

2023 ACF Regionals

Packet I by Brandeis A, Cambridge A, Cambridge B, Michigan A, NYU A

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Tossups

1. This name denotes a “world” studied by Stephanie Wynne-Jones, whose “proto” settlements produced the triangular-incised ware of the Tana tradition. Derek Nurse and Thomas Spear wrote that a language of this name developed from the NECB’s Sabaki branch. The ruins of Shanga and Gede (“g’DAY”) exemplify a type of architecture with this name that features “pillar tombs” made of *Porites* coral. Elites from a non-Persian, transnational region with this name distinguished themselves by claiming Shirazi descent. Mwenemutapa (“mway-NEH-moo-tah-PAH”) lay southwest of a trade corridor with this name whose gold exports connected Sofala with Kilwa. A Bantu language with this name was promoted by Julius Nyerere’s policy of ujamaa. For 10 points, give this name of the East African coastal region shared by modern Mozambique, Kenya, and Tanzania.

ANSWER: **Swahili** [or Ki**Swahili** or Wa**Swahili**; or **sawāhili**; accept **Swahili** Coast; accept Proto-**Swahili**; accept *The **Swahili** World*; prompt on East **Africa** or African **coast**; prompt on **Indian Ocean**; prompt on **Bantu** languages or Southern **Bantoid** or **Niger–Congo** languages until “Bantu” is read; prompt on **Zanjī** or **Zangi** or **Zingium** by asking “Arabic sources mainly used that term for what cultural region?”]

<World History>

2. In rubber-like elastic materials, this quantity decreases with length, leading to negative linear expansivity at constant tension. In a Joule–Thomson process where this quantity is constant, the gas temperature will decrease. The change in this quantity can be found by integrating the heat capacity over T from the initial to final temperature. In the Joule expansion of one mole of ideal gas, this quantity increases by $R \ln 2$. The Gibbs paradox is resolved by redefining this quantity, treating identical particles as indistinguishable. The Clausius inequality defines this quantity, which is proportional to the log of the number of microstates according to Boltzmann’s statistical definition. For 10 points, name this quantity that cannot decrease for a closed system according to the second law of thermodynamics, a measure of disorder.

ANSWER: **entropy** [accept **S**]

<Physics>

3. A huge portrait of a person with this surname unnerves the narrator before his alcoholic father tells him to move a body in Perhat Tursun’s novel *The Backstreets*. This surname follows a word for “three” in the pen name of the author of *Stories of the Sahara*. Sparrow leaves a conservatory under a leader with this surname in *Do Not Say We Have Nothing*. The Misty Poets opposed the classicism of a man with this surname who championed the “Three Lǐs (“lees”).” A novel by Anchee Min is titled for “becoming” the wife of a politician with this surname, who promoted “eight model plays” like *The Legend of the Red Lantern* and *Red Detachment of Women* as “revolutionary operas.” For 10 points, “quotations” from a leader with what surname were collected in the *Little Red Book*?

ANSWER: **Mao** [accept **Máo** Zédōng or Chairman **Máo** or **Mao** Tsê-tung; accept Madame **Máo** or *Becoming Madame **Máo***; accept Sān**máo**; prompt on **Jiāng Qīng** or **Chiang Ch’ing** by asking “she married a man with what surname?”; prompt on Echo **Chén Píng** or **Echo Chan** or Echo **Chan** by asking “what was her pen name?”]

(Madeleine Thien wrote *Do Not Say We Have Nothing*. The “Three Lǐs” were Lǐ Bái, Lǐ Hè, and Lǐ Shāngyǐn.)

<World Literature>

4. In a book on the “grammar” of these objects, W. H. Goodyear traced their use as an artistic motive from geometric Cypriot vases to the anthemion (“an-THEE-mee-un”), Ionic columns, and egg-and-dart-molding. Eyes shaped like fish or these objects are common in Basohli paintings from the Pahari school. One of these objects, which was [emphasize] *removed* in the State Emblem of India, is inverted below the circular abacus of Sarnath’s (“SAR-not’s”) lion capital of Ashoka. Palm, papyrus, and this emblem of Upper Egypt are the typical forms of Egyptian columns, which were often topped with either the open bells or closed buds of these plants. 27 marble petals evoke one of these flowers in bloom in Fariborz Sahba’s design for New Delhi’s Bahá’i House of Worship. For 10 points, Lakshmī and Vishnu are often painted sitting on what flowers?

ANSWER: **lotuses** [accept **water-lily** or **water-lilies**; accept **padmā** or **seshen**; accept **Lotus** Temple; accept **lotiform** columns or **lotus** capitals; accept *The Grammar of the Lotus*; prompt on **flowers** until read; prompt on **plants**, **buds**, **petals**, **stems**, or other plant parts until “plants” is read by asking “what plant?”] (Goodyear was the son of Charles Goodyear of rubber fame.)

<Painting/Sculpture>

5. Applying this operation may break properties like being Lindelöf or being normal, by a textbook example named for Robert Sorgenfrey. When a space is formed via this operation, its standard topology is generated by all preimages of open sets under the canonical projections, or by all cylinder sets, and need not agree with its box topology. Applying this operation countably many times to countably infinite sets produces an uncountable set, by a proof analogous to Cantor’s diagonal trick. Arbitrary application of this operation preserves compactness according to Tychonoff’s theorem. When applied to two lines, this operation produces a plane. For 10 points, name this Cartesian operation that, when applied to the sets A and B, produces the set of all ordered pairs “little-A comma little-B.”

ANSWER: Cartesian **product** [or set **product**; accept direct **product**; accept **product** topology; reject “multiplication”]

<Other Science>

6. A woman and one of these beings sail between islands in a glass box in a story from *Tales of the Marvellous and News of the Strange*. Travelers once threw stones into boxthorn shrubs to pacify these beings, which allegedly built the Roman “Stone of the Pregnant Woman.” The first of these beings, Taranushi, is created from the simoom wind. One of these beings reveals a lake of colorful singing fish after a fisherman tricks it. These beings build a palace with a glass floor, whither one of them brings the throne of Bilqīs. Ruqya exorcism treats possession by these beings, which include ‘afārīt and are enslaved by Sulaimān’s ring. Iblīs is either a fallen angel or one of these beings made of smokeless fire. For 10 points, westerners ascribe what beings from Arabian myth the ability to grant three wishes?

ANSWER: **jinn** [or **djinn**; or **genies**; accept **jinnayah** or **qutrub**; accept ‘**ifrit** or ‘**afārīt** until “‘afārīt” is read; accept **mārid**, **ghaddar**, **amaar**, **arwaah**, or **shedim**; prompt on **spirits** or **demons** or **devils**; prompt on **Shaitān** or **Shayātīn**; prompt on **div** or **zār** or **bès**] (The fourth sentence refers to “The Fisherman and the Jinni” from the *One Thousand and One Nights*.)

<Mythology>

7. A 2004 book by Lauren Slater interviewed two participants in this event, one of whom was empowered by it to come out as gay. The lessons from this event were verified after a 40-year lag in a recreation by Jerry Burger. Many participants in this event were in an “agentic state” according to its organizer, who originally planned to implement it in both the US and Germany. This event addressed the question of whether Adolf Eichmann, whose trial had recently begun in Jerusalem, could be considered an “accomplice.” This event, which falsely claimed to investigate the relationship between memory and punishment, took place in a basement at Yale University. For 10 points, “teachers” administered “learners” with electric shocks during what series of experiments on obedience to authority figures?

ANSWER: **Milgram** experiments [or **Milgram** obedience experiments or **Milgram** shock experiments; prompt on **obedience** experiments or **shock** experiments by asking “conducted by whom?”] (Slater’s book is *Opening Skinner’s Box: Great Psychological Experiments of the Twentieth Century*.)

<Social Science>

8. Larry Benson’s team proposed that the ditches connecting this site’s Far View House to Mummy Lake may have actually been ceremonial herradura roads. Ceramic pottery found near this site’s Knobby Knee Stockade reflected extensive pithouse communities built during the “Modified Basketmaker” period. J. W. Fewkes excavated this site’s Sun Temple, which was abandoned mid-construction in the 1280s CE. This site is located east of Yucca House and Hovenweep in Montezuma County. This northernmost major settlement in “Oasisamerica” contains the Cliff Palace complex. High masonry pier plasters distinguish this site’s namesake deep, keyhole-shaped kivas from those at Chaco Canyon. For 10 points, the largest cliff dwellings built by the Ancestral Pueblo are located at what site in a namesake national park in southwestern Colorado?

ANSWER: **Mesa Verde** [accept **Mesa Verde** National Park; accept **Mesa Verde**-style kivas]

<American History>

9. The B-flat major slow movement of this piece opens with a theme that outlines a rising tritone, played in thirds first by a pair of clarinets and then a pair of oboes. After an eighth rest, strings play the notes [read slowly] “long D, D D C D followed by three long E-flats” over a timpani ostinato to introduce the second theme of this piece’s finale. This piece begins with *divisi* muted violins outlining the tonic triad before the main theme enters on an offbeat, slightly dissonant G. This piece, which was written for the instrument its composer had failed to become a professional virtuoso on, unusually places a cadenza during the development section. Donald Francis Tovey described this D minor concerto’s finale as a “polonaise for polar bears.” For 10 points, name this only concerto by the composer of *Finlandia*.

ANSWER: Jean **Sibelius**’s **Violin Concerto** in D minor [accept Johan Julius Christian **Sibelius** in place of “Jean Sibelius”; prompt on **Violin Concerto** in D minor by asking “by what composer?”; prompt on Violin **Concerto** in D minor until “concerto” is read]

<Classical Music>

10. The speaker looks for “voices / wounded by their beauty” during this conflict in a poem set as “Music divides the evening,” which was collected in a book whose title translates to “crazy.” A father’s “sea-black eyes” reflect a “cathedral of trees” after he dies during this conflict in the poem “Telemachus.” A poem’s speaker thinks of this conflict and says, “I said I wouldn’t / dammit: No tears.” Lyrics by Irving Berlin are juxtaposed with images of this war in the poem “Aubade With Burning City.” The speaker recalls this war as his “black face fades / hiding inside the... granite” in Yusef Komunyakaa’s poem “Facing It.” Ted Lavender dies during this war in a story titled for items like Jimmy Cross’s letters from Martha. For 10 points, what war provides the setting of Tim O’Brien’s *The Things They Carried*?

ANSWER: **Vietnam** War [or **Second Indochina** War; or Chiến tranh **Việt Nam**; or Kháng **chiến chống Mỹ**] (The first poem is “Tu Do Street” from the collection *Dien Cai Dau*. “Telemachus” and “Aubade with Burning City” are by Ocean Vuong.)

<American Literature>

11. An essay illustrates people’s awareness that they are “exploding” this concept via an eyewitness account of “new Joshuas at every tower” in Paris. That essay claims that a theory of this concept acknowledges our “weak messianic power” and argues that it is “always supposed to win” by analogizing it to the chess-playing Mechanical Turk. In an essay written shortly before its author’s suicide while fleeing the Nazis, a figure named for this concept “sees one single catastrophe piling ruin upon ruin.” Paul Klee’s (“clay’s”) print *Angelus Novus* inspired the “Angel” of this concept described by Walter Benjamin (“VAL-tur BEN-yah-meen”) in an essay listing “Theses on the Philosophy of” this concept, which criticizes Karl Marx’s “materialist” theory of it. For 10 points, there are “cyclical” and “great man” theories of what discipline?

ANSWER: **history** [or **Geschichte**; accept **historical** materialism; accept “Theses on the Philosophy of **History**”; accept Angel of **History**; accept “On the Concept of **History**” or “Über den Begriff der **Geschichte**”]

<Philosophy>

12. A specific value of this quantity is multiplied by 24 under the Kassirer–Bleich (“kuh-SEER-er BLIKE”) approximation. The fraction “ x over m ” is proportional to this quantity to the power “one over n ” by the Freundlich (“FROIND-lick”) equation. The product of a constant with this quantity, all over one plus the product of that constant with this quantity, yields fractional occupancy for the Langmuir (“LANG-myoor”) adsorption (“ad-ZORP-shin”) isotherm. This quantity can replace concentration when calculating equilibrium constants because it is directly proportional to the concentration of a dissolved gas according to Henry’s law. This quantity is proportional to the mole fraction for each component in a gaseous mixture. For 10 points, Dalton’s law states that the pressure of a mixture of gasses equals the sum of what pressures corresponding to the constituent gasses?

ANSWER: **partial pressure** [accept **partial** pressures after “pressure” is read; prompt on **pressure** until read; prompt on **p**]

<Chemistry>

13. The subject checks for traces of this product in Isabel Bishop’s painting *Tidying Up*. This product covers the leftmost third of the canvas in *Fahrenheit 1982 Degrees* by James Rosenquist. Helena Rubinstein invented the “Stay-Long” form of this product, whose longevity was also improved by Hazel Bishop. Rindy Sam used this product to vandalize Cy Twombly’s *Phaedrus*. In a tanklike sculpture at Yale, Claes Oldenburg depicted this product “ascending on caterpillar tracks.” Yves Saint Laurent’s first product of this type was a fuschia-colored “Rouge” Number 19. Bobbi Brown developed ten natural shades of this product, which can be used to form a “Cupid’s bow.” For 10 points, MAC Ruby Woo is a classic shade of what waxy makeup that may match red nail polish?

ANSWER: **lipstick** [accept **lipstick** tubes; accept **Lipstick** (*Ascending*) on *Caterpillar Tracks*; accept Stay-Long **Lipstick**; prompt on **makeup** until read; prompt on **cosmetics**; prompt on **tubes**]

<Other Fine Arts>

14. Over confusion that they were each a central figure in this event, Mary Waterworth and Elizabeth Gaunt were both mistakenly arrested. By expanding their reach from the Portico Library after this event, members of the “Little Circle” like John Edward Taylor nationalized their agenda. James Wroe was arrested for publishing a report of this event that he called its “faithful narrative.” Two years before this event, five thousand “blanketeers” met in the same location and were read the Riot Act. Assemblies of over 50 people were prohibited by the “Six Acts” passed by Lord Sidmouth and Lord Liverpool after this event, during which cavalry charged into a crowd demanding reform led by Henry Hunt. For 10 points, name this 1819 massacre in Manchester named in analogy with a decisive battle of the Napoleonic Wars.

ANSWER: **Peterloo** Massacre (The March of the Blanketeers also occurred in St Peter’s Fields. Waterworth and Gaunt were confused with Mary Fildes, the president of the Manchester Female Reform Society.)

<Other History>

15. On an island near this city, Arturo falls in love with his father’s young bride in the novel *Arturo’s Island*. In another novel set in this city, a 13-year-old girl insists on meeting a deceptive aunt who claims to have given her a bracelet. Before getting married, a character in this city learns that another character works in a sausage factory while studying computer programming and dating Enzo. A child named Tina disappears in a novel set in this city that ends with the protagonist receiving two long-lost dolls in the mail. The Solara family runs a criminal group in this city, which is the setting of *The Lying Life of Adults* and a series of novels about the friendship between Elena and Lila. For 10 points, *My Brilliant Friend* is part of a quartet set in what Italian city by Elena Ferrante?

ANSWER: **Naples** [or **Napoli** or **Neapolis**; accept **Neapolitan** Quartet or **Neapolitan** Novels] (Elsa Morante wrote *Arturo’s Island*.)

<European Literature>

16. Two equivalents of this molecule are converted by GGDEF domains into a cyclic second messenger that promotes *Pseudomonas* biofilm formation. In mice, *Toxoplasma*’s pseudokinase ROP5 inactivates “immunity-related” enzymes that degrade this molecule, which is cyclically broken down by the bacterial divisome assembler FtsZ (“fits-Z”). Nocodazole inhibits the continuous “rescue” of the cap that binds this small molecule at the plus-end by new tubulin heterodimers bound to it, which causes the dynamic instability of microtubules. “Small” enzymes that act as binary switches by hydrolyzing this molecule include ARF (“arf”), Rho, and Ras. GDIs, GAPs (“gaps”), and GEFs (“gheffs”) regulate this molecule’s hydrolysis by G proteins. Guanylate cyclase converts this purine to cyclic GMP. For 10 points, name this nucleotide triphosphate derived from guanine.

ANSWER: **GTP** [or **guanosine triphosphate** or **guanosine-5-prime-triphosphate** or **guanine triphosphate**; accept small **GTPases** or immunity-related **GTPases**; accept **guanosine triphosphatases**; prompt on **IRGs** by asking “what does that stand for?”; reject “GDP” or “ATP”] (The first line refers to cyclic di-GMP.)

<Biology>

17. Uncle Zip surrounds himself with characters of this type like Billy Anker and Mona in M. John Harrison’s novel *Light*. A fast-food server who is this type of character consumes “Soap,” talks with the Archivist, and watches *The Ghastly Ordeal of Timothy Cavendish* in a story from *Cloud Atlas*. Four characters of this type take a road trip to find a woman who works in an “open-plan” office, which a character of this type fantasizes about after seeing one in a magazine. In that novel, Madame sobs as she sees a girl of this type dancing to a Judy Bridgewater song.

Characters of this type attend school at Hailsham in a novel in which they are divided into “carers” and “donors.” For 10 points, Tommy, Ruth, and Kathy H. are what sort of characters in Kazuo Ishiguro’s novel *Never Let Me Go*? ANSWER: human **clones** [accept **cultivars**; accept **fabricants**; accept **cultured** people or **bioengineered** people or other equivalents; prompt on Hailsham **students** or organ **donors** or **carers** until each is read by asking “what is their distinctive feature?”] (The character from *Cloud Atlas* is Sonmi-451.)

<British Literature>

18. Leaders of a regime described by this word were targeted by the “Companies of the Sun” and “Companies of Jesus.” In a 2018 book, Ronald Schechter traces the “emotional turn” of this word from having a positive connotation to a negative one. This word was defined as an “emanation of virtue” and “prompt, severe, inflexible justice” in a speech given to a legislative body formed in the wake of the September Massacres. An urge to make this word “the order of the day” by Claude Royer outlines the belief of a group that later passed the Law of Suspects and the Law of 22 Prairial. This word is used to describe a period during which the Committee of Public Safety promoted the Cult of the Supreme Being. For 10 points, the Thermidorian Reaction ended Maximillien Robespierre’s “reign” of what word?

ANSWER: **terror** [or **terreur**; or word forms like **terrorism** or **terrorist**; accept Reign of **Terror**; accept White **Terror**; prompt on **Jacobin**] (Robespierre defined terror as “prompt, severe, inflexible justice” in a speech to the National Convention on February 5, 1794.)

<European History>

19. This practice is the goal of a movement that was popularized by a 1990 book by Rick and Jan Hess titled for a metaphor from Psalm 127. A central doctrine of the racist Christian Identity movement holds that this practice was performed by the serpent. This practice is called a “first commandment” that “remains in force” in a 1995 “proclamation to the world” by the First Presidency and Quorum of the Twelve Apostles. The idea that this practice is a divine injunction called the “cultural mandate” inspired the Quiverfull movement. The encyclical *Humanae vitae* condemned the artificial prevention of this practice, so many Catholics plan it with calendar-based CycleBeads or the rhythm method. For 10 points, God instructs Adam and Eve to perform what practice with the command to “be fruitful and multiply”?

ANSWER: having **children** [or bearing **children**, having **kids**, having **babies**, **birthing**, **reproduction**, **procreation**, **conception**, siring **descendants** or equivalents; accept **parenthood** or **fathering** or **mothering**; accept **pregnancy** or **fertility** or **fecundity**; accept **pronatalism**; accept **multiplying** until read; accept increasing the human **population**; prompt on having **sex** or equivalents by asking “for what purpose?”] (The second sentence refers to the “two-seedline” or “serpent seed” doctrine.)

<Religion>

20. Every month, this country and an eastern neighbor convene the Locust Warning Organization. A cluster of 135 firms in this country’s northeast makes most of the world’s soccer balls. A steel magnate who led this country toasted its “sweeter than honey” relations with its larger “iron brother” since 1950, which includes military access to the satnav system BDS. A highway reconstruction in this country’s north created a series of “friendship tunnels.” This country negotiated the import of 300,000 metric tons of Russian wheat after August 2022 floods. An economic corridor that links China to this country developed its deep-sea port in the former Omani exclave of Gwadar, Balochistan. For 10 points, name this nuclear-armed state led by Shehbaz Sharif after a 2022 constitutional crisis ousted Imran Khan.

ANSWER: **Pakistan** [or Islamic Republic of **Pakistan** or Islāmī Jumhūriyah **Pakistān**; accept China–**Pakistan** Economic Corridor] (The soccer balls are produced in Sialkot. The steel magnate is Nawaz Sharif, brother of the current PM. The satnav system is Běidōu. The highway is the Karakoram Highway.)

<Current Events>

21. In preparation for this technique, polymers can be dissolved to form a cast-film. In conjunction with this technique, KRS-5 or zinc selenide crystals may be used for attenuated total reflection. Samples for this technique are often prepared with heavy mineral oil and then sandwiched between sodium chloride or potassium bromide plates. This technique often employs Fluorolube and Nujol as mulling agents. A broad trough in the 3,000 inverse-centimeter region in this technique indicates the presence of a hydroxyl group, corresponding to the stretching mode of the O–H bond. Spectra from this technique have a characteristic fingerprint region. For 10 points, wavenumber is plotted against transmittance in what analytical technique that uses a region of the EM spectrum with wavelengths longer than visible light?

ANSWER: **infrared** spectroscopy [or **IR** spectroscopy; accept Fourier transform **infrared** spectroscopy or FT**IR** spectroscopy]

<Chemistry>

Bonuses

1. *Description acceptable.* Ian Tattersall argued that the bones left in caves like the Drachenloch were weak evidence for this tradition among Neanderthals, as popularized by a Jean M. Auel (“owl”) novel about a “clan.” For 10 points each:

[10m] Identify this shamanistic religious tradition of northern Eurasian peoples like the Nivkh. Finnic pagans held feasts for the subjects of this tradition, similar to the suppressed Ainu ritual of iomante (“ee-oh-MAHN-tay”).

ANSWER: **bear** cult [or **bear** worship, **bear** veneration, **bear** sacrifice, or **arctolatry**; or descriptions of the religious significance of **ursids**, brown **bears**, cave **bears**, *Ursus arctos*, or *Ursus spelaeus*; accept *The Clan of the Cave Bear*; prompt on animal **sacrifice**; prompt on **totemism**] (The Finnish feasts were called peijaiset.)

[10e] Slavic bear worship may have led to the “deformation” of this concept, engendering euphemisms for bears like “honey-eater.” This term for bans on abhorrent acts like incest derives from Polynesian languages.

ANSWER: **taboo** [accept **kapu** or **tapu**; accept incest **taboo**; accept **taboo** deformation]

[10h] Sigmund Freud’s *Totem and Taboo* concludes that this animistic practice reflects “omnipotence of thought.” Henri Breuil (“BRUH-ee”) wrote that belief in this supernatural practice explained Paleolithic paintings of animals pierced by spears.

ANSWER: **sympathetic magic** [accept **imitative magic** or **homeopathic magic** or **Analogiezauber**; accept **law of similarity**; prompt on practical **magic** or **Zauberei**; prompt on hunting **magic** or **Jagdzauber**; prompt on **homeopathy**] (Freud’s discussion of imitative magic is based on Frazer, who grouped both imitative and contagious magic within “sympathetic magic.” However, Breuil and some other scholars treat sympathetic and imitative magic as synonymous.)

<Religion>

2. Sam Dunn showcased the Brazilian bands Angra and Sepultura in his “Global” documentary on this genre, whose fans include Botswana’s leather-clad Hellbangers. For 10 points each:

[10e] Name this broad rock genre whose Latin American scene in the ’90s included Uruguay’s Motörhead-influenced band Motosierra and the Ecuadorian group C.R.Y. from its extreme “death” subgenre.

ANSWER: **metal** music [or heavy **metal**; accept death **metal** or black **metal** or **thrash** metal; accept glam **metal** or hair **metal** or pop **metal**; accept *Global Metal*]

[10h] The death metal band Maleficia is from this country, whose name follows “Surf” in the title of an anti-war song by thrash metal band Sacred Reich. A group from this Latin American country titles a 1980 album that features “Washington Bullets.”

ANSWER: **Nicaragua** [or Republic of **Nicaragua** or República de **Nicaragua**; accept “Surf **Nicaragua**”] (The album is *Sandinista!* by The Clash.)

[10m] The Nicaraguan Revolution inspired the song “Bullet the Blue Sky” on this 1987 U2 album, whose song “Mothers of the Disappeared” honors the COMADRES and Mothers of the Plaza de Mayo.

ANSWER: *The **Joshua Tree***

<Pop Culture>

3. Pathologists describe some of these structures as “naked” or “dressed” depending on the presence of osteoblastic rimming. For 10 points each:

[10h] Give this term for microanatomical supports, like those in lymph nodes and spongy bone. The outflow of aqueous humor through the uveal and corneoscleral components of this type of “meshwork” increases intraocular pressure.

ANSWER: **trabeculae** [accept **trabecular** meshwork or **trabeculo**cytes; accept naked **trabeculae** or dressed **trabeculae**; prompt on **TM** by asking “what does that stand for?”]

[10m] The trabecular meshwork and Schlemm’s canal are found in one of these anatomical features in the sclera. This Latin term refers to fissures, grooves, and tears (“fairs”), such as the “central” one between two gyri in the brain.

ANSWER: **sulcus** [or **sulci**; accept central **sulcus** or **sulcus** of Rolando; accept scleral **sulcus**]

[10e] The “sulcus sign” is a test for inferior instability at this ball-and-socket joint, which has high mobility thanks to the rotator cuff and anterior deltoid.

ANSWER: **shoulder** joint [or **glenohumeral** joint]

<Biology>

4. In a captivity narrative, John Payzant recounted his release back to this province, while his sister voluntarily remained behind. For 10 points each:

[10e] Name this Canadian province that was originally settled as French Acadia before the British besieged Port-Royal and founded the city of Halifax.

ANSWER: **Nova Scotia** [or **Nouvelle-Écosse** or **Alba Nuadh**; prompt on **Acadia** until read]

[10h] The settlement of Halifax as the capital of Nova Scotia sparked a conflict named for this French Catholic priest, who led an alliance of Acadian and Native Mi’kmaq militias against the British.

ANSWER: Jean-Louis **Le Loutre** [or Father **Le Loutre**; accept Father **Le Loutre**’s War]

[10m] During Father Le Loutre’s War, the French–Native alliance led two raids on a settlement with this name in 1749 and 1751. The Moor’s Charity School educated Natives to be trained as missionaries before Eleazar Wheelock reestablished it as a colonial college with this name.

ANSWER: **Dartmouth** [accept **Dartmouth** College; accept **Dartmouth**, Nova Scotia]

<Other History>

5. A 2021 memoir [emphasize] *about* this author describes how a bird hit his window shortly before his death. For 10 points each:

[10h] Name this author whose 2014 death was described in his son’s memoir *A Farewell to [this author] and Mercedes*. This author described his attempts to study law in a 2003 *New Yorker* essay titled “The Challenge.”

ANSWER: Gabriel **García Márquez** [or Gabriel José de la Concordia **García Márquez**; accept **Gabo**; accept *A Farewell to **Gabo** and Mercedes*; prompt on **Márquez** or **García**]

[10e] In this García Márquez novel, confused birds fly into windows and die after the death of Úrsula, who, like García Márquez, dies on Good Thursday. This novel depicts the Buendía family over several generations.

ANSWER: *One **Hundred Years of Solitude*** [or ***Cien años de soledad***]

[10m] In *One Hundred Years of Solitude*, Úrsula fears that incestuous relationships will create a child with this physical feature. Her namesake, Amaranta Úrsula, later dies while giving birth to a child with this unusual physical feature.

ANSWER: a **pig’s tail** [or **pig tail**; or **cola de cerdo**; prompt on **tail** by asking “what kind of tail?”]

<World Literature>

6. A set of letters by this writer introduced the language of flowers to Britain and was published with a preface by Mary Astell that notes “to how much better purpose the Ladies travel than their Lords.” For 10 points each:

[10h] Name this writer who recounted her conversations with other women in bathhouses in a set of letters written while she traveled with her husband, a British ambassador.

ANSWER: Lady Mary Wortley **Montagu** [or Mary **Pierrepont**]

[10m] Another 18th-century woman of letters with the same surname was Elizabeth Montagu, who led a women’s literary society named for these items. Today, these clothing items are an alternate term for a female intellectual.

ANSWER: **blue stockings** [accept The **Blue Stockings** Society; prompt on **stockings**]

[10e] Sarah, a Blue Stocking with this surname, drew on the *Turkish Embassy Letters* of her second cousin Lady Wortley Montagu in promoting smallpox inoculation. Her brother with this surname wrote the novel *Tom Jones*.

ANSWER: **Fielding** [accept Henry **Fielding**; accept Sarah **Fielding**]

<British Literature>

7. Erik Gustaf Boström reunited two branches of the Lantmanna Party in 1895 after his “new” branch had split a decade earlier because it supported this policy. For 10 points each:

[10m] Identify this policy that Otto von Bismarck promoted with the “Rye and Iron” coalition of industrial and agricultural sectors to support the Junkers in the face of falling grain prices worldwide.

ANSWER: **protectionism** [or word forms like **protectionist** or economic **protection**; accept **isolationism** or **isolationist** policies; accept descriptions like **opposing free trade** or supporting **tariffs**]

[10e] Boström served multiple terms as Swedish prime minister until he refused to accept the independence of this western neighbor in 1905, when Oscar II renounced claims in favor of Haakon VII.

ANSWER: **Norway** [or **Norge**, Kingdom of **Norway**, Kongeriket **Norge**, Kongeriket **Noreg**, **Norgga**, **Vuona**, **Nöörjen**, or **Norjan**]

[10h] This shipping magnate and first Norwegian prime minister led the push for Norwegian independence over a desire to implement free trade policies. He later founded the proto-fascist Fatherland League with Joakim Lehmkuhl and Fridtjof Nansen.

ANSWER: Christian **Michelsen** [or Peter Christian Hersleb Kjerschow **Michelsen**]

<European History>

8. This 12/8-time section of a larger work opens with the first violins playing the *largo* ascending melody [read slowly] “C, D E, F G, A” over a bass drone on C. For 10 points each:

[10h] Name this section that provides a respite after an energetic movement in which the choir’s fugal passages culminate in the dotted-rhythm declamations “Wonderful” and “Counselor.”

ANSWER: **Pifa** [accept **Pastoral Symphony**; prompt on, but DO NOT REVEAL, Handel’s **Messiah**]

[10e] The *Pifa* is one of only two purely instrumental sections of the first part of this oratorio by Handel, whose second part contains the “Hallelujah” chorus.

ANSWER: **Messiah**

[10m] The other instrumental section from Part I of *Messiah* is the opening *sinfonia*, which is in this common Baroque structure developed by Jean-Baptiste Lully. This structure contrasts a slow dotted section with a fast fugal section.

ANSWER: **French overture** [prompt on **overture** or **ouverture**]

<Classical Music>

9. An “inverse transform” named for this process is commonly used to derive soliton solutions to equations. For 10 points each:

[10e] Name this type of process in which a particle’s trajectory is changed by interacting with another particle. Rutherford names a type of this process derived from studies of this process between alpha particles and atomic nuclei.

ANSWER: **scattering** [accept Rutherford **scattering**; accept inverse **scattering** transform]

[10h] The inverse scattering transform can be applied to solve this nonlinear differential equation, giving rise to shallow water-wave solitons with hyperbolic-secant-squared profiles.

ANSWER: **KdV** equation [or **Korteweg–de Vries** equation]

[10m] The inverse-scattering transform is especially simple when coefficients named for this process are zero. In scattering problems, coefficients named for this process are contrasted with transmission coefficients.

ANSWER: **reflection** [accept **reflection** coefficients; prompt on **R**]

<Physics>

10. The 1915 textbook *Principles of Art History* illustrates this quality with Rembrandt’s “manner of seeing in patches instead of lines,” unlike Dürer the “draughtsman.” For 10 points each:

[10h] Heinrich Wölfflin argued that 17th-century art marked a transition from “linear” to what quality? Morris Louis and Kenneth Noland were featured in a 1964 LACMA exhibition of abstract art named for superseding this quality.

ANSWER: **painterly** [or **painterliness**; or **malerisch**; accept *Post-Painterly Abstraction*]

[10m] This formalist curator of the exhibit *Post-Painterly Abstraction* extended Wölfflin’s idea by championing medium specificity in essays like “Towards a Newer Laocoön” (“lay-AH-koh-on”) and “Avant-Garde and Kitsch.”

ANSWER: Clement **Greenberg**

[10e] Wölfflin’s studies of art’s evolution from the Renaissance to this period helped shed the use of its name as a pejorative. This era perfected the use of tenebrism to achieve dramatic lighting.

ANSWER: **Baroque** era

<Painting/Sculpture>

11. This thinker’s 2014 lecture “Why is Ukraine the West’s Fault?” gained renewed attention after the 2022 Russian invasion and has sparked controversy due to its arguments being used by Russian propagandists. For 10 points each:

[10m] Name this international relations scholar who developed the theory of “offensive realism” in his book *The Tragedy of Great Power Politics*.

ANSWER: John **Mearsheimer** [or John Joseph **Mearsheimer**]

[10e] Mearsheimer bases offensive realism on five “bedrock assumptions,” the first of which is that the international system has this property. This property is defined by the absence of a central authority or government.

ANSWER: **anarchy** [or **anarchic**]

[10h] In *The Tragedy of Great Power Politics*, Mearsheimer argues that this two-word characteristic of water, which refers to the difficulty of invading through it, means that the US should strive only for hegemony within the Western Hemisphere.

ANSWER: **stopping power** [accept **stopping power** of water]

<Social Science>

12. An 1872 Thomas Nast cartoon that satirized this movement depicted Victoria Woodhull as Mrs. Satan tempting a defiant wife carrying her drunk husband. For 10 points each:

[10h] Name this movement promoted by Woodhull in speeches like “And the Truth Shall Make You Free.” The Heywood sisters edited *The Word* magazine for this movement, which was practiced and named by John Humphrey Noyes.

ANSWER: **free love** movement [accept **complex marriage**; prompt on love; prompt on marriage; prompt on sex radicals; prompt on promiscuity or equivalents]

[10m] Noyes preached the doctrine of complex marriage to members of this community, many of whom made a living making silverware. This community was established in upstate New York after Noyes’s arrest for adultery.

ANSWER: **Oneida** Community

[10e] Woodhull and the Oneida Community envisioned free love communities named for this place. Étienne Cabet (“kuh-BAY”) led the Icarians to Nauvoo to start a socialist community named for this place, which titles a 1516 book by Thomas More.

ANSWER: **utopia** [accept **utopian** communities; accept **Utopian** Socialism]

<American History>

13. This planet’s atmosphere has roughly four times as much nitrogen as Earth’s, despite nitrogen making up only about four percent of its total atmosphere. For 10 points each:

[10e] Name this planet whose dense atmosphere of carbon dioxide leads to a strong greenhouse effect and the hottest surface temperatures in the Solar System.

ANSWER: **Venus**

[10h] A 2020 spectroscopic analysis found evidence of this molecule in Venus’s atmosphere, suggesting the possibility of microbial life, but the result was caused by an interpolation error. This gas [emphasize] *is* found in trace amounts in the atmosphere of Jupiter, where it circulates in aerosols around the Great Red Spot.

ANSWER: **phosphine** [or **PH₃** (“P-H-three”)]

[10m] The atmosphere of Venus [emphasize] *does* contain this gas, which combines with water and photodissociated oxygen to form the acidic droplets in Venus’s clouds. This gas is the main component of the atmosphere of Io.

ANSWER: **sulfur dioxide** [or **SO₂** (“S-O-two”)]

<Other Science>

14. Like pears, fans, and knives, these objects are unlucky gifts in China since their name evokes separation, despite them symbolizing sovereignty atop gold stupas like Shwedagon Pagoda. For 10 points each:

[10m] Name these objects that receive the suffix “obake” (“oh-BAH-keh”) when they become a one-eyed tsukumogami (“ts’KOO-moh-gah-mee”) with a long tongue. Lan Xang was named for elephants and these objects, which are said to be unlucky to use indoors.

ANSWER: **umbrellas** [or **parasols**; or **yǔsǎn**, **yángsǎn**, **kasa**, **amagasa**, **kaoumorigasa**, **chhatra**, **atapatra**, or **hti**; accept jeweled **parasols** or **chatraratna**; accept **kasa**-obake; accept Lan Xang **Hôm Khão**] (The words for umbrella, fan, and pear in Chinese sound like sǎn, which means to “scatter” or “break up.”)

[10h] The Thai king’s Royal Nine-Tiered Umbrella allows him to direct this activity at a May festival. Cambodian and Burmese kings similarly led this activity, which the Chinese learned from a horned member of the “Three Sovereigns.”

ANSWER: **plowing** [accept Royal **Plowing Ceremony** or **Phra Nangkhan** or **Preăh Neăngkoăl** or **Lehtun** Mingala or Mingala **Ledaw** or Lê **cày** tịch điền; prompt on **farming** or **agriculture** or rice **planting** or equivalents by asking “what specific component is the focus of the ceremony?”; prompt on **rainmaking** by asking “to encourage what everyday activity?”] (The horned god is Shénnóng.)

[10e] In their Plowing Festival, Vietnamese emperors thanked this concept’s personification as the grandfather Ông Trời (“ohng TRUH-ee”). Chinese emperors claimed that this concept’s “mandate,” tiānmìng (“t’yen-ming”), let them rule all lands under it.

ANSWER: **heaven** [or **sky**; accept **cosmos** or the **celestial** or **space**; accept mandate of **heaven**; accept “all under **heaven**”; prompt on **nature** or **natural** order; prompt on **tiānxià** by asking “what is that typically translated as?”] (Vietnam’s plowing rituals also entailed prayers to the earth and Shénnóng’s equivalent, Thần Nông.)

<Mythology>

15. This man compared medieval accounts of basilisks to “Uncle Remus wolves” and stories of fishers bribing hunters with buck carcasses in the essay “Nature Fakers.” For 10 points each:

[10m] Name this man whose memoir *The Wilderness Hunter* reports the trapper Bauman’s encounter with a Bigfoot-like beast. This “Wilderness Warrior” wrote the histories *The Naval War of 1812* and *The Winning of the West*.

ANSWER: **Teddy Roosevelt** [or **Theodore Roosevelt Jr.**; prompt on **Roosevelt** or **Teddy** or **T. R.**] (Douglas Brinkley’s biography of him is titled *Wilderness Warrior*.)

[10e] Roosevelt championed John Burroughs’s article “Real and Sham Natural History” in this East Coast magazine, which originally appended “monthly” to its title body of water.

ANSWER: *The Atlantic* [or *The Atlantic Monthly*]

[10h] Irish, Welsh, and Cornish laborers are compared to victims in the den of “wild beasts” in this story published by *The Atlantic Monthly* in 1861. This realist story by Rebecca Harding Davis addresses “you,” an “amateur psychologist.”

ANSWER: “**Life in the Iron Mills**” [or “**Life in the Iron Mills**; Or, The Korl Woman”]

<American Literature>

16. The sites of Guarguapo and Los Barrancos are found in this river's delta, whose Cachamay tradition was studied by the archaeologists Iraidá Vargas and Mario Sanoja. For 10 points each:

[10h] Name this river whose basin was the center of the Saladoid culture prior to their migrations. The Warao people traversed this river in dugout canoes called bongos even before the Saladoids arrived in its delta.

ANSWER: **Orinoco** River [or **Orinoco** Delta or **Orinoco** Basin; accept **Meta** River; accept **Caroní** River; accept **Apure** River; accept **Guaviare** River; accept **Atabapo** River; accept **Caura** River]

[10e] This material names a post-Archaic age of Caribbean history characterized by increased migrations from the Orinoco. Chinese artisans historically tempered this material with sand and clay in dragon kilns.

ANSWER: **ceramics** [accept **pottery**; accept **wares** or earthen**ware** or ston**ware**; accept **porcelain**; accept **celadon**; accept **Ceramic** Age; prompt on **earth**]

[10m] The migrants to the Lesser Antilles mostly spoke languages from this family, like the mainland Lokono. The Taino spoke a language from this family, whose Kalinago branch was dubiously attributed to their Carib enemies.

ANSWER: **Arawakan** languages [or **Arahuacan**; or **Maipurean** or **Maipurán** or **Maipúre**; accept Proto-**Arawakan** or Macro-**Arawakan**]

<World History>

17. In this novel, people are transported out of an unnamed landlocked country by an organization known as the Maphia, spelled with a "P-H." For 10 points each:

[10h] Name this novel whose title concept is personified as a woman with an all-lowercase name. That woman in this novel terrifies people with letters in violet envelopes before she falls in love with a cellist.

ANSWER: ***Death with Interruptions*** [or ***Death at Intervals*** or ***As Intermittências da Morte***]

[10e] This Portuguese author of *Death with Interruptions* depicted "the white sickness" in the novel *Blindness*.

ANSWER: José **Saramago** [or José de Sousa **Saramago**]

[10m] Another Saramago novel depicts the final year of this character, who dies by putting on his jacket and going to a cemetery. In that novel, this heteronym of the real-life author Fernando Pessoa outlives Pessoa himself.

ANSWER: **Ricardo** Reis [or Ricardo **Reis**; accept *The Year of the Death of **Ricardo** Reis* or *O Ano da Morte de **Ricardo** Reis*]

<European Literature>

18. This term names a fallacy identified in the *Sophistical Refutations* in which one treats a rule of thumb as being without exception, as in the sentence "Cutting people is a crime, so surgeons are criminals." For 10 points each:

[10h] Give this term used by Aristotle for properties that an entity possesses non-essentially. Aquinas theorized that, during transubstantiation, the substance of the Eucharist changes while these properties remain the same.

ANSWER: **accidents** [or **accidental** properties; or **symbebekos**; accept **accident** fallacy; prompt on **incidental** properties]

[10m] In the *Categories*, Aristotle identifies this many distinct categories of accident. Since the first category is substance, this is one fewer than the total number of categories listed.

ANSWER: **nine** [or **9**]

[10e] This medieval philosopher trimmed the accidental categories to just "quality," thus cutting the total list to two. This philosopher's love of simplicity is also evident in his namesake "razor."

ANSWER: William of **Ockham** [or **Occam**; or Gulielmus **Occamus**; accept **Ockham**'s razor; prompt on **William** or **Gulielmus**]

<Philosophy>

19. Answer the following about carbon capture technology, for 10 points each.

[10m] Carbon dioxide is removed from exhaust gasses with aqueous scrubbers that contain molecules with this functional group, which is prepared in the Gabriel synthesis. Its central atom has three substituents and one lone pair.

ANSWER: **amines** [accept alkyl**amines**; accept aqueous **amine** scrubbers]

[10h] An alternative to traditional aqueous amine solutions for carbon capture uses amine-functionalized versions of these systems, which typically consist of flexible organic cations and weakly coordinating anions.

ANSWER: **ionic liquids** [or **ILs**]

[10e] Carbon dioxide reacts with this anion in a direct air capture method for removing it from the atmosphere.

Many strong bases contain this anion, which makes up lye with sodium.

ANSWER: **hydroxide** [or **OH⁻** (“O-H-minus”); accept sodium **hydroxide**]

<Chemistry>

20. Answer the following about operas by John Adams, for 10 points each.

[10h] *Two answers required.* These two characters title the most recent opera by Adams and were performed by Gerard Finley and Amina Edris to open the San Francisco Opera’s hundredth season. Samuel Barber was commissioned to compose an opera about these two characters for the opening of the new Metropolitan Opera House.

ANSWER: **Antony** AND **Cleopatra** [accept Mark **Antony** or Marc **Anthony** or Marcus **Antonius** in place of “Antony”; accept **Cleopatra** VII Philopator in place of “Cleopatra”]

[10e] This first opera by Adams begins with the arrival of a plane carrying the title president, whose wife receives a small glass elephant and sings the aria “This is prophetic” in the Summer Palace.

ANSWER: **Nixon in China**

[10m] Adams has frequently collaborated with this theater director, who wrote the libretti for *Doctor Atomic* and *Girls of the Golden West*. This man also directed a production of *The Marriage of Figaro* set at Trump Tower.

ANSWER: Peter **Sellers**

<Other Fine Arts>

21. Mircea Snegur’s electoral victory on a pro-independence platform stymied reunification talks between this country and its southwestern neighbor, Romania. For 10 points each:

[10e] Name this country that Snegur led from Chişinău (“kee-shee-NOW”).

ANSWER: **Moldova** [or Republic of **Moldova** or Republica **Moldova**; accept **Moldavia**; accept **Moldovan** Soviet Socialist Republic, **Moldovan** SSR, **Moldavian** Soviet Socialist Republic, Republica Sovietică Socialistă **Moldovenească**, or **Moldavskaya** Sovetskaya Sotsialisticheskaya Respublika]

[10m] In 1990, pro-reunification demonstrators tossed these objects into the Prut River to create a symbolic “bridge” to Romania. These objects were also held by supporters of Mikheil Saakashvili who occupied the Georgian parliament during their namesake 2003 “revolution.”

ANSWER: **flowers** [accept **Rose** Revolution or Revolution of **Roses** or **Vardebis** revolutsia; accept Bridge of **Flowers**]

[10h] In Moldova, the reunification movement is juxtaposed with the separatist movement in pro-Russian Transnistria, where much of the private sector economy is owned by this conglomerate led by former KGB officer Victor Guşan.

ANSWER: **Sheriff**

<European History>