



**ACADEMIC
COMPETITION
FEDERATION**

ACF NATIONALS 2022

PACKET 15

Packet by

The Editors (6)

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TOSSUPS

1. This ruler is depicted as a mustachioed equestrian in the statue of him at Wongwian (“wong-wee-YEN”) Yai, where state ceremonies honor him every December 28th. His clothes were found in 1921 in a family shrine in Chenghai district, from which his ethnically Teochew (“t’YOH-choo”) father Haihong had migrated. Since it was sacrilegious for royal blood to touch the ground, plotters against this man tied him up in a velvet sack and beat him to death with quarterstaves after he went insane. This ruler stabilized the frontier by conquering the Lanna kingdom after leading a guerilla war to repel an occupation by the Konbaung (“kohn-baong”) dynasty of Burma. He established a new capital in Thonburi (“TONE-boo-ree”) to replace the devastated old capital of Ayutthaya (“uh-YOO-tuh-yuh”). For 10 points, name this king who reunified Thailand during the 18th century, which is why he is called “the Great.”

ANSWER: **Taksin** the Great [or **Thaksin** the Great, or Somdet Phra Chao **Taksin** Maharat, or **Zhèng Zhāo**, or **Dèn Chao**, or Trịnh **Quốc Anh**; accept King of **Thonburi** before “Thonburi”]

<World History>

2. In this city, an Irish-born astronomer built a namesake pile of rocks to test estimates of Earth’s circumference. The Neptunist-Plutonist dispute in geology was resolved by a formation near this city called the Precambrian Malmesbury (“MALMS-bree”) shale, which is found near this city’s wealthy Sea Point area. Maclear’s (“mac-lear’s”) Beacon is in this city, which is the most populous in the Fynbos (“FAYN-boss”) plant biome. A pass called Constantia Nek leads to a low-lying plain that includes the suburb of Mitchell’s Plain and is called this city’s “Flats.” The Breede (“BRAY-duh”) river valley north of this city is a natural wine region. Brightly painted houses dot this city’s Bo-Kaap area, home to many people of Malay ancestry. Devil’s Peak abuts a mountain in this city which is named for being topped by a plateau. For 10 points, Table Mountain overlooks what African city, which nearly ran out of water in 2018?

ANSWER: **Cape Town** [or **Kaapstad**; or **iKapa**]

<Geography>

3. This ethnic group’s music inspired a track from the album *When Strangers Meet* titled the “Legend of Heren,” written by a composer of this ethnicity named Sharav. A curved woodwind instrument made by this ethnic group is typically made of ebony, has a name meaning “horn-trumpet,” and sounds similar to a basset clarinet. Another instrument native to this group has “male” strings made of 130 hairs and “female” strings made of 105 hairs. A folk band of this ethnicity created the song “Black Thunder” for the video game *Star Wars Jedi: Fallen Order* and includes a player of the *tsuur* flute. Other instruments of this people include a clarinet called the *ever buree* (“ever BOO-ray”), the “horsehead fiddle” or *morin khuur* (“MO-rin KOOR”), and the *tovshuur* (“TOV-shoor”) lute from a sub-group of them called Oirats. For 10 points, name these people who, like the neighboring Tuvans, practice overtone throat singing.

ANSWER: **Mongols** [or **Mongolians**; accept **Oirats** before “Oirats”] (The first clue refers to Byambasuren Sharav.)

<Other Fine Arts>

4. A phrase from *Poor Richard’s Almanack* may be borrowed from a poem titled for this concept which describes the phrase “a penny saved is a penny got” as a “scoundrel maxim.” A wizard who personifies this concept is defeated by knights of Art and Industry in that poem, whose lines evoking a “pleasing land...of dreams that wave before the half-shut eye” are quoted as the epigraph to “The Legend of Sleepy Hollow.” Another poem titled for this concept describes its “summer” variety as like a “blissful cloud” which “benumb’d my eyes” after asking “How is it, Shadows! that I knew ye not?” This concept titles an allegory “in imitation of Spenser” by the Scottish poet James Thomson, and a poem that bids “Vanish, ye Phantoms! from my idle spright” in addressing “three ghosts,” who “toil not, neither do they spin.” For 10 points, one of John Keats’s odes is titled for what form of habitual laziness?

ANSWER: **indolence** [accept *The Castle of Indolence* or “Ode on **Indolence**”]

<British Literature>

5. Two complementary types of this property define a namesake cylindrical volume, which encloses an average number of photons given by a system's degeneracy parameter. The time-averaged cross-correlation between two electric fields is a "mutual" function measuring this property, which can be normalized to give the "complex degree" of this property. Sources with this property produce Poisson ("pwah-SAHN") statistics, exhibit neither bunching nor anti-bunching, and give no signal in a Hanbury Brown–Twiss experiment. This property's temporal form persists on a time scale of "one-over-bandwidth," beyond which a signal is uncorrelated with its delayed version. Along with collimation and mono-chromaticity, laser beams have this property, allowing them to form stable interference patterns. For 10 points, name this property of waves that share a frequency and a fixed relative phase.

ANSWER: optical **coherence** [accept word forms like **coherent**; accept spatial **coherence** or temporal **coherence**; accept **coherence** volume or mutual **coherence** function or complex degree of **coherence**]

<Physics>

6. This state-sponsored project greatly facilitated the migration of a religious group called the Molokans, who set up many flour mills and a thriving butter industry. The *SS Angara* supplemented this project by serving as a so-called "swimming bridge." This project's inauguration involved using a silver wheelbarrow to transport stone and dirt to be implanted near the Ussuri river. In "The Geographical Pivot of History," Halford Mackinder remarks that this project covers the "world-island," and hints that it is the culmination of the "conquering of the Turanian" exemplified by Yermak's expedition. This project, which was largely the brainchild of Sergei Witte ("VIT-tuh"), provided the main supply line of the Czechoslovak Legion and the land-based supply chain of the Pacific Route under Lend-Lease. For 10 points, what infrastructure project spanned Russia with a massive railroad?

ANSWER: The **Trans-Siberian** Railroad [or **Trans-Siberian** Railway or **Trans-Siberian** Express, or **Transsib**; accept any answer referring to building the **Trans-Siberian** railroad; prompt on answers indicating constructing railroads in **Russia**; prompt on **colonization** of **Siberia** or **settling** of **Siberia**; reject "conquest of Siberia"]

<European History>

7. Coelli ("koh-ELL-lee") and Rao used data envelopment analysis to construct a Malmquist index of this quantity while studying the impact of the Green Revolution. Balassa–Samuelson theory predicts that exchange rates and PPP will have lower values in countries where this quantity is lower. In a common technique from growth accounting, this quantity's change over time is approximated as: the change in GDP over time, minus two quantities multiplied by constants written as "alpha" and "one-minus-alpha." The growth residual approximates changes in this quantity. In the Solow ("solo") model, this quantity multiplies two exponentiated variables usually denoted K and L . It is often denoted with a capital A and considered a rough measure of an economy's technological advancement. For 10 points, what constant gives an economy's efficiency at turning capital and labor into output?

ANSWER: **total factor productivity** [or **TFP** or **multi-factor productivity**; prompt on **growth residual** before "growth residual;" prompt on **Solow residual** before "Solow"; prompt on **productivity** or **productivity residual** or **efficiency**; prompt on **technology** or **technological capital** or **human capital** before "technological"; prompt on **A** before "A"; reject "capital"]

<Social Science>

8. Emission lines from this element pump a transition in an ionized form of *another* element to produce Eta Carinae's ("EE-tuh kuh-REE-nay's") UV laser light. A sudden increase in this element's opacity facilitates the expanding photosphere method for distance measurement and produces a broad, flat plateau on the light curves of p-type events. Edward Pickering incorrectly attributed spectral features of Wolf-Rayet ("rah-YAY") stars to this element undergoing half-integer transitions, though in fact it is generally absent in those stars. Quasar ("KWAY-zar") spectra are masked by the intergalactic presence of this element, producing the short-wavelength Gunn-Peterson trough. An envelope of this element is present around Type II ("two") supernovae, which are characterized by the presence of absorption lines from its Balmer series. The Lyman-alpha line is absorbed by, for 10 points, what most abundant element in the universe?

ANSWER: **hydrogen** [or **H**]

<Misc. Science>

9. According to the *Scolica enchiriadis* ("EN-kee-ree-AH-diss"), this non-octave interval should be the distance between the *vox principalis* and *vox organalis* below it in organum ("ORGAN-um"). In Ancient Greek music theory, this interval is the distance between the *hypátē* ("hee-PAH-tay") and *mésē* ("MAY-say") scale degrees, and these intervals are broken into diatonic, chromatic, and enharmonic genera. This is the distance between the upper two voices in both trichords of a Lydian ("LID-ee-in") cadence. A *passus duriusculus* ("doo-ree-USS-koo-luss") spans this interval, as does a typical lament bass ("base"). This is the only interval that both was consonant in Medieval times and is dissonant in modern times. In just intonation, this interval is produced by the ratio of 4:3 ("four-to-three"). In early music theory, stacking two of these intervals produces a scale. Augmenting this interval by a semitone produces a tritone. For 10 points, what is the interval of a standard tetrachord?

ANSWER: perfect **fourth** [prompt on tetrachord before mentioned]

<Classical Music>

10. An old woman in this play has a limp because a bandit threw a ham through her window, which hit her in the back. In this play, a woman is given a cross on a silver chain as an engagement token from a soldier, who admits that he watches from a bush whenever the woman washes linen in the river by a willow. This play's protagonist marries a man whom she believes to be on his deathbed, but who recovers the instant he hears that the war is over and he can't be drafted. In this play's prologue, two village collectives meet to negotiate an irrigation project, and then listen to the singer Arkadi Tschaidse ("CHIDE-zuh") perform the title tale. In this play, the judge Adzak deems the peasant woman Grusha to be the true mother of Michael because she refuses to pull him too hard. For 10 points, what Bertolt Brecht play transplants a Yuan Dynasty play into modern-day Azerbaijan?

ANSWER: *The Caucasian Chalk Circle* [or *Der kaukasische Kreidekreis*]

<European Literature>

11. Since 2015, Luke Lavis' lab has given away these compounds for free to anyone who asks, including a set of them named for his Janelia research campus. These molecules form pi-stacked supra-molecular assemblies called J-aggregates. These molecules are linked to targets in SPDM-phymod ("S-P-D-M-fye-mod"). Boron difluoride dipyrromethene, or BODIPY ("bo-DIPPY"), is used as one of these molecules when conjugated to proteins. These molecules often contain aryl ("AIR-ill") groups linked by a pair of double-bonded nitrogens. The commercial Alexa series of these molecules was synthesized by sulfonating coumarins ("KOO-muh-rinz") and rhodamine. To exceed the diffraction limit in super-resolution microscopy, these molecules are repeatedly blinked on and off. For 10 points, name these molecules that contain chromophores ("CROW-moh-forz") or fluorophores ("FLOOR-oh-forz"), such as azo ("AY-zoh") derivatives or indigo.

ANSWER: fluorescent **dyes** [or **fluorophores** or **chromophores** until those words are read; prompt on fluorescent molecules or colored molecules or colorants; prompt on fluorescent tags; reject "pigment"; reject "stain"]

<Chemistry>

12. A tile-maker from this country who claimed to be married to a camel-footed she-demon is described in the book *Tuhami* by Vincent Crapanzano. Jewish and Muslim saints are thought to be buried in this country at Kaf al-Moumen. The shift from asking “What shall I believe?” to “How shall I believe it?” is exemplified by rediscovering the worship of al-Yusi in this country in what one book calls the “scripturalist interlude.” The city of Sefrou (“seh-FROO”) is in this country, as is a madrasa (“muh-DRAH-suh”) sometimes considered the world’s oldest extant university, named al-Qarawiyyin (“al-KAH-rah-wee-YEEN”). The veneration of *marabout* (“mah-rah-BOO”) scholar-saints in this country is contrasted with the Hindu-influenced rites of Indonesia in Clifford Geertz’s (“gurts’s”) *Islam Observed*. For 10 points, name this North African monarchy home to Meknes (“meck-NESS”) and Fes.

ANSWER: **Morocco** [or al-Mamlakah al-**Maghribiyah**]

<Religion>

13. In this novel, an odd illness compels a man to scratch his face whenever he looks at a mirror and leaves him mute except for the words “If only.” In this novel, a gullible constable who goes by his initials “A.G.” frequents the Mars Cafe. An underground group in this novel throws plastic snakes into crowds. Its six sections are each named for types of “daemons,” including “queueing daemons.” A man gives birth to “Baby Democracy” near this novel’s end, then bursts, releasing a stench over the city of Eldares. In this novel, the construction company clerk Nyawira (“n’yah-WEE-rah”) and her beggar lover Kamĩĩ (“kah-MAY-tay”) give advice under a shared pseudonym. The “Marching to Heaven” project aims to build a modern Tower of Babel in this novel’s nation of Aburĩria (“ah-boo-RAY-ree-uh”), to please an unnamed Ruler partly inspired by Daniel arap Moi. For 10 points, name this 2004 satire of African dictatorship, written in Gikuyu by Ngũgĩ wa Thiong’o (“ung-GO-gay wah thee-ONG-oh”).

ANSWER: **Wizard of the Crow** [or **Mũrogi wa Kagogo**]

<World Literature>

14. This thinker used variation in the apparent magnitude of the moon to argue that all visual perception is dependent on judgments of distance, in a reply to Pierre-Sylvain Régis (“pierre-sill-VAN ray-ZHEE”). This thinker argued that because all properties of extension reduce to “relations of distance,” bodies are not capable of active powers. Richard Sault and Thomas Taylor competed to publish the first English translations of this thinker’s magnum opus. This man, who was the target of *On True and False Ideas*, declared that God mostly works through general, rather than particular, volitions in the seventeen “elucidations” to his major work. Those elucidations were published in 1678, five years before this man entered into a two-decades-long dispute with Antoine Arnauld (“ar-NOH”). For 10 points, the idea that God is the true cause of everything appears in *The Search After Truth*, by what French proponent of occasionalism?

ANSWER: Nicolas **Malebranche** (“mal-BRONSH”)

<Philosophy>

15. *Description acceptable.* Helen Chenoweth-Hage’s (“CHEN-oh-weth-HAYJ’s”) House Resolution 77 tried to stop this action by claiming its central document was invalid due to differences between its English and non-English texts. This action would lead to a “bloodbath” and turn “309 million people against the United States,” according to Ronald Reagan during his primary against Gerald Ford. The ceremony officially marking this action was [emphasize] *not* attended by sitting president Bill Clinton, but rather by a former U.S. President, who stood on a machine called a “mule” in the presence of Juan Carlos I (“the-first”) of Spain and Mireya Moscoso. This action formally took place on December 31, 1999, twenty-two years after the abrogation of the Hay-Bunau-Varilla (“HAY-boo-NOW-bah-REE-yah”) Treaty. The Torrijos (“tor-REE-hohss”)–Carter treaty brought about, for 10 points, what event in which control of a 51-mile-long piece of maritime infrastructure was given to a Central American country?

ANSWER: **handover** of the **Panama Canal** [accept answers which indicate the **transfer** of control over the **Panama Canal** from the U.S. to Panama; accept **Torrijos–Carter** Treaty before “December 31” and prompt thereafter before “Torrijos”; prompt on **Panama Canal**]

<American History>

16. The modern use of this concept stems from an 1859 paper by the racist anthropologist John Crawfurd according to a book on this concept's "Myth" by Ter Ellingson. The use of this concept to describe those who did "whatever they had to" is criticized in an essay titled for its "ecological" form by Kent Redford. A Victorian essay titled for this concept mocks Spiritualism as a "private Umtargartie" ("OOM-tar-GAR-tee") and describes a traveling exhibit from Natal at the Saint George's Gallery. John Dryden's play *The Conquest of Granada* is the first recorded use of this two-word term, which Charles Dickens used to describe the archetype of George Catlin's paintings. Many erroneous summaries of the *Discourse on Inequality* claim that Rousseau used this two-word term to describe man in the "state of nature." For 10 points, name this stereotype of uncorrupted, uncivilized peoples.

ANSWER: the **noble savage** [or **bon sauvage**; accept *The Myth of the Noble Savage* or "The Ecologically **Noble Savage**"; prompt on savage]

<Other Academic>

17. A treatment for this disease activates the NPR-B receptor. Thanato-phoric ("THAH-nuh-tuh-FOR-ic") dysplasia ("dis-PLAY-sia") is allelic ("uh-LEE-lic") to this disease, which is treated by the C-type natri-uretic ("NAA-tree-yoo-RET-ic") peptide analog, vosoritide. In *The Origin of Species*, Darwin cites the example of Ancon sheep, which had this condition, as evidence against blending inheritance. Patients with this disease often require foramen ("foh-RAY-men") magnum decompression. A major risk factor for this disease is advanced paternal age, which increases the rate of mutations in glycine-380 of a particular protein. In this condition, which is often homo-zygous lethal, an activating mutation in FGFR3 inhibits the function of structures that undergo endo-chondral ("endo-KON-dral") ossification ("AH-sih-fication"), particularly growth plates of long bones. For 10 points, name this autosomal ("auto-SOH-mal") dominant disease that causes limb shortening and disproportionate short stature.

ANSWER: **a-chondro-plasia** ("ay-KON-dro-PLAY-sia") [prompt on short stature or dwarfism]

<Biology>

18. This book's narrator is repeatedly enjoined never to be *inaccrochable* by a woman whom he later overhears crying "Please don't. Please don't, pussy" to her lover, causing him to destroy their friendship by dashing out of the apartment without saying goodbye. This book's narrator is always called "Tatie" by his wife, and is one of two men who are promised a prize from the magazine *The Quarter* by a deceitful Irish poet who is repeatedly described as being "marked for death." In this book, the first of many big wins from gambling on horse races allows the narrator to eat a grand meal at Michaud's ("mee-SHO's") café with his wife, Hadley. The author describes giving boxing lessons to Ezra Pound and being there when Gertrude Stein coined the term "lost generation" in, for 10 points, what memoir about living in Paris as an expat, written by Ernest Hemingway?

ANSWER: *A **Moveable Feast***

<American Literature>

19. An essay by this historian argues that venerators of the "Railway King" are idolaters and attacks a proposed statue of the bankrupt financier George Hudson. This historian popularized the term "captain of industry" in a book that juxtaposes a biography of an abbot of Bury St. Edmunds with a discourse on how industry deprives meaning from the "modern worker." This historian criticized "Dizzy's" expansion of suffrage in an essay analogizing the 1867 Reform Act to going over the title waterfall. This author of *Latter-Day Pamphlets* and "Shooting Niagara" analyzed the "Condition of England Question" in the book *Past and Present*. One of John Stuart Mill's servants accidentally burned the first draft of this man's monumental history of the French Revolution. For 10 points, what Victorian writer's lectures *On Heroes and Hero-Worship* outlined the "Great Man" theory of history?

ANSWER: Thomas **Carlyle**

<Other History>

20. An artist from this country echoed Leonardo's *The Last Supper* for a painting showing five friends sharing a somber dinner from a rooftop terrace overlooking the title city. Before emigrating to Sweden, that painter from this country depicted her friend Traute Rose ("TRAO-tuh RO-zuh") in works like *In My Studio* and *The Tennis Player*. An artist from this country made a double portrait of Rasha the Black Dove and her fellow funfair performer Agosta, whose warped ribcage is called "Pigeon-Chested" in the work's title. A 1925 Gustav Hartlaub-curated exhibition in this country gave its name to a movement divided into Classicists and Verists. Another artist from this home country of Christian Schad produced a triptych in which a legless veteran hobbles down a street of prostitutes, while a band plays in an opulent nightclub. For 10 points, name this country whose New Objectivity movement included the artist of *Metropolis*, Otto Dix.

ANSWER: **Germany** [accept **Weimar** Republic; accept **Deutschland**]

<Painting/Sculpture>

BONUSES

1. This man is the probable target of a sonnet that compares his nose to a bearded swordfish, an askew sundial, and a face-up elephant. For 10 points each:

[10m] Name this Spanish Baroque poet, the exemplar of the *culteranismo* (“kool-tay-rah-NEEZ-mo”) style, whose appearance was mocked by his rival, Francisco de Quevedo (“kay-VAY-doh”).

ANSWER: Luis de **Góngora** (y Argote) [or Luis de Argote y **Góngora**]

[10e] To prove that Normans have as much courage as Gascons, Christian de Neuvillette (“nuh-vee-YET”) dares to repeatedly mock the big nose of this protagonist of an Edmond Rostand play.

ANSWER: **Cyrano de Bergerac** [accept either name]

[10h] One of the many strange lands visited by Rabelais’s (“rab-LAY’s”) Pantagruel is the island of Ennasin, whose incestuous inhabitants all have bizarre pet names for each other and noses in this specific shape.

ANSWER: shaped like the ace of **clubs** [prompt on three-leafed **clover**]

<European Literature>

2. Answer the following about musicologist Robert Levin and his engagement with Mozart’s music, for 10 points each.

[10e] Levin’s best-known composition is a completion of this choral work, left unfinished at Mozart’s death in 1791.

ANSWER: Wolfgang Amadeus Mozart’s **Requiem** in D minor, K. 626

[10m] Levin wrote a book on the authenticity of a supposed Mozart work in this genre for oboe, clarinet, horn, bassoon, and orchestra. A more famous Mozart work for violin, viola, and orchestra is in this genre, which hybridizes two other genres.

ANSWER: **sinfonia concertante** [or **symphonie concertante**; reject partial answer]

[10h] Over two decades, Levin recorded Mozart’s piano concertos with this English conductor, who founded a historically-informed ensemble called the Academy of Ancient Music.

ANSWER: Christopher **Hogwood**

<Classical Music>

3. Answer the following about group actions, which match each element of a group to a transformation of some mathematical structure, for 10 points each.

[10m] These objects are group actions that map elements to invertible matrices. In the theory of these objects, Maschke’s (“MAHSH-kuh’s”) theorem and Schur’s (“SHURR’s”) lemma describe decomposing them to their irreducible pieces.

ANSWER: group **representations** [accept irreducible **representations**; accept **representation** theory; reject “presentations”]

[10e] If the action is on a finite structure, each group element maps to one of these operations from the structure’s symmetric group. These operations reorder a set’s elements.

ANSWER: **permutations**

[10h] Groups act on themselves via conjugation, an operation that partitions the group into orbits. This equation writes a finite group’s order as a sum of the orders of its orbits, often with a single $Z(G)$ (“Z-of-G”) term for the center.

ANSWER: **class** equation

<Misc. Science>

4. Answer the following about Rose Rand, a Jewish logician who fled from the Nazis, for 10 points each.

[10e] Rand transcribed meetings of this group in a capital city. Its members, such as Rudolf Carnap and Otto Neurath (“NOY-rat”), supported logical positivism and struggled to deal with Ludwig Wittgenstein’s (“VIT-gun-sh’TYNE’s”) ego.

ANSWER: **Vienna Circle** [or **Wiener Kreis**]

[10m] After largely being denied academic jobs in the U.K. and U.S., Rand settled in this town. In the 80s and 90s, David Lewis and Saul Kripke (“KRIP-kee”) dominated a philosophy department at a university located here.

ANSWER: **Princeton**, New Jersey [accept **Princeton** University]

[10h] Rand’s life is discussed in a 2020 book by David Edmonds titled for this event, which shook the Vienna Circle. Its perpetrator, the mentally ill ex-student Johann Nelböck, was likely motivated by antisemitism.

ANSWER: **assassination** of Moritz **Schlick** [accept **murder**, **killing**, **homicide**, or **shooting** in place of “assassination”; accept *The Death of Professor Schlick*]

<Philosophy>

5. A government centered in this province was established with the collaboration of Zhu De (“joo duh”) in the aftermath of the April 12th incident, or Shanghai massacre. For 10 points each:

[10m] Name this Chinese province where the Long March began after its namesake Soviet collapsed in 1933 under pressure from the Kuomintang.

ANSWER: **Jiangxi** (“jang-shee”) Province [accept **Jiangxi** Soviet]

[10e] A holiday on August 1st celebrates the founding of this present-day organization in Jiangxi during the Nanchang Uprising. This organization is the Chinese Communist Party’s military.

ANSWER: **People’s Liberation Army** [or **PLA**, or **Zhōngguó Rénmín Jiěfàngjūn**; prompt on **Chinese Army** or **Red Army**]

[10h] Among the leaders of the Nanchang Uprising was this woman, who later served as the CCP’s Vice President. A Maoist saying contrasts this woman, who “loved her country,” with her sisters, who loved “money” and “power.”

ANSWER: **Soong Ching-ling** [or **Rosamond** Soong **Ching-ling**, or **Chung-ling Soong**; prompt on **Soong**; prompt on **Madame Sun Yat-Sen**]

<World History>

6. This playwright created Lorna, who is disparaged as “the tramp of Newark” by her lover, the violinist-turned-boxer Joe Bonaparte. For 10 points each:

[10e] Name this Depression-era socialist playwright of *Golden Boy*. He depicted a taxi drivers’ strike in his play *Waiting for Lefty*.

ANSWER: Clifford **Odets**

[10m] This Odets play focuses on the Bergers, a poor Jewish family in a Bronx tenement whose daughter Hennie is pregnant by an unknown man.

ANSWER: **Awake and Sing!**

[10h] This founder of a namesake New York acting studio wrote an essay calling Odets’s plays “epic in the demand for life.” She would know, since she starred as Bessie Berger in *Awake and Sing!* on Broadway.

ANSWER: Stella **Adler**

<American Literature>

7. A fluid of these objects undergoes the Kirkwood–Alder liquid–solid transition. For 10 points each:

[10m] Name these idealized particles, whose interaction potential is infinite if their centers are separated by less than two radii. The van der Waals (“wahlz”) equation treats molecules as objects of this type with a nonzero volume.

ANSWER: **hard spheres** [or **rigid spheres**; prompt on **spheres** or **balls** by asking “What property do they have?”]

[10e] For a small object scattering off of a sphere with radius R , this quantity equals “ πR^2 .” This quantity gives the probability of a scattering process as an effective area measured in barns.

ANSWER: total **cross section** [or integrated **cross section**; reject “differential cross section”]

[10h] *Pencil and paper may be useful*. In general, the differential cross-section can be written as *this quantity* over the sine of the scattering angle, times the absolute value of the derivative of *this quantity* with respect to the scattering angle.

ANSWER: **impact parameter** [prompt on b or ρ]

<Physics>

8. An example of the *asárotos oĩkos* (“ah-SAH-ro-tohss OY-kohss”), or “unswept room,” type of these works shows a mouse nibbling on a nut among a mess of discarded shells, crab legs, and fruit. For 10 points each:

[10e] Name these tessera-based artworks. One of these works that was found on the floor of the House of the Faun in Pompeii shows Alexander the Great defeating Darius III in battle.

ANSWER: **mosaics** [accept floor **mosaics**]

[10h] Color gradations and contours in mosaics were often achieved using this technique of lining up small tesserae, with a Latin name meaning “worm-like.” Unlike *opus tessellatum*, this technique uses tesserae of varying sizes.

ANSWER: *opus* **vermiculatum**

[10m] The Greek letter theta marks dead gladiators like Rodan and Aurius in a set of mosaics located in this Italian museum. Several of Bernini’s best-known works, including *Apollo and Daphne* and *David*, are located here.

ANSWER: **Galleria Borghese** (“bor-GAY-zay”) [or **Borghese Gallery**; prompt on **Borghese** or **Villa Borghese Pinciana**]

<Painting/Sculpture>

9. In the later years of this dynasty’s reign, the real power behind the throne was held by their mayors of the palace, such as Charles Martel. For 10 points each:

[10e] Name this first dynasty of Frankish kings, the first of whom was Clovis.

ANSWER: **Merovingian** (“merro-VINJ-ian”) dynasty [or **Mérovingiens**]

[10m] On account of their ineffectual feuding and incessant feasting, the later Merovingian rulers are known by this term in historiography. You may give either the French term or its standard English translation.

ANSWER: **do-nothing** kings [or roi **fainéant** (“RWAH feh-nay-AHN”) or rois **fainéants**]

[10h] Historians generally consider this early 7th-century king to be the last Merovingian monarch who wielded any real power. He is memorialized by a French nursery rhyme whose title calls him a “good king.”

ANSWER: **Dagobert** I (“the-first”) [accept “Good King **Dagobert**” or “Le bon roi **Dagobert**”]

<European History>

10. This method's creator, Marsha Linehan ("LIN-uh-han"), drew on her own experiences to help other women with self-destructive behaviors, such as suicidal ideation. For 10 points each:

[10h] Name this type of cognitive-behavioral therapy that cultivates the skills of mindfulness, "distress tolerance," and "radical acceptance."

ANSWER: **Dialectical Behavioral Therapy** [or **DBT**]

[10e] Acceptance comes after "bargaining" at the end of a five-stage model from this woman's *On Death and Dying*.

ANSWER: Elisabeth **Kübler-Ross**

[10m] DBT is primarily applied to a disorder described by this adjective, which is often characterized by emotional instability, self-doubt, and poor impulse control.

ANSWER: **borderline** [accept **borderline** personality disorder]

<Social Science>

11. Exemption (b)(6) ("B-six") allows documents produced under this legislation to redact information that compromises an employee's "personal privacy." For 10 points each:

[10e] Name this U.S. law that lets pretty much anyone request records from federal agencies.

ANSWER: **Freedom of Information Act** [or **FOIA** ("FOY-uh")]

[10m] This nonprofit, the first online news source to win a Pulitzer Prize, maintains a list of FOIA exemptions on its website. In 2021, this investigative journalism outlet published a set of "secretive IRS files" detailing how wealthy Americans avoid taxes.

ANSWER: **ProPublica**

[10h] In the U.S. Code, FOIA is nested within this 1946 law, which mandates public notice and comment periods when agencies make or alter rules. The Chevron doctrine established a two-prong test for applying this law's "arbitrary and capricious" standard of review.

ANSWER: **Administrative Procedure Act** of 1946 [or **APA**] (The APA is U.S. Code 5, sections 551 to 559; FOIA is U.S. Code 5, section 552.)

<Current Events>

12. Sexual abuse scandals have embroiled this church's New York leader Carl Lentz, who was fired in November 2020, and its founding pastor Brian Houston, who left its board in September 2021. For 10 points each:

[10h] Name this Australian megachurch. It owns a record label for affiliated acts, such as a "Young and Free" band, that have sold millions of worship music albums worldwide.

ANSWER: **Hillsong Church**

[10e] Hillsong split from Assemblies of God, a denomination in this general movement. The Azusa Street revival was an early outpouring of this movement, which emphasizes spiritual gifts such as speaking in tongues.

ANSWER: **Pentecostalism** [or **Charismatic Christianity**]

[10m] In this country, up to a million Pentecostals can fit in hangar-like megachurches of the Redeemed Christian Church of God, led by Enoch Adeboye ("ah-day-BOH-yay"). A divination ritual using sixteen cowrie shells or palm seeds originated in this present-day country.

ANSWER: Federal Republic of **Nigeria**

<Religion>

13. This phrase was the state motto of Ohio until 1868, when it was replaced by a quote from Gospel of Matthew, since this phrase's hint at separatism was unpopular after the Civil War. For 10 points each:

[10h] Give this three-word phrase. It titles a utopian novel in which the revolutionary Bernard executes the assimilationist Belmont after founding a new country as a home for escaped slaves.

ANSWER: **imperium in imperio**

[10e] In Sutton E. Griggs's novel *Imperium in Imperio*, Belmont's ideas reflect those of this leader, who encouraged Black Americans to pursue advancement through economic opportunity in his Atlanta Compromise speech.

ANSWER: Booker T. **Washington** [or Booker Taliaferro **Washington**]

[10m] The Black republic in *Imperium in Imperio* is headquartered in this city, where 10,000 spectators watched Jesse Washington's lynching in 1916. Much later, the article "The Sinful Messiah" profiled a group based in this city.

ANSWER: **Waco**, Texas (The latter group is the Branch Davidians.)

<American History>

14. Gottlieb Haberlandt ("GOT-leep HAH-ber-lant") hypothesized that every single cell of a plant has this property. For 10 points each:

[10e] Name this property of blastomeres ("BLAST-oh-meers"), in which a single cell can give rise to the entire organism. Stem cells of this type can differentiate into any adult tissue, unlike pluri-potent stem cells.

ANSWER: **toti-potency** [or **totipotent**]

[10h] Because many plant cells are totipotent, this method can rapidly produce many clones of a single plant. In this method, pieces of tissue from a mother plant are cultured, multiplied, and then transplanted to soil.

ANSWER: **micro-propagation** [prompt on **cloning**, **culture**, **tissue culture**]

[10m] The Murashige ("MOO-ruh-SHEE-gay") and Skoog ("skoog") medium used for micro-propagation is supplemented by kinetin ("KYE-nuh-tin"), one of this class of plant hormones that bind to AHK histidine ("HISS-tih-deen") kinase receptors. Zeatin ("ZEE-uh-tin") is also one of these hormones.

ANSWER: **cytokinins** ("SYE-toh-KYE-nins") [reject "cytokines"]

<Biology>

15. When the protagonists of a story stand side by side, looking at this plant, it seems "like the flame of a candle, to stretch up, to point, to quiver in the bright air, to grow taller and taller [...] almost to touch the rim of the round, silver moon." For 10 points each:

[10h] Identify this plant. It appears in a story that ends by declaring that this plant is "as lovely as ever and as full of flower and as still" as a woman cries "Oh, what is going to happen now?"

ANSWER: Bertha Young's **pear** tree [or the **pear** tree from "Bliss"; prompt on **tree**]

[10e] Bertha Young's pear tree appears in "Bliss," a short story by this author from New Zealand.

ANSWER: Katherine **Mansfield** [or Katherine Mansfield **Murry**]

[10m] A much earlier use of a pear tree to symbolize sexuality is in this Canterbury tale, in which May cuckolds her husband January by having sex with Damian in a pear tree.

ANSWER: "The **Merchant's** Tale"

<British Literature>

16. The K -value, a ratio between two mole fractions symbolized x and y , equals 1 in these systems. For 10 points each:

[10m] Name these systems that occur at pinch points on phase diagrams. Pressure swings can disrupt or “break” these systems.

ANSWER: **azeotropes** (“AY-zee-oh-tropes”) [or **constant-boiling** mixtures]

[10h] Pressure swings work because the K -value is pressure-dependent. For instance, using the phi-phi approach, K is re-written as a ratio in this dimensionless quantity, which can be calculated by integrating “ Z -minus-1” with respect to the log of pressure.

ANSWER: **fugacity coefficient** [reject “fugacity”; reject “activity coefficient”]

[10e] The fugacity coefficient just equals 1 if the vapor has this property. This property is typically assumed for gases at high temperatures and low pressures.

ANSWER: **ideality** [or **ideal** gases; accept any answers describing a gas that obeys the **ideal** gas law]

<Chemistry>

17. In a short story by this author, Mordy travels to the afterlife after committing suicide to find his beloved Desiree, who also committed suicide. For 10 points each:

[10h] Name this contemporary Israeli author of “Kneller’s Happy Campers,” who adapted that story into *Pizzeria Kamikaze* with Asaf Hanuka.

ANSWER: Etgar **Keret**

[10e] *Pizzeria Kamikaze* is a work in this literary genre. Marjane Satrapi’s (“mar-ZHAHN sah-trah-PEE’s”) *Persepolis* is an autobiographical work in this genre.

ANSWER: **graphic novel** [accept **comic book** or **comics**]

[10m] “Kneller’s Happy Campers” appears in a collection titled for someone on one of these conveyances “Who Wanted to Be God.” In an absurdist play, characters called Spectacles and Hothead squabble while failing to board one of these conveyances.

ANSWER: **bus** [accept *The **Bus** Driver Who Wanted to Be God*; accept *The **Bus** Stop*]

<World Literature>

18. After fending off this animal, a boy named Jacques Portefaix was rewarded with a fully-paid education by Louis XV, who sent a father-son pair of Norman hunters named d’Enneval to kill it. For 10 points each:

[10h] Name this wolf-like monster that terrorized its namesake region in southern France in the 1760s, becoming an international sensation. Its attacks continued even after François Antoine supposedly killed it.

ANSWER: **Beast of Gévaudan** [or La **Bête du Gévaudan**; or La **Bestia de Gavaudan**]

[10m] In 1685, a vicious wolf thought to be the unpopular Burgomaster of Ansbach in animal form was killed at one of these places. The *Völuspá* describes the Norns living at one of these places named for Urdr under Yggdrasil.

ANSWER: **wells** [accept Urðar**brunnr**]

[10e] The 13th-century man-eating Wolf of Gubbio was tamed by this Italian patron saint of animals, as described in the *Fioretti*, or “Little Flowers.”

ANSWER: Saint **Francis** of Assisi [or San **Francesco** d’Assisi; or Giovanni di Pietro di **Bernardone**]

<Mythology/Legends>

19. In a scene filmed by this cinematographer, a young birch tree that stands alone in the middle of the frame is wrestled to the ground by Töre (“TURR-uh”), who has just learned his daughter was murdered. For 10 points each:
[10h] Name this cinematographer whose longtime partnership with a certain director included a film in which half of Alma’s face and half of Elisabet’s face are shown together in a single close-up.

ANSWER: Sven **Nykvist** (“NICK-vist”) [or Sven Vilhem **Nykvist**] (The director mentioned is Ingmar Bergman; the films are *The Virgin Spring* and *Persona*.)

[10m] Nykvist created a shot of a farmhouse whose yard is teeming with sheep and turkeys for this French director’s surrealist film *Black Moon*. This man also directed *Zazie* (“zah-ZEE”) *in the Metro* and *The Fire Within*.

ANSWER: Louis **Malle** (“mahl”) [or Louis Marie **Malle**]

[10e] Nykvist also served as cinematographer for this man’s final film, *The Sacrifice*. This Russian director’s other films include *Solaris* and *Stalker*.

ANSWER: Andrei **Tarkovsky** [or Andrei Arsenyevich **Tarkovsky**]

<Other Fine Arts>

20. In 2016, a team from Ilia (“ILL-ia”) State University published a study suggesting a link between Appian’s accounts of this land’s rich gold, Greek mythology, and the tales of “golden sands” in the land of Svaneti. For 10 points each:

[10m] Name this ancient kingdom along the Black Sea coast of present-day Georgia. It lay to the west of Caucasian Iberia.

ANSWER: **Colchis** (“KOL-kiss”) [or **Kolchis**, or **Kolkheti**, or **Egrisi**]

[10e] This Greek historian’s *Anabasis* (“uh-NAB-uh-siss”) recounts battling the Colchian armies while attempting to lead his mercenary company, the “Ten Thousand,” to the Black Sea.

ANSWER: **Xenophon** of Athens

[10h] As a Roman province, Colchis was known by this name, after the people who migrated to Colchis from the north. A long war of this name fought by Khosrow I (“kuss-ROH the-first”) and Justinian broke the Perpetual Peace signed eight years earlier.

ANSWER: **Lazicum** [or Kingdom of **Lazica**, or **Laz** Kingdom; accept **Lazic** War; prompt on **Egrisi**]

<Ancient History>