10 points each:

[10m] Name this ruler who founded a namesake West African dynasty after usurping the son of Sonni ‘Alī in 1493.

ANSWER: **Askia Muhammad** [or **Askia Muhammad I**; or **Muhammad** ibn Abī Bakr **Ture**; prompt on Muhammad; prompt on Askia dynasty]

[10e] Askia Muḥammad restored the prevalence of the Sankoré Madrasah in this city, where Mansa Mūsā earlier commissioned al-Sāhili to design the Djinguereber Mosque.

ANSWER: **Timbuktu** [or **Tombouctou**]

[10h] Scholarship on the Songhai Empire and the reign of Askia Muḥammad is grounded in this historical account produced by the Kāti family, which forms the “Timbuktu Chronicles” with a “History of the Sudan” written by al-Sa‘dī.

ANSWER: **Ta’rīkh al-fattāsh**

<World History>

7. In 2014, a Metropolitan paid a historic visit to an elderly hermit from this tradition who has lived in a remote log cabin near the Sayan Mountains for her entire life. For 10 points each:

[10m] Name this religious group that maintains liturgical traditions from before a 17th-century series of reforms by Nikon.

ANSWER: **Old Believers** [or **Old Ritualists**; or **starověry**; or **staroobryádtsey**]

[10e] One of the most contentious splits between Old Believers and new-style Orthodoxy is the former's use of just two fingers when performing this ritual, which involves touching one's head, chest, and both shoulders.

ANSWER: the sign of the **cross** [or signum **crucis**; or **crossing** oneself]

[10h] Old Believers use seven instead of five of these leavened loaves of bread in the Divine Liturgy. Square Lamb pieces are cut out of these loaves that are stamped with the sign of the Theotokos and blessed with the sign of the cross.

ANSWER: **prosphora** [or **prosporon**; prompt on the **Eucharist**]

<Religion>

8. This economist drew on work by Paul Samuelson to develop a canonical version of the overlapping generations model. For 10 points each:

[10m] Name this economist who modeled a search economy via a scenario in which individuals only climb trees to pick coconuts if they believe enough other people are also doing so.

ANSWER: Peter **Diamond** [or Peter Arthur **Diamond**; accept **Diamond** coconut model]

[10e] Overlapping generations models are often used to model this phenomenon, which is the subject of the Solow–Swan model.

ANSWER: economic **growth** [or economic **growth** rate; accept long-run economic **growth**]

[10h] Diamond's overlapping generations model can display this type of inefficiency, in which the economy is constantly investing more than it is earning in profit.

ANSWER: **dynamic** inefficiency

<Social Science>

9. This composer's song cycle *Winter Morning Walks* won the 2014 Grammy Award for Best Classical Contemporary Composition. For 10 points each:

[10h] Name this composer and leader of her namesake "orchestra," a jazz ensemble that attacked big data companies in their 2020 album *Data Lords*.

ANSWER: Maria **Schneider** [or Maria Lynn **Schneider**; accept Maria **Schneider** Jazz Orchestra]

[10m] *Winter Morning Walks*, which was originally written for Dawn Upshaw, was recomposed for this American soprano. This soprano's collaborations with composer Kevin Puts include *The Brightness of Light* and *The Hours*.

ANSWER: Renée **Fleming** [or Renée Lynn **Fleming**]

[10e] *Winter Morning Walks* was first recorded by this country's Chamber Orchestra. Musicians from this country include violinist Ray Chen, the comedy duo TwoSet Violin, and sopranos Joan Sutherland and Nellie Melba.

ANSWER: **Australia** [or Commonwealth of **Australia**; accept **Australian** Chamber Orchestra]

<Classical Music>

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10. In the second act of this play, Steve's joke about a white man with a black cellmate sparks a flurry of crude and offensive jokes. For 10 points each:

[10m] Name this Bruce Norris play in which Bev and Russ spurn their neighbors for mistreating Kenneth, their son who committed suicide after serving in the Korean War.

ANSWER: ***Clybourne Park***

[10e] Norris's play *Clybourne Park* is a response to this author's play about the Younger family, *A Raisin in the Sun*.

ANSWER: Lorraine **Hansberry** [or Lorraine Vivian **Hansberry**]

[10h] Along with Hansberry's play and Bruce Norris's sequel, this play by Kwame Kwei-Armah completes the *Raisin Cycle*. This play chronicles the title character's experiences as a medical student in Nigeria and later as an elderly faculty member at a California university.

ANSWER: ***Beneath's Place***

<American Literature>

11. An event that lies outside of one of these constructs is spacelike relative to the event that defines it. For 10 points each:

[10m] Name these constructs that are formed by the 45-degree lines emanating from an event on diagrams whose temporal axis is scaled by  $c$ .

ANSWER: **light cones** [accept **null cones**; prompt on **cones**]

[10e] Light cones help visualize causal relationships in this theory. A foundational postulate of this theory says that the laws of physics are the same in all inertial reference frames.

ANSWER: **special relativity** [or **special** theory of **relativity**; or **SR**; prompt on **relativity**]

[10h] One of these statements specifies that the spectrum of the four-momentum must lie within the closed future light cone. The Haag–Kastler framework and these statements both express the properties required to construct mathematically sound relativistic quantum field theories.

ANSWER: **Wightman** (“WHITE-mun”) **axioms** [or Gårding–**Wightman axioms**]

<Physics>

12. The 1978 death of a member of this organization named James Ramp, in Powelton Village led to the conviction of nine activists who have been released from prison in the past five years with help from a self-styled “progressive prosecutor.” For 10 points each:

[10h] Name this organization whose leader, Gregore Sambor, issued instructions to “let the fire burn” during an event that caused his resignation in 1985.

ANSWER: **Philadelphia Police** Department [or **Philadelphia PD**] (The “progressive prosecutor” is Larry Krasner.)

[10m] Sambor resigned over the bombing of the headquarters of this Black liberation group, who stylized their name in all caps, despite it not being an acronym.

ANSWER: **MOVE** [or American **Christian Movement for Life**; or **Christian Life Movement**]

[10e] Like most MOVE members, the survivors of the bombing shared an adopted surname in reference to this place. Marcus Garvey supported a concept of immigration “back to” this place.

ANSWER: **Africa** [accept back-to-**Africa**; accept Ramona **Africa**; accept Birdie **Africa**]

<American History>

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13. Parmeniscus of Metapontum lost the ability to perform this action after visiting the oracle of Trophonius. For 10 points each:

[10h] The crone Baubo was associated with what action, which the Tirynthians (“teer-IN-thee-ins”) did to a detrimental degree? According to Antoninus, Demeter transformed Ascalabus (“as-CAL-uh-bus”) into a gecko for performing this action.

ANSWER: **laughing** [or **laughter**; accept **laughing** at her or **laughing** at Demeter; prompt on **joking**, telling **jokes**, **jesting**, **smiling**, or **smiles**]

[10m] Parmeniscus was cured of his inability to laugh when he saw an ill-shaped piece of wood purported to be a statue of this goddess. This goddess transformed some Lycian peasants into frogs for denying her access to a fountain.

ANSWER: **Leto** [or **Latona**]

[10e] Chrysippus (“cry-SIP-us”) of Soli supposedly died of laughter while watching one of these animals eating figs. Lucius transforms into one of these animals in a Roman novel by Apuleius (“uh-POO-lee-us”).

ANSWER: **donkeys** [or **asses**; accept *The Golden Ass* or *Asinus aureus*; prompt on **equines** or **equids**; reject “mules”]

<Mythology>

14. A poem titled for this university begins “Softly I am leaving, / Just as softly as I came; / I softly wave goodbye / To the clouds in the western sky.” For 10 points each:

[10h] Name this university where a stone bears an inscription of lines from Xú Zhímó’s (“shoo jurr-mwoh’s”) best-known poem, which is about leaving this university.

ANSWER: **Cambridge** University [accept “On Leaving **Cambridge**,” “Leaving **Cambridge** Again,” “Farewell Again, **Cambridge**” or “Saying Good-bye to **Cambridge** Again”; accept “Zài Bié **Kāngqiáo**”]

[10m] This poet declared “For Cambridge people rarely smile” in “The Old Vicarage, Grantchester.” A sonnet by this poet begins “If I should die, think only this of me” before describing “rich earth” with “a richer dust concealed.”

ANSWER: Rupert **Brooke** [or Rupert Chawner **Brooke**] (The sonnet is “The Soldier.”)

[10e] This poet described his “Residence at Cambridge” in the third book of his long autobiographical poem, *The Prelude*.

ANSWER: William **Wordsworth**

<British Literature>

15. Philosophers in this culture emphasized the importance of “rootedness,” the ability to maintain balance on the “slippery” earth. For 10 points each:

[10m] Name this culture that introduced a word for “betweenness” that is often used in anthropology. Much of what we know about their philosophy comes from a 12-book ethnography by a Franciscan friar.

ANSWER: **Aztecs** [or **Nahua**; or **Mexica**] (The word is “Nepantla.”)

[10h] Aztec philosophers used this term for the continuously regenerating force that permeates the cosmos.

ANSWER: **teotl** (“TAY-oh-tull”) [or *Ometeotl*]

[10e] James Maffie accordingly argues that the Aztecs believed in this doctrine, which states that the universe consists of only one type of thing.

ANSWER: **monism** [or **monist**; accept ontological **monism**; accept constitutional **monism**; accept substance **monism**]

<Philosophy>

16. When Gregory the Great learned that slaves from this kingdom were “Angles,” he punned “more like angels, if they were Christian.” For 10 points each:

[10h] Name this kingdom that Gregory said would be rescued “from wrath” based on its name and should “sing Alleluia” because its king was Ælla in two more bad Latin puns. Oswiu tried to seize this kingdom from Oswine.

ANSWER: **Deira** [or Kingdom of **Deira**; or **Deifr**; accept Oswine of **Deira**; prompt on **Northumbria**; reject “Northumberland”] (Gregory thought Deira would be rescued *de ira*, or “from wrath.”)

[10e] Gregory the Great’s puns are related in this author’s *Ecclesiastical History of the English People*, which he wrote at a monastery in Jarrow in Northumbria.

ANSWER: **Bede** [or Saint **Bede**; or the Venerable **Bede**; or **Bede** the Venerable]

[10m] Gregory the Great sent a missionary of this name as his “Apostle to the English.” Another saint with this name exchanged extensive correspondence with his student Quodvultdeus (“KWOAD-wult-DAY-oos”), whose name means “what God wills.”

ANSWER: **Augustine** [accept Saint **Augustine** of Hippo or Aurelius **Augustinus** or Aurelius **Augustinus** Hipponensis; accept Saint **Augustine** of Canterbury]

<European History>

17. In one of this novel’s lengthy digressions on farming, a character mows grass alongside peasants on the estate he owns. For 10 points each:

[10m] Name this novel in which that character bemoans the cluelessness of urbanites that accompany him on a hunting trip. Another character in this novel changes his mind about proposing marriage while picking mushrooms.

ANSWER: **Anna Karenina**

[10e] This handsome count continues his affair with Anna Karenina in the countryside after her social exile.

ANSWER: Count **Vronsky** [or Count **Alexei** Kirillovich Vronsky]

[10h] Unusually, this elderly character in *Anna Karenina* gets a few paragraphs of stream-of-consciousness narration describing her impatience during a snipe hunt. You may give her name or a description of the character.

ANSWER: **Laska** [or Konstantin **Levin**’s **dog**; or **Konstantin** Levin’s **dog**; accept **canine**, **setter**, **gun dog**, bird **dog**, or hunting **dog** in place of “dog”; prompt on the **dog** in *Anna Karenina* by saying “please give either the name of the dog or the name of its owner”; prompt on less specific answers like **animals** or **mammals** or **pets** by asking “what kind of animal?”]

<European Literature>

18. Nezahualcoyotl creates a batlike flying machine in this mural, which depicts ectoplasmic versions of Hitler, Mussolini, and Stalin in opposition to inventors like Robert Fulton. For 10 points each:

[10h] Name this mural at San Francisco’s City College, partly painted by Emmy Lou Packard and Thelma Johnson Streat. In this mural, Cōātlīcuc (“ko-aht-LEE-kway”) joins the machines of North America with South America’s Indigenous arts.

ANSWER: **Pan American Unity** [or **Pan American Union**; or **Unión de la Expresión Artística del Norte y Sur de este Continente**; or **The Marriage of the Artistic Expression of the North and of the South on this Continent**]

[10e] The Museo Dolores Olmedo preserves many paintings by this primary artist of *Pan American Unity*, who also painted *Man at the Crossroads*.

ANSWER: Diego **Rivera** [or Diego María de la Concepción Juan Nepomuceno Estanislao de la **Rivera** y Barrientos Acosta y Rodríguez]

[10m] Rina Lazo assisted Rivera on *Dream of a Sunday Afternoon at Alameda Central Park*, whose central figures are José Posada and this creation of his, an iconic female skeleton who wears a large hat and is associated with Day of the Dead.

ANSWER: La Calavera **Catrina**

<Painting & Sculpture>

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19. Answer the following about halotolerance mechanisms evolved by mangrove plants, for 10 points each.

[10h] To take up water under high salinity, mangrove tissues often reduce this energetic quantity by accumulating ions. At and beyond the turgor loss point, this quantity is usually equal to the total water potential.

ANSWER: **osmotic potential** [or **solute potential**; prompt on  $\pi$  or  $\psi$ -sub- $\pi$ , or  $\psi$ -sub-s]

[10m] Mangrove roots deposit suberin in the radial and transverse cell walls of endodermal cells to form this structure, which acts as a diffusion barrier to prevent salt from entering the apoplast.

ANSWER: **Casparian strip** [or **Casparian band**]

[10e] Some mangrove plants simply trap salt by using sodium–proton pumps to concentrate it into these storage organelles. A “central” one of these organelles in plant cells stores water and maintains turgor pressure.

ANSWER: **vacuoles** (“VACK-yoo-oles”) [accept central **vacuole**]

<Biology>

20. A former president of this country carries around a giant inflatable pencil referencing his party and wears a white, wide-brimmed hat from his home state. For 10 points each:

[10e] Name this country whose left-wing president Pedro Castillo (“kah-STEE-yo”) defeated Keiko Fujimori in 2021, but was voted out by his Congress in 2022 after attempting to dissolve it.

ANSWER: **Perú** [or Republic of **Peru**; or República del **Perú**; or **Piruw** Ripuwlika; or **Piruwxa** Ripuwlika]

[10h] Instead of impeachment, Castillo “vacated” the presidency after a congressional vote to declare this two-word status. In 2000, Alberto Fujimori fled to Japan but was still vacated due to this status.

ANSWER: **moral incapacity** [or permanent **moral incapacity**; or **incapacidad moral**]

[10m] Castillo’s supporters include Bolivia’s Luis Arce (“I’WEESE AR-say”), who compared his ousting to this politician’s 2019 overthrow of Evo Morales. In 2022, she was sentenced for 10 years for her role in the coup.

ANSWER: Jeanine **Áñez** (“jah-NEE-nay AHN-yess”)

<Current Events>