



ACADEMIC COMPETITION FEDERATION

ACF NATIONALS 2022

PACKET 18

Packet by

The Editors (9)

Editors

**Will Alston, Stephen Eltinge, John Lawrence, Stephen Liu, Eric Mukherjee,
Adam Silverman**

Authors

**Austin Brownlow, Jaimie Carlson, Ganon Evans, Zach Foster, Taylor Harvey,
Matt Jackson, Nick Jensen, Michael Kearney, Shan Kothari, James Lasker,
Jonathan Magin, Olivia Murton, Will Nediger, Jonathen Settle, Jon Suh**

TOSSUPS

1. To convince a ruler to begin this process, a scholar claimed that earlier ambassadors brought the message of people who moistened their excrement and put it on their beards. The commander Putyata (“poo-t’YAH-tuh”) helped put down opponents of this process who torched the house of the elderly Dobrynya (“duh-BRIN-yuh”). To mark its beginning, a statue was tied to a horse’s tail, beaten by twelve men with sticks, and thrown into a river. According to the so-called “Korsun Legend,” this process began after a ruler agreed to end the siege of Korsun and marry princess Anna Porphyrogenita (“POR-fih-roh-GEN-ih-tah”). Apocryphally, the decision to undergo it was made after a king deemed that his people could not tolerate fasting, teetotaling, or forgoing pork. Throngs waded into the Dnieper (“d’NEE-per”) river in a ceremony marking, for 10 points, what process in which Vladimir the Great’s realm adopted a new faith?

ANSWER: **christianization** of the Kievan **Rus** [or conversion of the **Rus** to **Christianity**; accept the **baptism** or the people of **Kiev**, or **baptism** of the **Rus**; accept **Orthodoxy** or **Orthodox** Christianity in place of “Christianity”; accept **Russians** or **Varangians** or **Kievans** in place of “Rus”; accept **Vladimir** the Great **converting** to Christianity or equivalents before “Vladimir” prompt on **conversion** or **christianization** by asking “what people are converting?”; prompt on **christianization** of the **Slavs**]

<European History>

2. In a musical work named for this place, a movement with six-against-four cross-rhythms titled “stravaganze” (“strah-vah-GAN-tsay”) is succeeded by a movement filled with right-hand quintuplets titled “bizarria” (“bizarre-ee-uh”). In a work named for this place, the initial cantus firmus begins with the whole notes [read slowly] “D, F, E, D, G.” This place titles a French chamber work published in 1724, which was followed a year later by a piece in the same genre named for Jean-Baptiste Lully. A trio sonata by François Couperin (“koop-RAN”) titled for this place is subtitled “the Apotheosis of Corelli.” In a work titled for this place, a student named Josephus (“joh-SEE-fuss”) is taught by a master named Aloysius (“aal-oh-ISH-uss”) to compose in the style of Palestrina (“pah-leh-STREE-nah”); that treatise introduced the method of “species counterpoint.” For 10 points, what place appears in the title of a set of 100 pedagogical pieces by Muzio Clementi (“MOOT-see-oh kleh-MEN-tee”) and a treatise by Johann Joseph Fux?

ANSWER: **Parnassus** [or **Parnassum**; or **Parnasse**]

<Classical Music>

3. In the larval form of these animals, the SIPC (“S-I-P-C”) protein complex acts as a pheromone to induce settlement, while adult forms use BCP proteins for that purpose. The adult male of an infra-class of these animals consists entirely of a cluster of sperm-producing cells that are injected into the female; that is the *Rhizocephala* (“RYE-zoh-SEFF-uh-luh”). Those belonging to the *Balanomorpha* (“BAL-uh-nuh-MOR-fuh”) order are stalkless. These animals comprise the *Cirripedia* subclass. Two species of these animals in Scotland, *Chthamalus* (“k’THAA-muh-luss”) *stellatus* and *Balanus balanoides* (“BAL-uh-nuss BAL-uh-NOY-deez”), were used to demonstrate the difference between realized and fundamental niches by Joseph Connell. These animals have the largest ratio of penis size to body size in the animal kingdom, and use their cement glands to fix themselves onto a surface. For 10 points, name these crustaceans that often have a commensal relationship with whales.

ANSWER: **barnacles** [accept *Cirripedia* or *Rhizocephala* before respective mention; prompt on **crustaceans** or **arthropods** or **thecostraca**]

<Biology>

4. Michael Huemer (“H’YOO-murr”) defended a view of this property called “phenomenal conservatism.” As its title states, a 2006 book by Michael Bergmann argues it is possible to have this property *Without Awareness*. A “deontological conception” of this property was firmly rejected in a 1985 paper by William P. Alston, who called his own view of this trait “an internalist externalism.” Names for two forms of this trait were coined in a paper about reducing the epistemic to the ethical by Roderick Firth; those are the “propositional” and “doxastic” (“dox-ASS-tick”) forms of this trait. In adjectival form, it’s the *first* adjective in the title of a paper that imagines Brown could be in Boston, Barcelona, or Brest-Litovsk, and that Jones gets a job while ten coins are in his pocket. For 10 points, name this epistemic property of having good reason, which, in an Edmund Gettier (“GETTY-er”)-rejected definition of knowledge, modifies “true belief.”

ANSWER: epistemic **justification** [or being **justified** in a belief; accept epistemic **warrant** before “adjective”; prompt on **knowledge** before “adjective” by asking “Which property of knowledge?”; prompt on **belief** before “adjective” by asking “Which property of a belief?”]

<Philosophy>

5. As a child, this man discredits his uncle by faking a seizure in front of him, but then denying this to his father. This man’s son recites an allegory about beans from the same stalk being boiled together. This man faints after saying “I hope you are well since we last parted” to a severed head, which opens its eyes in response. While fleeing a battle, this man discards a red cloak and shaves off most of his beard with a dagger, to avoid recognition. This man’s son spontaneously composes the Seven Steps Verse. His rival drops chopsticks in surprise after this man declares that “The only heroes in the world are you and I.” After he chains his ships together, this man’s forces are defeated by Liú Bèi (“l’yoh bay”) at the Battle of Red Cliffs. For 10 points, name this historical figure who serves as the primary antagonist of *Romance of the Three Kingdoms*, the ruler of the Wèi kingdom.

ANSWER: **Cáo Cāo** (“tsao tsao”) [or **Mengde**; or Emperor **Wu** of Wei]

<World Literature>

6. In one story, the attributed author of this text shot fire from his eyes which set the farmland around him ablaze, angry that the locals abandoned “eternal life” for “temporary things.” Daniel Matt spent twenty years translating this text to produce the 2018 Pritzker Version of it. The first book by the scholar Ramak explains this text in thirty-two “gates.” Its purported author wrote it while hiding with his son in a cave for thirteen years to escape Roman persecution. The exhortation to “arise with the Shechina (“shuh-KEE-nuh”)” appears in a set of “rectifications” or *tikkunim* (“tick-koo-NEEM”) for this text, which was compiled in the 13th century by Moses de León. This text, which was described as the “book of splendor” by Gerschom Scholem (“GAIR-shum SHOH-lum”), details the ten emanations of Ein Sof. Shimon bar Yochai (“shee-MOAN bar YOH-kye”) is the attributed author of, for 10 points, what central text of Kabbalah?

ANSWER: The **Zohar** [or Book of **Zohar** or Book of **Radiance**; accept Book of **Splendor** before “Splendor”]

<Religion>

7. After a 1957 performance of *Lincoln Portrait* in this non-U.S. country, Aaron Copland said that the audience’s cheers at the piece’s concluding words had “in effect...started a revolution.” This country’s first free elections, held in 1945, kicked off a three-year period of social democracy called “El Trienio (“tree-EN-yoh”) Adeco.” One of its presidents names a policy of not recognizing leaders who gain power through non-democratic means. That leader of this country sheltered Juan Bosch, prompting Rafael Trujillo (“troo-HEE-yoh”) to order an assassination attempt. This country’s leading parties signed the Punto Fijo (“FEE-hoh”) Pact after the ouster of Marcos Pérez Jiménez (“hec-MEN-ess”), promising to uphold the Betancourt (“bay-tan-KOOR”) Doctrine. An officer quipped he had only failed “for now” after a failed coup against Carlos Andrés Pérez in, for 10 points, what country whose leftist “Bolivarian Revolution” was led by Hugo Chávez?

ANSWER: **Venezuela** [or Bolivarian Republic of **Venezuela** or República Bolivariana de **Venezuela**]

<World History>

8. In Bret Harte's parody of this poem, an advertiser stencils the brand name "Sapolio" on everything he sees. A. E. Housman's parody of this poem replaces the end of each stanza with unheroic phrases like "I've got my old galoshes" and "Mrs. Winslow's soothing syrup." This poem's title names the fictional town where the Antrobuses reside in Thornton Wilder's *The Skin of Our Teeth*. This poem's protagonist does not heed warnings to beware the "roaring torrent [...] deep and wide" and "the pine-tree's withered branch." The protagonist of this poem repeatedly uses his "clarion voice" to interrupt the prayers of "the quiet monks of Saint Bernard" and ignores an old man's warning to "try not the Pass!" A youth freezes to death in the Alps while grasping a banner emblazoned with the title Latin word in, for 10 points, what Henry Wadsworth Longfellow poem?

ANSWER: "Excelsior"

<American Literature>

9. The Pacific Legal Foundation represented two of these businesses in a 2021 Supreme Court case that eschewed the Penn Central standard to expand the definition of *per se* takings. They aren't theme parks, but the *Cedar Point Nursery v. Hassid* decision effectively undid an "access regulation" and implies that labor organizers must pay to visit these businesses in California. Section 1005 of the American Rescue Plan set out four billion dollars in debt relief for "socially disadvantaged" owners of these businesses with federal loans. Disgruntled owners of them have turned to Ukrainian jailbreak software to fix broken devices made by a company in Moline ("moh-LEEN"), Illinois. That company which sells mainly to these businesses comically attempted to break an October 2021 UAW strike using white-collar workers donning hard hats. For 10 points, what businesses buy most of John Deere's products?

ANSWER: farms [accept any answer indicating agriculture or agricultural enterprises or agribusinesses; accept farmers]

<Current Events>

10. In some protocols, these devices enforce a "split horizon" to rapidly process updates that might otherwise hang on the count-to-infinity problem. Access control lists are allocated within these devices' ternary content-addressable memory. Distance-vector algorithms asynchronously update these devices with local information, while each of them knows the whole topology in the link-state protocol. The functions of these OSI ("O-S-I") layer-3 devices are divided between the control plane, which builds a table of next-hop data, and the data plane. These devices do longest-prefix matching on values written in CIDR ("cider") notation. These devices perform network address translation, or NAT, to map traffic to a public IP address. For 10 points, name these devices that forward packets through networks, which might be paired with a modem in a residential gateway.

ANSWER: routers [accept gateways before "gateway"; accept packet switches or network switches before "layer-3," and prompt after; prompt on nodes or devices in a network; reject "link-layer switches" or "layer-2 switches" or "hubs"]

<Misc. Science>

11. Virginia Woolf's essay "The Fleeting Portrait" criticizes this painting's detail of a man lifting a knee up to his waist as part of a "brazen din" that forced her to run out of the gallery. Men in red and blue shirts play soccer in the distant background of this painting. While looking for a suitable scene for this work, its artist stated that one cannot "do an epic without masses of men." Commissioned by Lord Beaverbrook for the Hall of Remembrance, this painting now hangs at the Imperial War Museum. This work's frieze-like composition is broken up by diagonal tent ropes to the right of rows of men who lie on the ground on either side of a duckboard. Alluding to Bruegel's *The Blind Leading the Blind*, a group of soldiers in this work walk in single file with bandages over their eyes. For 10 points, name this John Singer Sargent painting about chemical warfare.

ANSWER: Gassed

<Painting/Sculpture>

12. *Note to players: two answers required.* These two people name the positive-scattering-length side of a crossover observed in lithium-6 by Thomas Bourdel (“boor-DELL”) et al. One of these two people derived Planck’s law from a gas of identical photons in a paper that the other translated and applied to massive particles. Work by these two people predicts that pressure varies with temperature to the five-halves but is density-independent, below a transition that pins the chemical potential to zero. Summing a geometric series gives a formula named for both of them whose denominator is the following: exponential of the quantity “energy-minus-mu over kT ,” all minus one. That occupation-number formula named for them diverges at low temperature, as observed in a gas of spin-1 rubidium atoms in 1995. For 10 points, name these Indian and German physicists who predicted the macroscopically-occupied ground state of their namesake condensate.

ANSWER: Satyendra Nath **Bose** and Albert **Einstein** [accept **Bose–Einstein** condensate or **Bose–Einstein** statistics] (The first sentence is about the BEC–BCS crossover.)

<Physics>

13. In a novel, this character delivers biopsy results that have been hidden in a honey jar, and later hires sex-club workers to purr like cats so he can examine their vocal cords. When another character claims that art is what is left over when civilizations turn to dust, this character replies that “ossified shit” is also left over. In that novel, this character’s last words are “I’m counting on you” before he slits a woman’s throat with a knife and is shot by the protagonist. Creatures named for this character have genitals that turn blue when it is time to procreate. This character’s alias comes from the name he used in the online game *Extinctathon*, and he engineers a pill called BlyssPluss to start a pandemic that wipes out humanity. For 10 points, name this scientist with an avian nickname, one of two title characters of a Margaret Atwood novel.

ANSWER: **Crake** [or **Glenn**] (The first novel clued is *MaddAddam*.)

<British Literature>

14. *Note to players: This tossup’s answer includes two countries: a country of origin and a country of residence, such as “Luxembourgish Somalians.”* A banner expressing bigotry against this group consists of a modified Cross of Saint Andrew flanked by the words “Roll Up” on either side. Ships like the *Land of Cakes* ferried early members of this group to remote towns to help dodge a head tax they were forced to pay on arrival, after which they undertook grueling treks commemorated by the “walk from Robe.” A pig trader from this group sued a fourteen-year-old for assaulting him near Eleven Mile Creek, which was dismissed by a court in Benalla. The Buckland and Lambing flat riots targeted members of this group who participated in a gold rush during the 1850s, in which many of them came after learning about discoveries at Ballarat (“BAL-uh-rat”). Edmund Barton’s passage of the Immigration Restriction Act of 1901 largely excluded, for 10 points, what group that included Ah Fook and the father of Billy Sing, the latter of whom was a renowned sniper at Gallipoli?

ANSWER: **Chinese Australians** [accept any answer indicating people from **China** or of **Chinese** descent in **Australia**; accept **Cantonese Australians** or **Guangzhounese Australians**; accept **Australians** from the **Qing** dynasty]

<Other History>

15. According to legend, a pack of bears helped Saint Magnus of Füssen defeat some of these beings in Ronsberg. After it was driven away from a Roman amphitheater by Saint Clement, one of these beings called the Graouilly (“grao-YEE”) became the subject of an annual medieval procession in Metz. The *Golden Legend* states how instructions from Saint Peter led Pope Sylvester to bind the mouth of one of these beings with a thread to prevent it from poisoning the people of Rome. While imprisoned by the Roman prefect Olybrius (“oh-LIB-rius”), Saint Margaret of Antioch was swallowed by one of these creatures but was spit back out when her cross burned its insides. A girdle belonging to a princess of Silene in Libya was used to tame one of these creatures that was later beheaded by a knight from Cappadocia. For 10 points, name this type of legendary creature that was slain by Saint George.

ANSWER: **dragons** [accept **worms** or **serpents**; prompt on **demons** by asking “What form did the demons take?”; reject “snakes”]

<Mythology/Legends>

16. On topological maps of this quantity, its curvature distinguishes bond, ring, and cage critical points, whereas this quantity’s Laplacian (“lah-PLAHSS-ian”) defines lumps and holes. Large thermal ellipsoids correspond to residuals in this scalar quantity. A simple direct method estimates this positive, real quantity by repeatedly flipping its sign until convergence. This quantity’s auto-correlation is the Patterson function. Difference maps in this quantity are computed by programs like SHELXL (“shell-X-L”) during refinement. Through a Fourier (“foor-yay”) transform, this measured quantity is inter-converted with complex structure factors. Colloquially, “solving a structure” means calculating this field and using it to assign positions to atoms in the unit cell. For 10 points, name this distribution deduced for a molecule in crystallography, measured in coulombs (“KOO-lumbz”) per unit volume.

ANSWER: volume **charge density** distribution [or **electron density** distribution; or **electron probability density**; prompt on electron **probability**; prompt on **density**; prompt on **probability density**; prompt on **charge** distribution; prompt on **rho**]

<Chemistry>

17. Upon hearing of this event, the preacher Parson Waugh declared “there was no government here” and spread rumors of a planned invasion by 10,000 American Indians. After attempts to censor news of this event failed, angry citizens formed a mob that arrested Edward Randolph and Joseph Dudley. Shortly after this event, Colonel John Coode assembled a militia of Associators to march on the capital because the Calvert family had not officially recognized its outcome. A German merchant wrote a letter claiming that, because of this event, he was the rightful governor of New York and not Francis Nicholson, thus starting Leisler’s Rebellion. After hearing of this non-North-American event, Bostonians overthrew the Dominion of New England led by Edmund Andros. The namesakes of the oldest college in Virginia were installed by, for 10 points, what overthrow of the House of Stuart?

ANSWER: The **Glorious Revolution** [or **Bloodless Revolution**; accept the **overthrow** of the **Stuarts** or the **accession** of **William** and Mary, or the **enthronement** of **William** and Mary; prompt on **Leisler’s Rebellion** before “Leisler”; prompt on **Bloodless Revolution**; reject “American Revolution”]

<American History>

18. This thinker described dissimilar groups who convene just to watch a shared interest as “cloakroom communities.” This thinker popularized a term introduced by Artur Sandauer in an essay arguing that, because it arises from a multiform “proteo-phobia” of the Other, modern antisemitism should be termed “allosemitism.” This sociologist described how “floating anxiety in search of an anchor” inspires moral panic over Islamic migrants in *Strangers At Our Door*. This professor at the University of Leeds argued in a 1989 book that the rationalist notion of a “garden” state gave rise to Nazi genocides. He coined a term for an era described in such books as *Consuming Life*, in which deregulation, free movement, and dissolving social ties make life less stable. For 10 points, what Polish author of *Modernity and the Holocaust* coined the phrase “liquid modernity?”

ANSWER: Zygmunt **Bauman** (“BAO-man”)

<Social Science>

19. This book reproduces Bouguereau's ("boo-GRO's") *Les Oréades* ("lay zo-ray-ADD") to illustrate how in the 19th century, men of state "discussed under paintings like this" so that if one felt outwitted, the image would remind him that he was a man. This book uses the poverty of Frans Hals to explain how discussions of art often give it a "bogus religiosity" that mystifies rather than clarifies. This book's first section shows how a reproduction's context can turn an allegorical figure into a portrait of a girl by isolating a detail from Botticelli's *Venus and Mars*. Three essays in this book consist only of images. This book argues that the trope of the nude in Western art perpetuated the objecthood of women, noting that "men act and women appear." This book, whose cover shows Magritte's *The Key of Dreams*, was adapted from a BBC series. For 10 points, name this book of art criticism by John Berger.

ANSWER: Ways of Seeing

<Other Fine Arts>

20. Near the end of this play, a character sardonically suggests that the protagonist can solve his troubles by cutting off the heroine's little finger and left ear. A theory that this play's heroine slept with her foster-father, unaware that he was her biological father, was proposed by Freud in "Some Character-Types Met with in Psycho-Analytic Work." In this play's opening scene, the heroine crochets a white shawl and looks out the window to see if the protagonist will avoid crossing a wooden bridge. This play's protagonist plans to support Peter Mortensgaard's progressive newspaper in opposition to his brother-in-law Kroll. A ghostly white horse is said to haunt the title location of this play, where the protagonist's wife Beata committed suicide by throwing herself into a watermill. For 10 points, the freethinking Rebecca West is the heroine of what Henrik Ibsen play titled for the protagonist's family estate?

ANSWER: Rosmersholm

<European Literature>

BONUSES

1. The acronym CHAMP summarizes traits of people with this ability, which includes use of mathematical models and understanding of predictable biases. For 10 points each:

[10h] Give the term for this ability of many amateurs studied by the Good Judgment Project. Two of the Project's leaders, Dan Gardner and Philip Tetlock, wrote a 2015 book titled for this ability that popularized its name.

ANSWER: **superforecasting** [or **superforecasters**; prompt on **forecasting** or **prediction**]

[10e] Tetlock studied "superforecasting" after finding that predictions by pundits described by this word were barely more accurate than those of the public. In court, scientists often testify as "witnesses" described by this word.

ANSWER: **experts** [accept political **experts** or **expert** witnesses]

[10m] Tetlock and the Good Judgment Project are based out of this university. Its other psychology faculty include Angela Duckworth, the author of *Grit*, and positive psychology researcher Martin Seligman ("SELL-lig-man").

ANSWER: **University of Pennsylvania** [or **Penn** or **UPenn**; prompt on **Pennsylvania**; reject "Penn State"]

<Social Science>

2. Answer the following about the calibration of astronomical photometry, for 10 points each.

[10h] This quantity is the magnitude of an object that produces one count per second. It must be calibrated once for each filter in a system, and can be calibrated as frequently as once per exposure.

ANSWER: **zero point**

[10e] The zero point is measured by observing standard objects, such as G-class solar analogs or these electron-degenerate stellar remnants. They form when a red giant expels its outer layers, leaving a hot core.

ANSWER: **white dwarfs** [prompt on **dwarf** stars]

[10m] The zero point is color-dependent since this process is stronger in the interstellar medium for blue light than for red light. In the atmosphere, this process is proportional to the integral of air density with respect to path length.

ANSWER: **attenuation** [or **extinction**; prompt on **absorption** or **scattering** by asking "What observed effect does that physical process have?"]

<Misc. Science>

3. Oliver Goldsmith championed one of these two genres in an essay titled *A Comparison between* these two genres. The other genre was championed by Beaumarchais ("bo-mar-SHAY"), among others. For 10 points each:

[10h] Name both of these warring genres of comedy prevalent in 18th-century England. One showed virtue triumphing over vice, but didn't emphasize humor; the other, descended from comedy of manners, aimed mainly to be funny.

ANSWER: **sentimental** comedy and **laughing** comedy [reject all synonyms]

[10e] Goldsmith himself wrote this shining example of laughing comedy, in which Tony Lumpkin tricks Charles Marlow into thinking that the Hardcastle estate is an inn.

ANSWER: ***She Stoops to Conquer***

[10m] The pioneering sentimental comedy was *Love's Last Shift* by this one-time Poet Laureate. This playwright replaced Lewis Theobald as King of Dunces in the 1743 edition of Pope's *The Dunciad*.

ANSWER: Colley **Cibber** ("SIBB-er")

<British Literature>

4. What is called the “largest Greek structure built in India” is thought to be a temple to this religion built by an offshoot of the House of Suren. For 10 points each:

[10e] Name this chief religion sponsored by the Indo-Parthians and Parthians. Today, practitioners of this religion in India are called Parsees.

ANSWER: **Zoroastrianism** [or word forms, or **Mazdaism** or word forms]

[10h] Based on name similarities, this Indo-Parthian king is sometimes identified with Caspar, one of the three Magi. The *Acts of Saint Thomas* name this king as the one evangelized to by St. Thomas.

ANSWER: **Gondophares I** (“GON-doh-FAR-eez the-first”) [or **Gudapharna**, or **Gudaphara**, or **Guduvhara**, or **Hyndopherrēs**, or **Gundupharus**; accept **Gondopharid** dynasty]

[10m] Zoroastrian influence persisted under this empire, whose king Kujula Kadphises (“KOO-joo-luh KAD-fih-SEEZ”) absorbed the Indo-Parthian realms. It sponsored early Buddhist missions to China while ruling North India from the 1st through 4th centuries CE.

ANSWER: **Kushan** empire [or **Kushanas**]

<Ancient History>

5. Answer the following about W. H. Auden at the opera house, for 10 points each.

[10e] Auden’s first full operatic libretto was for this English composer’s operetta *Paul Bunyan*. This composer attempted more serious fare with his next opera, *Peter Grimes*.

ANSWER: Benjamin **Britten** [or Edward Benjamin Britten, Baron **Britten**]

[10m] With his former lover Chester Kallman, Auden wrote the libretto for this Stravinsky opera, whose title character weds the bearded lady Baba the Turk and is tempted by the Devil, who is disguised as Nick Shadow.

ANSWER: *The **Rake’s Progress***

[10h] Auden and Kallman wrote two libretti for Hans Werner Henze (“HEN-tsoh”), one for *Elegy for Young Lovers*, and one for this opera, inspired by a Euripides (“yoo-RIP-ih-deez”) play set in Thebes. It is broken up into four movements like a symphony.

ANSWER: *The **Bassarids*** [or *Die **Bassariden***]

<Other Fine Arts>

6. The Feast of Bonfim celebrated at this city’s chief cathedral is dedicated to both Jesus Christ and Oxalá (“oh-shah-LAH”). For 10 points each:

[10m] Name this city whose Olodum percussion group helped popularize samba-reggae music. This city’s full name indicates its location on the Bay of All Saints.

ANSWER: **Salvador** de Bahia (“bah-EE-ah”) [or São **Salvador** da Bahia de Todos os Santos; reject “San Salvador”]

[10e] Salvador is the historic and spiritual home of this Afro-Brazilian martial art, which was developed by slaves and *quilombo* (“kee-LOHM-boo”) residents to train for fighting amidst song and dance.

ANSWER: **capoeira** (“KAH-poo-AY-ruh”)

[10h] Public *capoeira* performances can be seen in this central historic district of Salvador, which is named for a whipping-post to which criminals and slaves were brought to be flogged.

ANSWER: **Pelourinho** (“PELL-oh-REEN-yoo”) [or **Pelo**; prompt on pillory]

<Geography>

7. Gracia Mendes, a Portuguese Jewish woman who took this Hebrew surname, paid for hundreds of *marranos* to flee the Inquisition. For 10 points each:

[10h] Give this surname. Gracia's nephew with this surname, Joseph, attempted to resettle Jews in the cities of Tiberias and Safed before being made the Ottoman duke of Naxos.

ANSWER: **Nasi** [accept Gracia Mendes **Nasi** or Joseph **Nasi**; prompt on **Benveniste** family]

[10m] Before ending up in Istanbul, Gracia Mendes Nasi lived in this Italian city for several years. Duke Ercole II ("air-KOH-lay the- second") invited many Sephardic Jews to this city and Modena.

ANSWER: **Ferrara**

[10e] Joseph Nasi failed to convince the second Ottoman sultan with this name, known as "the Drunkard," to invade the Spanish Netherlands. The first Ottoman sultan of this name was known as "the Grim."

ANSWER: **Selim** [accept **Selim** the Grim]

<European History>

8. The specific surface area is a proxy for the concentration of these positions on a heterogeneous catalyst in Langmuir–Hinshelwood theory. For 10 points each:

[10e] Name this two-word phrase that refers both to a vacant position on a catalyst where a reaction occurs, and to the pocket of an enzyme where substrates bind.

ANSWER: **active sites** [reject partial answer]

[10m] The rate of heterogeneous catalysis caps out at the active site concentration times this first-order rate constant. Analogously, V_{max} in the Michaelis–Menten equation equals this quantity times enzyme concentration.

ANSWER: **turnover** number [or **turnover** frequency; or **turnover** rate; or **TOF**; or **TON**; or **k-cat**; prompt on **k**; reject "Km" or "Michaelis constant"]

[10h] Just as in enzymes, porphyrins ("POR-fuh-rinz") can be installed at active sites in this class of porous heterogeneous catalysts, first developed by Omar Yaghi in 2005, which usually are made from boronates ("BOH-ruh-nates") and do *not* contain any metals.

ANSWER: **covalent organic frameworks** [or **COFs** ("kofffs"); reject "MOFs" ("moffs") or "metal organic frameworks"]

<Chemistry>

9. Answer the following about a set of sacred texts known as *āgamas* ("AH-guh-muzz") or *āgam* literature, for 10 points each.

[10e] Though various Tantric traditions also have *āgamas*, this religion uses the term to denote orally-transmitted teachings of its founder Mahavira.

ANSWER: **Jainism** [or **Jain** dharma]

[10m] Svetambara ("sh'weh-TUM-buh-ruh") and Digambara ("dee-GUM-buh-ruh") Jains disagree over whether the original *āgamas* were completely lost in a famine after this figure's conquests. In Jain tradition, this figure starved himself to death in a cave in Karnataka ("kur-NAH-tuh-kuh").

ANSWER: **Chandragupta Maurya** ("CHAN-druh-GOOP-tuh MAWR-yuh") [prompt on partial answer; accept answers indicating emperor **Chandragupta** of the **Mauryan** dynasty]

[10h] The Upasaka Dashanga ("ooh-PAH-suh-kuh duh-SHANG-guh") Sutra, a Svetambara *āgama*, governs the Jain laity and calls them by [emphasize] *this term*, which first described lay followers of Mahavira. In Theravada Buddhist tradition, this term names the generation following the first *saṅgha* ("SUNG-guh").

ANSWER: **śrāvaka** ("sh'RAH-vuh-kuh") or **śrāvika** ("sh'RAH-vih-KAH") [or **sāvaka** or **sāvika**; or **Sāvaga**, or **Sarawagi**, or **Saraogi**; prompt on **householders**]

<Religion>

10. A character in this story was stabbed in the eye by his wife for peeping at the lady next door. For 10 points each:
 [10h] Name this story, in which the narrator describes his misadventures with the hospital orderly, Georgie, who's always high off medication that he stole. Like the other stories in its collection, it is narrated by a man known as Fuckhead.

ANSWER: "**Emergency**"

[10m] "Emergency" is a story from *Jesus' Son*, a collection by this American author who wrote about CIA operatives in Southeast Asia in his novel *Tree of Smoke*.

ANSWER: Denis (Hale) **Johnson**

[10e] The first story in *Jesus' Son* is titled for one of these events. In a J. G. Ballard novel titled for this type of event, people who derive sexual pleasure from these events deliberately re-enact ones that killed celebrities such as James Dean.

ANSWER: **car crash** [or **car accident**; or **car collision**; accept **fender bender**; accept **motor vehicle** or **automobile** or **automotive** as substitute for car; prompt on crash, accident, or collision by asking "What kind of transport?"; accept "**Car Crash** while Hitchhiking"]

<American Literature>

11. A "mass" version of this technique uses an inductively-coupled plasma to ionize metal-conjugated antibodies. For 10 points each:

[10e] Name this technique whose "flow" version uses fluorescent dyes to characterize or sort a population of cells by enclosing them in droplets and firing them past a laser.

ANSWER: **cytometry** ("syeh-TAH-muh-tree") [accept mass **cytometry** or flow **cytometry**]

[10m] In a cytometry experiment, one subsamples cell populations using this technique. Usually this procedure is done by drawing boxes around populations in a 2D plot, and is commonly used to exclude dead cells.

ANSWER: **gating** [accept word forms such as **gate**]

[10h] Because of spillover, multicolor flow cytometry experiments often use these controls, in which each fluorophore is individually excluded. For a panel of n colors, there are n of these controls.

ANSWER: **FMO** control [or **fluorescence minus one** control; reject "FML control"]

<Biology>

12. In 1896, Solomon Schechter ("SHECK-ter") exported hundreds of thousands of documents from this collection, which was found in the Ben Ezra synagogue. For 10 points each:

[10h] Name this set of over 400,000 documents. It details centuries of medieval Jewish history, including from the era during which the city it was found in was known as Fustat ("foo-STAT").

ANSWER: **Cairo Genizah** ("guh-NEE-zuh") [accept answers that refer to a **genizah** and **Cairo** or al-**Qahirah**; prompt on **genizah** by asking "In what city was it found?"]

[10e] The Cairo Genizah documents are mostly in Arabic, Hebrew, and this other Semitic language, which is often thought to be the language used everyday by Jesus.

ANSWER: (Classical) **Aramaic** [or **Arāmāyā**]

[10m] This author learned Hebrew script to reconstruct the life of trader Abraham ben Yiju from Genizah texts for his book *In an Antique Land*. This historical fiction author wrote *The Shadow Lines* and the *Glass Palace* trilogy.

ANSWER: Amitav **Ghosh** ("goash")

<Other Academic>

13. Multiple composers have supposedly transcribed a piece after hearing it only once. For 10 points each:

[10m] A fourteen-year-old Mozart supposedly transcribed the *Miserere* (“mee-say-RAY-ray”) of this 17th-century Italian composer after hearing a single live performance.

ANSWER: Gregorio **Allegri**

[10e] After hearing “Tea for Two” once, this Soviet composer of the *Leningrad Symphony* not merely memorized it but re-orchestrated it as his *Tahiti Trot*.

ANSWER: Dmitri (Dmitriyevich) **Shostakovich**

[10h] Rimsky-Korsakov propagated the myth that Glazunov reconstructed this instrumental excerpt from an opera completely from memory, after one hearing. In fact, it was a combination of memory and the compositional sketches that the composer had left upon his 1887 death.

ANSWER: **overture** to **Prince Igor** (by Alexander Borodin) [prompt on *Prince Igor*]

<Classical Music>

14. The “entangled bank hypothesis” of this process uses Y-chromosomal DNA to argue against a rapid origin from Asia and suggest that it was driven by millennia of cultural mixing. For 10 points each:

[10m] Identify this long-term historical process. Jared Diamond wrote an article likening the Lapita culture to an “express train” that kicked off this process. A description is fine.

ANSWER: **Polynesian expansion** [or **Polynesian migration**; accept answers indicating the movement of **Polynesian** peoples or **Polynesians** or **Austronesians** across the Pacific/Oceania; prompt on answers referring to settling any of the **Pacific**, or **Oceania**, or **Polynesia**]

[10e] Ancient Polynesians migrated using mnemonic navigation techniques to guide these boats over thousands of miles of ocean. Polynesians built both dual-hulled and “outrigger” examples of these boats.

ANSWER: **canoes** [or ***waka**; accept **vaka** or **wa’a** or **va’a**; accept outrigger **canoes**; prompt on **catamarans**]

[10h] Using only mnemonic techniques taught by this Micronesian navigator, the Polynesian Voyaging Society sailed the canoe *Hōkūle’a* (“HOH-koo-LAY-ah”) 2,600 miles from Hawaii to Tahiti in 1976.

ANSWER: (Pius) “**Mau**” **Piailug** (“mao pee-EYE-lug”) [accept either underlined portion]

<World History>

15. In Lauren Groff’s 2021 novel *Matrix*, this author assembles an all-nun scriptorium that copies texts for a fraction of the price charged by men. For 10 points each:

[10m] Name this 12th-century poet whose *lais* (“LAYZ”) include a version of the Tristram legend, titled *Chevrefoil* (“shev-ruh-FWAL”), that leaves his lover Iseult (“izz-OOLT”) unnamed.

ANSWER: **Marie de France** [accept either name]

[10e] Though written in Norman French, Marie de France’s *lais* are set in this region. A ballad about the sunken City of Ys (“EESS”) was composed in this coastal region’s namesake Celtic language.

ANSWER: **Brittany** [or **Bretagne**; or **Breizh** (“brace”); accept **Breton**; accept **brezhoneg** (“bray-ZO-neck”)]

[10h] In one of Marie de France’s *lais*, a baroness schemes with her lover to trap her husband in this form, by stealing his clothes; a year later, he is restored to his normal form when his wife is tortured by the king into revealing her scheme.

ANSWER: werewolf [accept **Bisclavret**; accept **Garwal**]

<European Literature>

16. This man published the first volume of his own *System of Philosophy* in 1902, after decades of interpretive works like *Kant's Theory of Experience* and *Kant's Grounding of Ethics*. For 10 points each:

[10h] Name this leading neo-Kantian, who taught students such as Ernst Cassirer (“kuh-SEE-rer”) at the University of Marburg. He treated his faith as the origin of universal ethics in *Religion of Reason out of the Sources of Judaism*.

ANSWER: Hermann **Cohen**

[10e] Hermann Cohen used this adjective to describe a type of “thinking” independent of any external influence. This adjective partly titles a Kant book that asks if synthetic *a priori* truths are possible.

ANSWER: **pure** [or **rein** or **reinen**; accept *Critique of Pure Reason*; accept *Kritik der Reinen Vernunft*]

[10m] One of many Kantian terms Cohen redefined is this one, frequently conflated with the thing-in-itself, which refers to an object or event that exists independent of human perception. Schopenhauer criticized Kant for making this term about perception rather than cognition.

ANSWER: **noumenon** [or **noumena**; or **noumenal**; reject the entirely different term “numinous”]

<Philosophy>

17. The Jamaican poet Lorna Goodison recalled growing up thinking “that all poets were men and that they wrote poems like” this one. For 10 points each:

[10e] Name this Romantic poem which is often used in Caribbean literature as a symbol of British colonialism.

When “in vacant or in pensive mood,” this poem’s speaker recalls seeing a “host of golden” flowers.

ANSWER: “**I Wandered Lonely as a Cloud**” [or “**Daffodils**”]

[10m] In this Jamaica Kincaid novel, written five years after *Annie John*, the title character moves to America to work as an au pair. This novel’s title character is forced to memorize “I Wandered Lonely as a Cloud” as a child, just as Kincaid herself was.

ANSWER: **Lucy**

[10h] Hortense has to memorize “I Wandered Lonely as a Cloud” as a schoolgirl in this Andrea Levy novel about Jamaican immigrants to Britain.

ANSWER: **Small Island**

<World Literature>

18. English landscape artist Paul Sandby coined the term for this technique, which married printmakers Marie Catherine and Johann Gottlieb Prestel popularized in 18th-century Germany. For 10 points each:

[10m] Name this technique, in which artists apply powdered rosin and ink to an etched copper plate to make prints with varied tones and a watercolor-esque look. It predates a similar “mezzo-” technique.

ANSWER: **aquatint** [prompt on **color tint etching**; prompt on **intaglio**; reject “mezzotint”; reject “tint”]

[10e] This Romantic artist used aquatint for two of his best-known series, *Los caprichos* and *The Disasters of War*, which criticize society and violence in his native Spain.

ANSWER: Francisco **Goya** [or Francisco José de **Goya** y Lucientes]

[10h] The 26th entry of *Los caprichos* depicts two girls using these objects as headgear as men laugh at them.

Børge (“BURR-yeh”) Mogensen created a so-called “Spanish” type of this object in the 1950s.

ANSWER: **chairs** [accept Spanish **Chair**]

<Painting/Sculpture>

19. For 10 points each, answer the following about the Daughters of Liberty:

[10e] It's unclear whether the Daughters formed in response to the Townshend ("TOWN-zend") Acts or this other much-hated law, which imposed a tax on all printed materials in the American colonies.

ANSWER: **Stamp** Act

[10h] A nine-year-old Daughter of Liberty named Sarah, who had this given surname, gained fame by accepting tea from Loyalist governor William Franklin, then dumping it out a window. She shares this surname of French origin with the mixed-race editor of the Cherokee *Phoenix* newspaper.

ANSWER: **Boudinot** ("boo-DIN-ott") [accept Sarah **Boudinot** or Elias **Boudinot** ("uh-LIE-us boo-DIN-ott")]

[10m] The Daughters organized many of these events in which Patriot women publicly competed to make more textiles than one another, supporting boycotts of British goods.

ANSWER: **spinning bees** [prompt on spinning competitions]

<American History>

20. When a body's charge q and mass m are distributed identically, the ratio of these two quantities equals " q over $2m$." For 10 points each:

[10m] Name these *two* vector quantities, whose ratio for a particular physical object is called the gyro-magnetic ratio.

ANSWER: **magnetic moment** [or **magnetic dipole moment**; prompt on dipole moment]

ANSWER: **angular momentum** [or **spin**]

[10e] For a magnetized body, the gyro-magnetic ratio also relates an applied magnetic field to the Larmor frequency for this process. In this process, an axis of rotation rotates around another axis.

ANSWER: **precession** [accept Larmor **precession**]

[10h] For a particle beam, this quantity is the ratio of *linear* momentum to charge. In accelerator physics, this measure of the difficulty of deflecting a beam with a magnetic field is written B -rho, where rho is the cyclotron radius.

ANSWER: magnetic **rigidity**

<Physics>