

## Chicago Open 2023

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### Tossups

1. **A way to perform this process shown to be flawed in 2022 performs parallel walks over similar supersingular isogeny graphs. Many recently proposed ways to perform this process rely on learning with errors as applied to lattices; perhaps the most promising of those is named Kyber. The first phases of “hybrid” systems use inefficient but convenient asymmetric encapsulation mechanisms that perform this process. Perfect forward (\*)** secrecy can be established during this process. In one way to perform this process, [read slowly] a shared primitive root is raised to the powers of two different private exponents by two participants within the multiplicative group of integers modulo some prime, after which the participants send the results to each other. That method for this process is named for Diffie and Hellman. For 10 points, name this process in which participants establish a shared cryptographic secret.

ANSWER: **key exchange** [accept **key sharing**, **key agreement**, **key transport**, or **key encapsulation** until mentioned; prompt on cryptography or encryption; prompt on post-quantum cryptography or post-quantum encryption or descriptions of quantum computer-resilient encryption until “shared primitive root”]

<Alistair Gray, Other Science - Computer Science>

2. **This is the last word in the title of an essay that argues for “ethnographies of the particular” as a way of accomplishing the title task. That essay titled for this concept calls out anthropology's ignorance of “halfie” anthropologists who are descended from indigenous people and violate the self/other distinction. Two books with this concept in the title originated the idea of anthropology's “crisis of representation” in the 80s and 90s. This is the last word in the title of an essay arguing for an emphasis on the anthropologist’s positionality in ethnography; (\*)** Lila Abu-Lughod titled that essay in opposition to a book of essays about “the politics and poetics of ethnography,” which also has this concept as the last word in its title. For 10 points, the “literary turn” in anthropology was led by a series of essays by James Clifford and George Marcus titled for “Writing” what concept?

ANSWER: **culture** [accept “**Writing Against Culture**” or **Writing Culture: The Politics and Poetics of Ethnography** or **Anthropology as Cultural Critique**]

<Ryan Rosenberg, Social Science>

3. **Wilhelm Backhaus’s 1909 version of a piece in this key is the first recording of a piano concerto. In a 2/4 (“two-four”) movement of a concerto in this key, accented first and third eighth notes evoke a wedding festivity whose performer kicks a hat off a high pole. A concerto in this key that debuted at the Gewandhaus after its composer’s 16th birthday includes a slow *Romanze* whose lengthy cello solo trades with a theme borrowed by another composer’s setting of Heinrich (\*) Heine. One composer turned a failed *Concert Phantasie* (“fantasy”) into a concerto in this key in which a woodwind chorale introduces a theme based on the Italian spelling of its soloist’s name. That piano concerto inspired another one in this key whose finale is based on the *halling* dance, and which starts with a timpani roll that crescendos into a *fortissimo* piano chord on this key’s tonic. For 10 points, Clara and Robert Schumann and Edvard Grieg wrote piano concerti in what minor key whose relative major is C?**

ANSWER: **A minor** [accept **A** alone after “minor” is read, but reject it until then] (Backhaus’s recording is of Grieg’s piano concerto. Robert Schumann borrowed a theme in *Dichterliebe* from the *Romanze* in Clara’s piano concerto. The main theme of the first movement of Robert’s piano concerto contains a vowelless spelling of “Chiara.”)

<Jacob Egol, Classical Music and Opera>

4. In this novel, two scholars yell, “This one is for Salman Rushdie,” and, “This one is for the ghost of Valerie Solanas,” as they beat a cab driver for calling them pimps. A character in this novel is disappointed to meet a pharmacist who prefers “perfect exercises” like “Bartleby the Scrivener” to *Moby-Dick*. In this novel, a famously well-endowed general is crucified naked by his own troops, four years after attending a party at (\*) Dracula’s castle. At the end of this novel, a character sitting on a park bench eats ice cream and learns its history from a descendant of Fürst Pückler. A criminal who urinates in churches appears in this novel’s brutal fourth section, which is set in the same city in which Rosa lives with her father, Professor Amalfitano. For 10 points, name this five-part meganovel centered on the mysterious author Archimboldi, written by Roberto Bolaño (“boh-LAHN-yo”).

ANSWER: 2666

<Henry Atkins, World Literature>

5. This movement purged many of its best officers before its army was shattered in a nighttime cavalry attack, leading radicals within this movement to call for even more purges in the Western Remonstrance. A controversial historiographical term for this movement’s repression was coined by Robert Wodrow. The riots that became this movement began when a woman threw a stool during a church service over the imposition of a new prayer book. This movement’s hardline Whiggamores split with the (\*) Engagers, who launched an invasion that ended in disaster at the Battle of Preston. This target of the “Killing Times” came to power during the Bishops’ Wars, after which it dispatched a force under Alexander Leslie to lead the Army of Both Kingdoms. For 10 points, Charles I surrendered to what Scottish Presbyterian movement, named for the signing of a “National” agreement? ANSWER: Covenanters [or Cùmhnantaich; accept the National Covenant; accept The Solemn League and Covenant; accept Covenantism; prompt on the Kirk Party; prompt on Scottish Presbyterians until read; prompt on Whiggamores until read; prompt on Engagers until read; prompt on Scottish royalists until “Robert” is read; reject “Scottish independence”; reject “Scottish Reformation”] (The first clue refers to the Battle of Dunbar.)

<Henry Atkins, Other History>

6. This natural region monopolized Early Modern pencil production after some 16th century shepherds stumbled on the world’s first major graphite deposit. This region is the birthplace of an orienteering-like sport in which mountain runners must navigate for themselves while traversing unmarked land. A common completionist goal for visitors to this region is to bag all 214 peaks listed in a classic “pictorial guide” by Alfred Wainwright. An earlier *Guide to* [this region] includes a verse description of a difficult climb through (\*) Kirkstone Pass. By making alterations to its garden, a drug-addicted tenant upset the owners of this region’s Dove Cottage. This region contains the highest examples of barren hilltops known as “fells,” such as Scafell Pike. For 10 points, the Pantisocracy was a utopian scheme hatched by writers associated with what region, including Southey and Coleridge?

ANSWER: Lake District [prompt on Cumbria, Westmoreland, North West England, or Great Britain] (The sport is fell running. Thomas De Quincey rented Dove Cottage from the Wordsworths. William Wordsworth wrote *A Guide to the Lakes*.)

<Henry Atkins, Geography>

7. *Description acceptable.* **Fourier modes correspond to an infinite “tower” of masses in one of these features. The implementation of these features with different members of mirror symmetric pairs counterintuitively yields equivalent results. The A·D·D model addresses the hierarchy problem with “large” instances of these features that comprise the “bulk” central to (\*) brane (“brain”) cosmology.** The dilaton is incorporated to explain gravitation in theories for which the volume of these features varies due to compactification, an operation whose limit behavior yields scalar fields. Kaluza–Klein theory explains electromagnetism with one of these features that is “curled up.” For 10 points, name these features of string theories that add to a quantity that equals one for time and three for space.

ANSWER: extra dimensions [accept answers that describe dimensions in addition to ones with standard physical interpretations, like space and time; accept dimensions of the bulk; prompt on dimensions; prompt on bulk by asking “what features of bulk motivate its implementation?”; prompt on compactified dimensions by asking “what property of the dimensions allows them to be compactified?”] (The lead-in refers to the Kaluza–Klein tower; mirror symmetry is a property of pairs of Calabi–Yau manifolds.)

<Jeremy Cummings, Physics>

8. **An important mining region in this country was found in Operation Grasshopper, a 1959 effort to find natural resources from the air led by Frank Essed. For a year and a half, both the offices of president and prime minister of this country were held on behalf of a military dictator by Henk Chin A Sen. The Moiwana Massacre was an attack on the hometown of a former bodyguard of one of this country’s leaders after they formed the guerilla group Jungle Commando. The non-American (\*) Henck Arron was deposed first as Prime Minister, then as Vice President, in two separate coups in this country that installed the same military officer as the *de facto* leader. The December Murders were carried out at a non-Taiwanese Fort Zeelandia to eliminate fifteen political opponents of Dési Bouterse (“BOW-ter-suh”).** For 10 points, name this South American country that gained full independence from the Netherlands in 1975.

ANSWER: Suriname [or Republic of Suriname, Republiek Suriname, Ripoliku Sranan]

<Alex Fregeau, World History>

9. **In one book, this author writes that a mice infestation may attract predators before musing “I’m a humanist: I’d rather kill a man than a snake.” This author tells the reader “You’re holding a tombstone in your hands. A bloody rock... throw it at something big and glassy” in the preface to a book in which this author fails to capture a feral horse named Moon-Eye. This author recreated John Wesley Powell’s river expedition down (\*) Glen Canyon months before it became flooded by a new dam. The ex-Green Beret George Hayduke helps blow up a bridge over that dam in a novel by this author that allegedly inspired the founding of Earth First!. A book by this author of *The Monkey Wrench Gang* consists of sketches drawn from two seasons working as a ranger in Arches National Park.** For 10 points, name this environmentalist author of *Desert Solitaire*.

ANSWER: Edward Abbey [or Edward Paul Abbey]

<Henry Atkins, American Literature>

10. **This faculty has “epistemic” and “non-epistemic” forms according to a 1969 book by Fred Dretske. David Lewis published a paper titled for this faculty “censored” under his cat’s name “Bruce Le Catt,” critiquing his earlier paper where he discussed its “prosthetic” form. This faculty titles a Susanna Siegel book which contrasts “content” and “rich content” views of it. A 2023 Ned Block book about the “border” between this faculty and thinking argues that it is constitutively (\*) non-propositional, non-conceptual, and iconic. Frank Jackson’s “many property” objection is an argument against adverbialist theories of this faculty, which is also the subject of J. J. Gibson’s direct realist “ecological approach.” John Locke introduced a thought experiment concerning whether a man, after having this faculty restored, could tell a cube apart from a sphere.** For 10 points, Molyneux’s problem concerns what faculty?

ANSWER: vision [or visual experience; accept synonyms like seeing or sight; prompt on perception by asking “what specific kind of perception?”; prompt on experience by asking “what specific kind of experience?”]

<Caleb Kendrick, Philosophy>

11. Joseph Ellaway et al. 2023 describes a pipeline for clustering data from this repository via GLOCON score for comparison to entries in an AI-generated repository. In 2014, mmCIF supplanted this repository's use of its namesake file format, which contains numbered "REMARK" records, like "REMARK 350" to specify matrix transformations, and "SEQ-RES" records to specify chains. Lesk and Hardman's earliest-published automatic (\*) ribbon diagram generator used this repository as input. RCSB is the US-based host of this repository whose file format is followed by the primary output of AlphaFold and contains "ATOM" records to describe position coordinates that are typically determined via X-ray crystallography. For 10 points, name this largest database in structural biology. ANSWER: Protein Data Bank [or PDB, Worldwide Protein Data Bank, wwPDB, Protein Data Bank in Europe, or PDBe] (The AI-generated repository is the AlphaFold Protein Structure Database.)  
<David Bass, Biology>

12. A poem mostly set in this kind of place contains the hapax legomenon *anfloga*, which seems to be a solitary flying being that brings death. The speaker of a poem spends 102 lines reflecting on this sort of place before switching to what may be a later addition, a sermon about how "Mighty is the fear of the Measurer." The speaker describes a lonely man suffering in this kind of place and states "Fate never wavers" at the opening of (\*) "The Wanderer." A poem partially titled for this sort of place begins "May I for my own self song's truth reckon." That poem, whose speaker recounts his freezing travels through a place of this type, was "translated" from Old English by Ezra Pound. Unferth taunts Beowulf about a contest with Breca that occurred in this sort of place. For 10 points, name this natural place whose kennings include "swan's riding" and "whale-road." ANSWER: the sea [or an ocean; accept in a boat or a ship; accept *The Seafarer*]  
<Henry Atkins, British Literature>

13. A general and sometimes namesake of this conflict boasted of taking two bullets to the hat at the Battle of Bysjön ("boo-shone"). A non-Dutch province of Halland was transferred at the end of this war for a term of 30 years, but was permanently ceded only thirteen years later. In 1612, the wreck of the ship *Lindormen* was found, which sank after being hit by a fire ship in the Battle of Fehmarn in this conflict. This non-Carthaginian conflict is sometimes called the (\*) "Hannibal War." The Second Treaty of Brömsebro ended this conflict and exempted the victors from paying the Sound Dues. Denmark failed to reverse its losses in this conflict during the 1675-1679 Scanian War. For 10 points, name this 1643 to 1645 conflict that allowed Sweden to become the dominant power in the Baltic and was named for a Swedish general. ANSWER: Torstenson War [accept Hannibal Controversy or Hannibal War until read; prompt on Thirty Years' War]  
<Alex Fregeau, European History>

14. In response to this project, a delegation of Muscogee Creek traveled from Oklahoma to deliver an "eviction notice." Land for this project was acquired in a real estate swap with Blackhall Studios whose planned sound-stage has been dubbed "Hollywood Dystopia." Twenty-three attendees of the South River Music Festival, organized as a protest against this project, were charged with domestic terrorism. After they refused to leave their tent, the Panamanian (\*) environmentalist Manuel Terán, nicknamed "Tortuguita," was killed protesting this project. After two officers were indicted for killing Rayshard Brooks in the parking lot of a Wendy's, this project was proposed to bolster police morale by mayor Keisha Lance Bottoms. For 10 points, an abandoned prison farm in DeKalb County is the planned site of what controversial 85-acre training facility for Atlanta law enforcement? ANSWER: Cop City [or Atlanta Public Safety Training Center]  
<Caleb Kendrick, Modern World>

15. A work made using this technique features an inverted black triangle above a depiction of Christ in Majesty with an orb inscribed with the words Europe, Africa, and Asia; that work is the John of Thanet Panel. Colorful images are couched against a gold background in a Flemish form of this technique called *or nué* (“noo-AY”). The Butler–Bowden Cope is an example of the Medieval English style of this technique called *opus anglicanum*, which was revived in opposition the Berlin-style work by William and May (\*) Morris. A misnamed work made using this technique depicts scenes from Aesop’s fables on its border, while its central narrative includes an attack on Conan II of Brittany. Despite its name, the crewel form of this technique was actually used to make the Bayeux Tapestry rather than weaving. For 10 points, name this technique of using needle and thread to decorate textiles.  
ANSWER: embroidery [accept opus anglicanum until “opus” is read; accept or nué until “or” is read; prompt on needlework or sewing or stitching]  
<Sheena Li, Visual Fine Arts>

16. In a variant of a reaction named for this chemist, an allylic ester acts as an enolate anion in the presence of a strong base to form a carboxylic acid; that reaction is co-named for this chemist and Ireland. This chemist is the alphabetically former namesake of a crossed aldol process in which an alpha-hydrogen attacks an aromatic compound with no alpha-hydrogen. This chemist reacted ethyl acetate and benzaldehyde to generate the ester of ethanol and (\*) cinnamic acid. When a reaction named for this chemist is run on succinic (“SUCK-sin-ick”) acid, it can be performed using less strong bases in a modification named for Stobbe. An allyl vinyl ether is heated to form a gamma-delta unsaturated carbonyl in a reaction named for this chemist with an intramolecular equivalent named for Dieckmann. For 10 points, name this German chemist who names a [3,3]-sigmatropic rearrangement as well as a reaction in which two esters form a beta-keto ester.  
ANSWER: Rainer Ludwig Claisen [accept Claisen condensation or Ireland–Claisen rearrangement]  
<Jeremy Cummings, Chemistry>

17. This is the first title word of a Wes Montgomery standard that opens with a guitar and bass repeating the unison quarter notes “G, high D, C, high G.” Eddie Vinson claimed authorship of a Miles Davis song with this one-word title, which follows 32-bar ABAC form and was recorded by Davis’s First Great Quintet on *Workin’*. The scale degree of this number is raised in a mode that can be built from the circle of fifths and is the only mode with no “avoid notes,” as noted in a 1953 theory book by George Russell. Bill Evans used harmony based on (\*) stacked intervals of this number on Miles Davis’s “So What.” This number partially titles a Nina Simone song told from the perspectives of women like Saffronia and Peaches. A seventh chord built on this scale degree follows the first I (“one”) chord in a blues progression. A common Swing Era drum groove in which the bass drum is hit on every beat is named “[this number] on the floor.” For 10 points, what scale degree is also called the subdominant?  
ANSWER: four [or fourth; prompt on subdominant until read] (The first line refers to Wes Montgomery’s “Four on Six;” the theory book is Russell’s *Lydian Chromatic Concept of Tonal Organization*; the Nina Simone song is “Four Women”)  
<Victor Pavao, Other Fine Arts>

18. A period of extreme suppression of civil liberties in this state from 1917-1921 is referred to as this state's “agony” in a book by historian Arnon Gutfeld. Preempting the federal law by three months, this state passed its own Sedition Act during World War I, supported by this state’s “Loyalty League.” A history of this state by Joseph Kinsey Howard titled *[This state]: High, Wide, and Handsome* laments that ten percent of its population was drafted in World War I. A labor union hall was blown up in this state during a riot between rival factions of the (\*) WFM. Newsman William F. Dunne was defended at his sedition trial in this state by future senator Burton K. Wheeler. Attempts to strike in this state after the Speculator Mine disaster led to the murder of IWW organizer Frank Little. For 10 points, US entry into World War II was voted against by what state’s representative Jeannette Rankin?  
ANSWER: Montana [or MT]  
<Munir Siddiqui, US History>

19. A poem addressed to a performer of this action ends by asking, “has not the drawing / endured, the dark line your eyebrows traced / swiftly in the texture of their own turning?” In another poem, a performer of this action is said to have “stood / suddenly, as if youth were cast in bronze; / sorrowing, listening.” Per William Gass’ translation, one poem declares that a performer of this action is “just a bourgeois in costume” and “enters his house by the kitchen door.” In another poem, a performer of this action is said to have (\*) “naked arms” that “alertly strike, / clattering like fearful rattlesnakes.” The fifteenth Sonnet to Orpheus twice repeats a command to “[this action] the orange.” Another poem begins by comparing a performer of this action to a match that “bursts in flame and to all sides / licks its quivering tongues.” For 10 points, a Rainer Maria Rilke poem is titled for a “Spanish” performer of what action?

ANSWER: **dance** [or word forms; accept **Tanz** or word forms; accept “The Spanish **Dancer**” or “Spanische **Tänzerin**”] (The poems clued in the first three lines are, respectively, Sonnets to Orpheus II.18, Sonnets to Orpheus I.25, and Duino Elegy IV. For “The Spanish Dancer” and the Sonnets to Orpheus I have used MacIntyre’s translations, which perhaps are not the best available, but at least are very literal.)

<Arya Karthik, European Literature>

20. In *wayang* puppetry, this figure is depicted with white blood and is identified with the King of Amarta, Puntadewa. In his second of three books on the *purushārthas*, Gurcharan Dās notes how this figure’s name is used derogatorily in Bengal for his *shōka* or remorse, which he claims “holds [him] in check.” This figure states that *ānrshamsya* (“AHN-roo-SHUM-s’yuh”) is the highest dharma, a variation on the more common *ahimsa paramo dharma* now associated with him. This figure declares behavior superior to ancestry after being asked about what makes a true Brahmin by a (\*) crane during an episode known as the Yaksha Prasna. This figure’s chariot stops levitating after he tells a half-truth that affirms the death of Ashvatthāmā (“USH-wut-tah-mah”) to Droṇa. This figure refuses to enter Heaven without a dog who later turns out to be his father. For 10 points, an important dice game is lost by what son of Dharma, the eldest Pāndava?

ANSWER: **Yudhishtira** (“yoo-DISH-tih-ruh”) [accept **Puntadewa** before read; prompt on **Dharmarāja**]

<Ashish Subramanian, Beliefs>

## Bonuses

1. This concept is described as “the root of all virtue and the stem out of which grows all moral teaching” in a namesake classic treatise that was based on a conversation between Confucius and Zēngzǐ. For 10 points each:

[e] Name this key virtue exemplified by a culture of reciprocity of care in various East Asian cultures.

ANSWER: **filial piety** [or **xiào**; accept *Classic of Filial Piety* or *Xiàojīng*; prompt on **piety**; prompt on answers about **respecting/obeying** one’s elders]

[m] Filial reciprocity between children and their parents is reversed in this controversial practice in which parents find spouses for their dead children. Paper objects resembling furniture and clothes are burned during this practice.

ANSWER: **ghost marriage** [or **spirit marriage** or *mínghūn*; prompt on **posthumous marriage** or **marriages**]

[h] Filial piety can be observed through this action, the mental rewards of good intentioned actions which are gifted to the deceased. In the Yulanpen or Ullambana Sūtra, this doctrine allows Mulian to free his dead mother from a *preta* after offering food to the sangha.

ANSWER: **transfer** of **merit** [or *parināmanā*, *pattidāna*, or *pattānumodanā*; accept answers indicating the movement of **merit** from a person to their **deceased relatives**; prompt on **generating merit** and similar]

<Kevin Thomas, Beliefs>

2. In 2009, Issue 5967 of *Science* published the three parallel papers introducing this gene alongside the Perspective “Genetic Control of Hotspots.” For 10 points each:

[h] Name this only known mammalian speciation gene, whose namesake protein induces H3K4 trimethylation at the 13-base-pair sequence motif that it recognizes.

ANSWER: **PRDM9** [accept, but DO NOT REVEAL, **PR domain zinc finger protein 9**]

[m] This structural motif appears in the full name of *PRDM9*. The *PRDM9* protein features an array of the “Cys2His2” class of these motifs that bind to target sites on DNA with high specificity.

ANSWER: **zinc fingers** [accept **zinc-finger** protein or **zinc finger** motifs]

[e] The *PRDM9* protein controls the locations of “hotspots” at which this process is more likely to occur. This process occurs via the crossing-over of chromosomes.

ANSWER: genetic **recombination**

<David Bass, Biology>

3. For the 2023 Broadway premiere of a musical centered on this character, set designer David Korins transformed the Broadway Theater into an interactive disco dance floor. For 10 points each:

[h] Name this character played by Arielle Jacobs who sings the closing number “Why Don’t You Love Me?”

ANSWER: **Imelda Marcos** [prompt on **Marcos**]

[m] This actress is currently guest starring as Aurora Aquino in the all-Filipino cast of the Imelda Marcos musical *Here Lies Love*. She was the first Asian actress to play Éponine in *Les Misérables* on Broadway.

ANSWER: Lea **Salonga** [or Maria Lea Carmen Imutan **Salonga**]

[e] Much like this 1978 musical, *Here Lies Love* has been criticized for glorifying a despotic female politician. This Andrew Lloyd Webber musical’s most iconic scene features the song “Don’t Cry For Me Argentina.”

ANSWER: **Evita**

<Ivone Zhou, Other Fine Arts>

4. Palace facades inspired the design of these motifs, whose prominent features included torus molding, cavetto cornices stylized with palm leaves, and a semi-cylindrical drum meant to resemble a reed-mat. For 10 points each:  
[h] Name these recessed niches associated with the New Kingdom's "hearing ear" chapels. Offering tables were placed in front of these motifs located on the western wall of a mastaba's offering chamber.

ANSWER: **false doors** [accept, but DO NOT REVEAL, **ka doors**; prompt on **doors** or funerary **stelae**]

[e] The false door allowed this entity to come and go from the *Duat* at its pleasure. Unlike the *ba* and *akh*, this aspect of the soul contained one's vital essence and could be nourished with food and drink.

ANSWER: **ka**

[m] False doors surmounted with bull-horns have been found within the pre-Nuragic *domas de janas* in this island.

Rome conquered this island in the First Punic War, gaining control of cities like Caralis, Olbia, and Nora.

ANSWER: **Sardinia** [or **Sardegna** or **Sardigna**]

<Kevin Thomas, Other History>

5. Note to moderator: Please read the answerline for the first part carefully.

Opponents of this decision include the author's friend Jonathan Greenleaf Whittier, who wrote that he would have preferred a prose romance such as the author's 1839 novel *Hyperion*. For 10 points each:

[h] Identify this oft-criticized poetic decision, which produced regular lines like "Waste are those pleasant farms, and the farmers forever departed!" and "Thousands of weary feet, where theirs have completed their journey!"

ANSWER: Longfellow writing ***Evangeline*** in **dactylic hexameter** [accept writing ***Evangeline*** in **epic meter**; accept descriptions of writing ***Evangeline*** in **classical**, **Homeric**, or **Virgilian** form; prompt on writing ***Evangeline*** or equivalents by asking "in what manner?"; prompt on **Longfellow** using **dactylic hexameter** or acceptable metrical synonyms by asking "in what poem?"; prompt on **Longfellow** using **weird meter** or equivalents by asking "what specific meter and in what specific poem?"]

[e] Though Longfellow has taken a lot of flak for writing his epic *Evangeline* in dactylic hexameter, he did produce a very quotable opening in which he describes an Acadian forest with this adjective.

ANSWER: **primeval** [accept "This is the forest **primeval**."]

[m] Classical dactylic hexameter lines end in either a trochee or one of these feet, which are two consecutive long syllables. Because English verse is accentual, Longfellow's feet of this type consist of two stressed syllables.

ANSWER: **spondee**

<Henry Atkins, American Literature>

6. This technique involves replacing a copy of  $S-r$  times  $D-n$ -minus- $r$  with  $D-r$ -plus-one times  $S-n$ -minus- $r$ -minus-one, which has the same boundary. For 10 points each:

[m] Name this technique of "spherical modification" introduced by John Milnor. To prove the Poincaré conjecture, Grigori Perelman employed Ricci flow with this technique.

ANSWER: **surgery**

[e] This quantity for a 2-manifold is the minimal number of surgeries required to reduce it to the 2-sphere.

Handlebodies are identified up to homeomorphism by this quantity that determines how many holes they have.

ANSWER: **genus** [prompt on **g**]

[h] Handle cancellation via this technique is employed in Stephen Smale's proof of the  $h$ -cobordism theorem. Use of this technique, which arises from a namesake "embedding theorem," helped to lay the foundations of surgery theory.

ANSWER: **Whitney trick** [prompt on **Whitney** embedding theorem]

<Jeremy Cummings and David Bass, Other Science - Mathematics>



7. This family introduced Italian opera to the United States during their 1825 tour in New York. For 10 points each:  
[h] Name this family whose patriarch Manuel originated Count Almaviva in Rossini's *The Barber of Seville*. This family also includes Maria Malibran, Pauline Viardot, and the inventor of the laryngoscope, who taught Jenny Lind.

ANSWER: **García** [accept Manuel del Pópulo Vicente Rodríguez **García**, Manuel Patricio Rodríguez **García**, María Felicitas **García** Siches (Malibran), or Michelle Ferdinande Pauline **García** (Viardot)]

[m] This librettist produced the Garcías' New York tour while he taught at Columbia. Naturally, the tour staged one of this librettist's prior collaborations in a production that included Manuel Jr. as Leporello and Maria as Zerlina.

ANSWER: Lorenzo **Da Ponte** [or Emanuele **Conegliano**] (The opera is *Don Giovanni*, whose title character was played by Manuel Sr. in that production.)

[e] The Garcías also introduced a Rossini opera with this name, in which they debuted Pauline as a character who plays the harp while singing "Assisa a' piè d'un salice" ("ahs-SEE-zah ah pyeh doon sah-LEE-cheh"). A Verdi opera with this name introduces the title Moor in the aria "Esultate!"

ANSWER: **Otello** [reject "Othello"]

<Ivone Zhou, Classical Music and Opera>

8. This thinker argued that, as Plato's own beliefs changed, the persona of his character Socrates changed, a view which has been dubbed the "mouthpiece theory." For 10 points each:

[h] Name this philosopher whose 1992 book *Socrates: Ironist and Moral Philosopher* argues that Socratic philosophy should be studied as something distinct from Platonism.

ANSWER: Gregory **Vlastos**

[m] Vlastos grouped many of Plato's early dialogues like the *Apology* and *Crito* together because they use this method of argumentation, colloquially called the "Socratic method," which consists of a series of questions and answers.

ANSWER: method of **elenchus** [or **elenctic** method or **elenchi**]

[e] In a 1954 article, Vlastos analyzes the third man argument, which appears in this Platonic dialogue named for a philosopher from the Eleatic School.

ANSWER: **Parmenides**

<Caleb Kendrick, Philosophy>

9. During the advance of Cortés on Tlatelolco, his conquistadors constructed one of these weapons that apparently only managed to throw a stone back into itself. For 10 points each:

[e] Name these long-armed siege engines, which were usually powered by hinged or hanging counterweights in the late medieval era.

ANSWER: **trebuchets** [accept counterweight **trebuchets**, traction **trebuchets**, or **mangonels**; prompt on **catapults** or **stone-thrower**]

[m] Napoleon III is among those who have questioned theories that this phenomenon powered some medieval mangonels. The Roman onager used this phenomenon, which replaced tension designs during Macedon's conquests.

ANSWER: **torsion** [accept **torsion** springs or **torsion** engines]

[h] This largest recorded trebuchet required thirty wagons to carry and three months to build. Edward I was so proud of this trebuchet that he refused to let the defenders of Stirling Castle surrender until he had a chance to use it.

ANSWER: **Warwolf** [or **Ludgar** or **Loup de Guerre**]

<Henry Atkins, European History>

10. An 1826 prose epic titled for these people borrows from an earlier novella in which one of these people falls in love with a Christian woman, who later poisons herself out of regret for taking a vow of chastity. For 10 points each:  
[h] Name these people, one of whom named Chactas tells of his love for Atala in a Chateaubriand (“shah-toh-bree-AWN”) novella. A man marries one of these people after his sister Amélie dies in a convent in Chateaubriand’s *René*.

ANSWER: **Natchez** (“NATCH-iz”) people [accept *Les Natchez*; prompt on Native Americans or equivalents]

[m] The title character of this author’s *The Adventures of Robert Chevalier* is kidnapped and raised by the Iroquois.

The title character saves Don Alfonso and works for Duke Olivares in a picaresque by this French author, set in Spain.

ANSWER: Alain-René **Lesage** (“luh-SAHZH”) (The picaresque is *Gil Blas*.)

[e] One of this author’s narrators lands among an unidentified group of Native Americans after an attempt to be carried to the moon by evaporating dew, a scene alluded to in an Edmond Rostand play.

ANSWER: Savinien de **Cyrano** de Bergerac [or Cyrano de **Bergerac**]

<Arya Karthik, European Literature>

11. This politician founded the Kamuzu Academy to provide British-style education to his country, claiming that “If you do not like Latin, don’t come here.” For 10 points each:

[m] Name this politician, who enforced his litany of restrictive social policies through a non-communist Young Pioneers organization. This politician chose the modern name of his country, which replaced “Nyasaland.”

ANSWER: Hastings **Banda** [or Hastings Kamuzu **Banda**]

[h] This niece of John Tembo headed Banda’s efforts to both provide economic aid to women as well as control their dress and actions. This “official hostess” took many of the duties of a First Lady despite not being Banda’s spouse.

ANSWER: Cecilia **Kadzamira** [or Cecilia Tamanda **Kadzamira**]

[e] Due to his advanced age, Hastings allowed an election for the presidency in this year and lost to Bakili Muluzi. Nelson Mandela became President of South Africa in this year.

ANSWER: **1994**

<Alex Fregeau, World History>

12. Gore Vidal imagined this woman waddling up a beach “Leviticus and Freud in hand” in a response to her homophobic description of gay life on Fire Island entitled “The Boys on the Beach.” For 10 points each:

[h] Identify this anti-feminist *Commentary* magazine journalist who was married to Norman Podhoretz.

ANSWER: Midge **Decter** [or Midge **Rosenthal**]

[e] Under Podhoretz, *Commentary* magazine became the main intellectual hub of this pro-interventionist, right-wing movement whose other prominent proponents included Bill and Irving Kristol.

ANSWER: **neocon**servatism [accept word forms]

[m] Podhoretz addressed “the hatred I still feel for Negroes” in this infamous 1963 essay in *Commentary* magazine which describes his interactions with African-Americans while growing up in Brownsville, Brooklyn.

ANSWER: “**My Negro Problem—And Ours**”

<Caleb Kendrick, Other Academic>

13. In a study by this psychologist, participants listened to recordings of people putatively trying out for the University of Minnesota College Bowl team, and rated those that spilled coffee on themselves as more attractive — but only if the coffee-spillers had answered many questions correctly. For 10 points each:

[m] Name this discoverer of the pratfall effect who invented a learning technique in which students solve individual pieces of a task, then share their results.

ANSWER: Elliot **Aronson**

[e] Aronson’s early research focused on cognitive dissonance, which was explored in this Leon Festinger book about what happened to UFO cultists after their predicted apocalypse did not happen.

ANSWER: ***When Prophecy Fails***

[h] This model of cognitive dissonance, proposed by Cooper and Fazio in the 1980s, proposes that dissonance does not arise merely from two inconsistent thoughts, but from an actual state of affairs that the subject finds aversive.

ANSWER: **New Look** model

<Ryan Rosenberg, Social Science>

14. This performance framework includes a role called the “Joker,” a neutral party who mediates between actors and audience. For 10 points each:

[h] Identify this performance framework whose subtypes include Image Theater and Forum Theater. Audience members in this framework are “spect-actors” who often interact with the performance.

ANSWER: **Theater of the Oppressed** [or **Teatro do Oprimido**; accept **TO**]

[e] Augusto Boal developed the Theater of the Oppressed as an alternative to the didacticism of this author’s epic theater, which is found in plays like *The Good Person of Szechwan*.

ANSWER: Bertolt **Brecht** [or Eugen Berthold Friedrich **Brecht**]

[m] Groups that practice Forum Theater include the UK’s Cardboard Citizens, which is made up of people with this status. In a Pinter play, a character who begins with this status often talks about retrieving his papers in Sidcup.

ANSWER: **homeless** [or **houseless**; accept descriptions such as living on the **street**; accept alternative or disparaging names like **vagrant** or **tramp**; prompt on **poor** or **impoverished**] (The character is Davies from *The Caretaker* by Harold Pinter.)

<Henry Atkins, World Literature>

15. This superacid so readily protonates basically everything that it’s impossible to make or store in any significant quantity, though in 2019 it was found to be present in the interstellar medium. For 10 points each:

[h] Name this cation that is the strongest known acid. With a pKa of -63, this superacid is a few dozen orders of magnitude stronger than fluoroantimonic acid.

ANSWER: **helium hydride** ion [or **hydridohelium**(1+), **helonium**, or **HeH+**]

[e] Though helium hydride is stable in the interstellar medium, on Earth it must be prepared *in situ*, typically by having this species undergo beta decay to helium-3.

ANSWER: **tritium** [or **T**; accept **hydrogen-3** or **3H**; prompt on **hydrogen** or **H**; reject “hydrogen” or “H” with anything else before or after it]

[m] Another unstable molecule that exists in the interstellar medium is the diatomic form of this element, which unexpectedly has a double bond. That molecule is even stranger because both components of the double bond are pi bonds.

ANSWER: **carbon** [or **C**]

<Gerhardt Hinkle, Chemistry>

16. *Two answers required.* An alleged informal greeting between these two politicians titles a book by Geoffrey Wheatcroft that attacks one of them. For 10 points each:

[h] Name these two politicians, one of whom some journalists called the other’s “poodle.” A secret meeting of these two politicians was revealed in the Manning memo.

ANSWER: Tony **Blair** AND George W. **Bush** [accept Anthony Charles Lynton **Blair** in place of “Tony Blair”; accept George Walker **Bush** in place of “George W. Bush”] (The greeting is “Yo, Blair, what are you doing?”)

[m] *Exact phrase required.* The Blair administration was one of the most supportive governments in the group of countries known by this four-word phrase that supported the Iraq War. The unequal contributions of members of this group led Robert Byrd to remark that the US was being used as a “cash cow.”

ANSWER: **coalition of the willing**

[e] Despite their close relationship, Blair sidestepped Bush by discussing an emissions trading agreement with this Austrian-born governor of California.

ANSWER: Arnold **Schwarzenegger** [or Arnold Alois **Schwarzenegger**]

<Alex Fregeau, US History>

17. A notable example of one of these sculptures created by Ligier Richier (“lee-ZH’YAY ree-SHYAY”) was intended to hold the heart of René of Chalon in its upward-thrust left hand. For 10 points each:

[h] Name these funerary monuments that depict their subject as a decomposing or emaciated corpse. A more humble *gisant* (“zhee-ZAWN”) sculpture may be depicted above one of these sculptures.

ANSWER: **transi** [prompt on cadaver monuments]

[m] This art historian analyzed “double-decker” *gisant* and *transi* sculptures in four lectures on tomb sculptures. Pierre Bourdieu’s translations of this art historian’s books, such as *Early Netherlandish Painting*, influenced his idea of habitus.

ANSWER: Erwin **Panofsky**

[e] Helen Roe documented this country’s scattered *transi* sculptures. Extensive knotworks appear across the *Book of Kells*, which is held in this country.

ANSWER: **Ireland** [or **Éire** or Republic of **Ireland** or Poblacht na h**Éireann**]

<Ganon Evans, Visual Fine Arts>

18. This statement caused J. J. Thomson to formulate positive charges as distributed throughout matter in his plum pudding model. For 10 points each:

[m] Name this statement that prohibits the existence of a fixed arrangement of magnets in stable equilibrium. It can be proven from Maxwell’s equations via the result that magnetic fields in free space do not achieve maxima.

ANSWER: **Earnshaw’s theorem**

[e] This technology uses electromagnets with alternating polarity to circumvent the consequences of Earnshaw’s theorem, allowing trains to float above their tracks.

ANSWER: **maglev** [or **magnetic levitation**]

[h] To lower energy costs, the Inductrack system for maglev uses permanent magnets in this configuration. Magnets in this configuration form a line and cycle among four orthogonal orientations in order to achieve nearly one-sided flux.

ANSWER: **Halbach arrays**

<David Bass, Physics>

19. The aroma of burning seaweed in this region was so detestable to one creature that he let loose a horse-massacring plague called the *Mortasheen* to make his anger known. For 10 points each:

[h] Name this region home to the malevolent human-horse hybrid, *nuckelavee*. Trows reside in this region, where the battling of winter’s violent squalls and summer’s calm breezes exemplifies the conflict between Teran and the Sea Mither.

ANSWER: **Orkney** [or **Orkney** Islands, **Orkneys**, **Orkneyjar**, **Orknojar**; accept **Orcadian** folklore; accept **Shetland** Islands or **Northern Isles**; prompt on Scotland, United Kingdom, or UK]

[e] Descriptions of the Orcadian *nuckelavee* and *nuggle* have them resemble this Scottish water-horse shapeshifter. Loch Ness is home to one of these creatures whose sticky skin allows it to latch on to would-be petters.

ANSWER: **kelpies** [accept **each-uisge**]

[m] As seen in a Copinsay account, the gifting of new clothes to these creatures leads to their disappearance. Like the hobgoblin and dobbie, these household [emphasize] *Scottish* fae may transform into *boggarts* when angered.

ANSWER: **brownie** [or **broonie**, **brùnaidh**, **gruagach**, or **silkies**; prompt on hobs or goblins; reject “selkies”]

<Kevin Thomas, Beliefs>

20. Right before uttering this phrase, which is accompanied by “one easy wink of the world’s blind eye,” one character observes a woman’s “glittering helmet of hair” “shine like a gold coin in the gutter.” For 10 points each:

[h] Give this two-word phrase uttered at the end of a short story by an IRA militant who pretends to be the boilerman Mr. Duggan.

ANSWER: “**Fucking rejoice**.” [accept censored answers]

[m] The words “Fucking rejoice” end this author’s controversial story “The Assassination of Margaret Thatcher.”

ANSWER: Hilary **Mantel** [or Hilary Mary **Mantel**]

[e] In this novel, Hal Valance refers to Margaret Thatcher as “Mrs. Torture.” At the beginning of this novel, Saladin Chamcha and Gibreel Farishta are miraculously saved after falling out of a hijacked airplane.

ANSWER: *The **Satanic Verses*** (by Salman Rushdie)

<Anuttam Ramji, British Literature>