

TOSSUPS

1. In a paradigm named for choices and these things, chimpanzees do not understand cues that are trivial for infants. Representations of the self and these things undergo defensive re-fusion in an affective theory outlined in Edith Jacobson's book about their "world." A caretaker dubbed a "primary" one of them enables a symbiotic child to undergo separation and individuation. Margaret Mahler called secure attachments the "emotional constancy" of these things, which facilitate transitional experiences in a theory by Donald Winnicott. A misguided search for these things constitutes a perseverative ("pur-SEVER-uh-tiv") error in the A-not-B task. Relations between these things name a psychoanalytic theory of ego development founded by Melanie Klein. For 10 points, infants in Jean Piaget's sensorimotor stage recognize that what things are permanent?

ANSWER: **objects** [accept **object** permanence, **object** recognition, visual **objects**, **object** relations theory, interpersonal **objects**, transitional **objects**, emotional **object** constancy, (primary) love **objects**, *The Self and the Object World*, or **object**-choice paradigm; prompt on **toys** by asking "they are used as a model for what more generic class of things?"]

<Social Science>

2. A red-skinned tyrant, who failed to cross this river in the "genesis myth" that titles *The Rainbow and the Kings*, inspired its ferrymen to keep paddles from patrilineal kings ordained with anvil strikes. A "nuclear" court on this river collected manioc and croisette ("kwah-ZET") ingots for the "Lord of the Viper," or Mwant Yav, a perpetual king descended from Queen Ruweej. Bambudye "men of memory" along this river created mnemonic *lukasa* boards to record deeds of the hunter Kalala Ilunga. By 1740, Kazembe migrants conquered this river's upper salt pans for the Lunda Empire, which claimed Luba origins. In 1665, Soyo electors who ruled this river's mouth instigated the Kimpanzu–Kinlaza civil war in its eponymous kingdom, which wrecked its capital at Mbanza, or São Salvador. For 10 points, what river is named for a kingdom ruled by *mwenes* like Afonso I?

ANSWER: **Congo** River [or **Zaire** River, Nzâdi **Kôngo**, Fleuve **Congo**, or Rio **Congo**; accept **Chambeshi**, **Kalanyi**, **Kasai**, **Kwango**, **Lomami**, **Lovoi**, **Lualaba**, **Luapula**, **Lubilash**, **Luembe**, **Lufira**, **Luvidjo**, **Luvua**, **Sangha**, or **Sankuru**; accept Kingdom of **Kongo**, Wene wa **Kongo**, **Kongo** dya Ntotila, Reino do **Congo**, or Mbanza **Kongo**; accept **Lunda** River until "Lunda" is read] (Thomas Q. Reefe wrote *The Rainbow and the Kings*. The Kazembe Kingdom paid nominal tribute to the Lunda court but became autonomous.)

<World History>

3. This substance inspired a two-story sculpture made of thousands of glass balls forming the shape of a tree found in the Pavilion at Penn and created by Maya Lin. This substance is depicted in glass sculptures in the Van Andel Institute lobby and Morris Mills Atrium at IUPUI created by Dale Chihuly ("chih-HOO-lee"). This substance partly titles a painting inspired by the 1962 Río Llobregat ("REE-yoh lube-ruh-GOT") flood. A mouse wearing glasses knits this substance in a sculpture at Siberia's Akademgorodok ("uh-kud-YAYM-guh-ruh-DOAK"). Arabs point guns at each other in cubic formations in the bottom right of a painting partly titled for a portmanteau of this substance and the painter's wife Gala. A ladder X-shape in a grey circle appears in a depiction of this substance by Raymond Gosling called *Photo 51*. For 10 points, what substance titles a Salvador Dalí painting subtitled *Homage to Crick and Watson*?

ANSWER: **DNA** [or **deoxyribonucleic acid**; accept **Galacidalacidesoxyribonucleicacid**; prompt on **polynucleotides** or **nucleic acids**; reject "RNA"]

<Other Fine Arts>

4. A soldier of this empire kidnaps the central couple, who later fail to free the “Captive Lion” from its capital, in a novel titled alternately for stars or an eclipse. Subjects of this empire disguise a revolutionary march in the melodrama *Genevieve* in a “Romance of... Liberty” titled *Under the Yoke*. The author of the *Davidiad* (“day-VID-ee-ad”) allegorized this empire as the biblical Holofernes in his six-canto vernacular epic *Judith*. During this empire’s “slow fever” in a historical novel written under Axis occupation, Fata leaps to her death before her wedding and her drowned corpse is found by the drunkard One-Eyed Salko. A victim of this empire’s “blood tribute” orders Abidaga to conscript peasants to cart the stones for a *kapia* that stands for 350 years. For 10 points, what empire builds the title structure of Ivo Andrić’s (“EE-vo AHN-dreech’s”) novel *The Bridge on the Drina*?

ANSWER: **Ottoman** Empire [or Sublime **Ottoman** State or Devlet-i ‘Alīye-i ‘**Osmāniye**; accept **Turkish** Empire or the **Turks** or **Türkler**; accept Sublime **Porte**, **Sublime Gate**, Grand **Porte**, **Bāb-i Ālī**, or **Babiali**; reject “Turkey” or “Türkiye”] (*Eclipse of the Crescent Moon*, or *Stars for Eger*, is by Géza Gárdonyi. *Under the Yoke* is by Ivan Vazov. Marko Marulić wrote *Judith*.)

<European Literature>

5. Steppers use fixed reticles to repeatedly process these objects after materials such as KMPR 1010 or SU-8 are applied to them. After these objects undergo a dehydration bake, vapor priming or spin coating is used to apply the adhesion promoter HMDS. Flats on one of these objects that are offset 180 or 90 degrees from each other indicate that it has [110] (“one-one-zero”) orientation. Singulation is the process of scribing and breaking these objects into parts. These objects undergo SC-1, then an optional oxide strip, then SC-2 in the RCA clean. The Bridgman–Stockbarger method and the Czochralski (“cho-KRAHL-skee”) method are used to grow the boules (“bools”) that these objects are then sawed out of. The lithography techniques applied to these objects can now achieve a feature size of 2 nanometers. For 10 points, integrated circuits are produced from what thin slices of semiconductor?

ANSWER: silicon **wafers** [accept silicon **substrates**; accept **slices** of silicon until “slices” is read; prompt on **silicon** or **Si**; prompt on **semiconductors** until read; prompt on silicon **crystals**, semiconductor **crystals**, **crystalline** silicon, or **crystalline** semiconductors; reject “integrated circuits” or “ICs”] (HMDS is hexamethyldisilazane. SC stands for standard clean. Werner Kern invented the RCA at the Radio Corporation of America.)

<Other Science>

6. One of these people threw down some seals after seizing them from the grand marshal who originated the homosexual “passion of the cut sleeve.” One of these people instituted Huáng–Lǎo “governing by doing nothing” after their namesake “kin” died in a “clan disturbance.” Two of these people who were tried for Wū shamanism confront a bear and refuse a palanquin (“PAL-un-keen”) in the *Admonitions Scroll*. One of these people reputedly made another one into a “human pig.” These people included Zhào Fēiyàn (“jao fay-yen”), Wáng Zhèngjūn (“wahng jung-jwin”), and their rivals, who ranked equal to chancellors as “brilliant companions.” The historian Bān Zhāo (“bahn jow”) tutored one of these people named Dèng Suī (“dung sway”), who kept power after Ān’s minority and hired the eunuch papermaker Cài Lún (“tsai loo-un”). For 10 points, Lǚ Zhì (“lew jurr”) set the precedent for what Hàn back palace residents to rule as regents with the title “dowager”?

ANSWER: imperial **consorts** [or **lovers** of Hàn **emperors** or equivalents; accept **concubines**, **concubinage**, **harem**, **empresses**, **huáng hòu**, **huángtài hòu**, **pínfēi**, bì **qiè**, **consort** kin, **wàiqi**, or **jiéyú**; accept **dowagers** until read; prompt on **regents**, **attendants**, **companions**, palace **women**, court **ladies**, **wives**, **princesses**, **brides**, **nobles**, **nǚrén**, **fūrén**, or equivalents of any; reject “queens,” “emperors,” “rulers,” or “sovereigns”] (Clues include Emperor Āi’s lover Dǒng Xián, the Lǚ clan disturbance, Wén’s Empress Dòu, Lady Féng, Consort Bān, and Consort Qī.)

<Other History>

7. The speaker of a poem by this author describes his lover's mind as a "room where Peace and Honor talk like birds," unlike his own mind, which is a map drawn by a mad captain with the inscription, "Here there be tygers." This poet of "Difference" addressed a "muse, whose strong and diverse heart / So many men have tried to understand" in the invocation of an epic poem whose title man takes in "the bountiful land" and remarks, "This is a beautiful country" before dying. In that epic by this poet, Sally Dupré thinks that "Wingate Hall must tumble down" while dancing with a plantation owner's son. A poem by this author that praises Deadwood and Lost Mule Flat opens, "I have fallen in love with American names," and provides the title of Dee Brown's *Bury My Heart at Wounded Knee*. For 10 points, name this poet who wrote about the Civil War in *John Brown's Body*.

ANSWER: Stephen Vincent **Benét**

<American Literature>

8. In 2018, Yale researchers developed one of these devices that minimizes four-wave mixing nonlinearity by using many SNAILs ("snails"). In a type of these devices, adverse inputs are "squeezed" by having a traveling wave move through a chain of thousands of Josephson junctions. A microwave pump input is partly converted into an "idler" wave in a type of these devices often used in the readout of quantum computers, which are called "parametric." The analog adder is also called the "summing" type of these devices. A type of these devices named for their use in arithmetic in analog computers ideally reject common-mode signals, meaning that only differences between their inverting and non-inverting inputs are subject to vast gains. For 10 points, what devices have an "operational" or "op" type that increases the power level of signals?

ANSWER: **amplifiers** [or **amps**; accept operational **amplifiers**, op-**amps**, differential **amplifiers**, summing **amplifiers**, parametric **amplifiers**, Josephson parametric **amplifiers**, traveling-wave parametric **amplifiers**, or SNAIL parametric **amplifiers**] (Operational amplifiers were named for their use in performing arithmetic operations.)

<Physics>

9. Peter Russell's monograph on this piece describes a recurring first-movement motif in which a glockenspiel alternately plays one or two quarter-note D's. This piece begins with a passage marked *klagen*, in which an unaccompanied oboe and horn play in counterpoint, after which the soloist enters. Unusually for its composer, this piece is scored for a small chamber-like orchestra without trumpets, which only plays together in its last movement. This piece is made up of four slow movements and one fast, stormy movement that ends on a D major coda played "slow, like a lullaby." In this piece's closing movement, "*In diesem Wetter*" ("in DEE-zum VET-ter"), a line meaning "as if they were in their mother's house" augments a text by Friedrich Rückert. For 10 points, name this song cycle that foreshadowed the scarlet fever that killed the daughter of composer Gustav Mahler.

ANSWER: **Kindertotenlieder** [or **Songs on the Death of Children** or equivalent translations describing **songs** about **children** undergoing **death**]

<Classical Music>

10. Prony Resources plans to model sustainable recovery of this resource by replacing Vale's ("VAH-lee's") operations at Goro. The price of this resource hit 100,000 dollars per ton during a 2022 short squeeze caused by Tsingshan, which invested in its Morowali Industrial Park after China's 2008 shortage. It's not cobalt, but Nick Palmer sold this metal's Yabulu refinery after its tailings dam damaged the Great Barrier Reef. Harita uses high-pressure acid leaching to extract this metal in an ASEAN ("AH-see-ahn") country that implemented a 2020 ban on exports of its ore. BYD's LFP technology avoids using this metal, whose largest producers include New Caledonia, the Philippines, and Indonesia. Cobalt, graphite, manganese, lithium, and this metal are "critical minerals" for EV batteries. For 10 points, what transition metal is alloyed with iron and chromium in typical stainless steel?

ANSWER: **nickel** [or **Ni**; accept **nickel** sulfide, **ferronickel**, **nickel** pig iron, **nickel** laterites, lateritic **nickel** ore deposits, **nickel**iferous ore, or **nickel** matte; accept Harita **Nickel**; prompt on stainless **steel**, **laterite**, **lateritic** ores, **garnierite**, **limonite**, or **pentlandite** by asking "what metal component?"] (BYD created lithium iron phosphate batteries.)

<Current Events>

11. In a story by this author, Nature "audits her accounts with a red pencil" as disease kills both a Muslim boy named for a parrot and his mother, who loves the white "bachelor" Holden. The phrase "but that is another story" recurs in stories from this author's "Seven Years' Hard" period. Writing an "eerie tale" taught this author of "Without Benefit of Clergy" to "think in another man's skin." In a story by this author, two men swear off liquor and women before a fearful girl is betrothed to one of them and bites him, drawing blood that reveals his mortality. In a story by this author of *Plain Tales from the Hills* and *The Phantom Rickshaw*, Peachey Carnehan survives crucifixion and retrieves the head of Dravot, whose rope bridge is cut after the pair scheme to rule Kafiristan. For 10 points, what author wrote the "Indian tale" "The Man Who Would Be King"?

ANSWER: Rudyard **Kipling** [or Joseph Rudyard **Kipling**]

<British Literature>

12. A painting of this scene was attributed to Albrecht Dürer despite being signed on both the red hem of a headdress and a silver collar. A Gothic boxwood miniature prayer bead at the Met Cloisters pairs the Crucifixion with this scene, which is depicted in the *Columba Altarpiece*. Notnames including this scene, such as ones named for Von Groote and Lille, exemplify its popularity among the Antwerp Mannerists. Pseudo-Kufic rosette halos and visual puns such as a falcon held by Palla Strozzi appear in a version of this scene with a gold three-arched frame by Gentile da Fabriano. Domenico Ghirlandaio's depiction of this scene is inspired by the central panel of the *Portinari Altarpiece*. For 10 points, Sandro Botticelli included a self-portrait in his depiction of what biblical scene, in which Mary and an infant Jesus are visited by the Three Wise Men?

ANSWER: **Adoration** of the Magi [or **Adoration** of the Kings; accept **Adoration** of the Shepherds; prompt on **Nativity**; reject "Mystical Nativity" or "Mystic Nativity"]

<Painting & Sculpture>

13. Followers of this religion must reach the status of "useful timber" by attending nine lectures before they are authorized to conduct a healing ritual that involves stroking affected body parts three times. This religion holds that fulfilling the "causality of origin" will restore humanity's natural 115-year lifespan. This faith's central texts include the "Divine Doctrines" and "Songs of Service," which outline a "hand dance" and a ceremony in which 10 masked dancers surround an *axis mundi* called the *Jiba*. Followers of this faith attempt to "sweep" away "eight mental dusts." In 1838, "God the Parent" possessed the founder of this faith, which is often considered the largest founded by a woman. For 10 points, name this faith founded by Nakayama Miki, a Japanese new religious movement dedicated to the "Joyous Life."

ANSWER: **Tenrikyō** [or **Tenriism**] (The first sentence refers to the *sazuke* healing ritual, which can only be performed at the rank of *yoboku*.)

<Religion>

14. In an influential paper, Derek Geldart classified materials by how well they performed this process and their propensity for slugging and channeling. “Solids holdup” is the extent to which materials undergoing this process can fill a riser after being introduced above the distributor plate. Sorbents are always present to scrub CO₂ during closed loop combustion because this physical process mixes them in a namesake kind of “bed.” Gas oil is combined with powdered catalyst by this process, allowing it to be piped between the reactor and regenerator in the most common form of catalytic cracking. In industry, this process begins when a pressurized gas exerts enough drag to counteract gravity and suspend a granular material. For 10 points, name this process in which solids like water-logged soil during an earthquake begin to flow.

ANSWER: **fluidization** [or **liquefaction**; accept soil **liquefaction**; accept **fluid** catalytic cracking; accept **fluidized** bed; prompt on **aeration**; prompt on **mixing** until “mixes” is read; prompt on **flowing** until “flow” is read by asking “what process causes the flow?”]

<Chemistry>

15. *Original-language term required.* This word’s use as a code name for a Bhotiya man employed by T. G. Montgomerie made it a generic term for “native explorers” of Yarkand and Kumaon (“koo-mah-OWN”) during the Great Trigonometrical Survey. The memoir *Our Moon Has Blood Clots* recounts the exile of a people with this name, who are presented as genocide victims in a nationalistic 2022 film partly titled for “Files.” Narmad’s “Sudharak Yug” preceded an era named for this word in Gujarati literature. An insurgency of pro-*azaadi* separatist groups like Lashkar-e-Taiba (“LUSH-ker-ay-TAY-buh”) provoked the 1990s exodus of an ethnoreligious group with this name after riots in Kashmir. Like *ustad*, this title is granted to Bhimsen Joshi and other masters of Hindustani music. It was also an honorific of Jawaharlal Nehru. For 10 points, what Sanskrit-derived term for a learned man is now applied to American political commentators?

ANSWER: **pundit** [or **pandit** or **pandita**; accept **punditry**; accept Kashmiri **Pandits**; accept **Pandit** Yug; prompt on **Kashmiris** or Kashmiri **Brahmins** or **Saraswats**] (The first line refers to Nain Singh. The film is *The Kashmir Files*.)

<Other Academic>

16. The fallout from this event caused a participant to have a mental breakdown, quit his job, and become Vice President of Polaroid. The “Kranz Dictum” was surmised in the aftermath of this event, which was most prominently covered in the media by Jules Bergman. A board review of this event, whose participants mistrusted Joseph Shea, focused on the danger of materials like 34 square feet of velcro. The circumstances of this event mirrored an event six years earlier surrounding Valentin Bondarenko, whose death was suppressed until 1980. During a Senate Committee hearing about this event, Walter Mondale publicized the Phillips Report. This event occurred during a “plugs-out test” with Ed White, Roger Chaffee, and Gus Grissom. For 10 points, name this 1967 disaster that occurred during a preflight launch rehearsal at Cape Canaveral.

ANSWER: **Apollo 1** fire [or **Apollo 1** disaster or fire on the **Apollo 1** test or equivalents; accept destruction of the **Apollo 1** modules or the deaths of the **Apollo 1** astronauts or equivalents of each; accept **AS-204** in place of “Apollo 1”]

<American History>

17. Rolling these animals in powdered sugar is a non-lethal method of removing phoretics. Moths that parasitize these animals can degrade polyethylene due to their usual diet of long-chain unsaturated esters. Failures in policing can cause these animals to develop an “anarchistic” phenotype in which cheating increases genetic diversity. Jan Dzierzon (“JAIR-zhon”) discovered an early example of parthenogenesis in these animals and observed that they will not seal half-inch gaps. When these animals undergo supersedure, haploid individuals will kill their diploid parent by generating excessive heat. L. L. Langstroth designed modular boxes for these insects, which are the primary hosts of the *Varroa* mite. Bellows exploit their difficulty detecting alarm pheromones in the presence of smoke. For 10 points, name these insects affected by colony collapse disorder.

ANSWER: honey **bees** [or **Apis**; accept ***A. mellifera*** or **Apini**; prompt on insects or arthropods until “insects” is read; prompt on Hymenoptera or hymenopterans; reject “bumblebees” or other kinds of bee besides honey bees]
<Biology>

18. Edward Woell set a microhistory in a town in this region where prisoners were reportedly massacred while tied together like a rosary. Discontent in this region shifted from “offensive” to “defensive” in nature, bucking conventional trends, according to a “sociological analysis” of it in the first published book by Charles Tilly. Renée Bordereau wrote a memoir of her experience fighting in this region while disguised as a man. Historian Reynald Secher labeled this region the site of the first modern genocide after the Second Battle of Cholet. The National Convention authorized Louis-Marie Turreau to lead “infernal columns” in this region against the Catholic and Royal Armies in response to disaffection with the *levée en masse*. For 10 points, a 1793 counterrevolution engulfed what region in Western France?

ANSWER: **Vendée** (“von-DAY”) [accept War of the **Vendée** or Guerre de **Vendée**; prompt on Bretagne, Brittany, Poitou, Southern Anjou, Pays de la Loire, Loire Valley, Val de Loire, Loire-Atlantique, Maine-et-Loire, Sarthe, or Deux-Sèvres; prompt on Western France until read; prompt on l’Ouest until “Western” is read] (Woell wrote *Small-Town Martyrs and Murderers* about the Machedoul Massacre.)
<European History>

19. In this city, an *apologia* scrawled in the rubble of a mask factory becomes a scripture of a group that requires scribes to take a secret oath to “omit, interpolate, alter.” A story set in this city is sometimes read alongside “The Problem of Our Laws” due to its mention of a sacred latrine called Qaphqa (“kafka”). A king of this city is left to die in the desert after imprisoning another ruler in a brass labyrinth in the story “Two Kings and Two Labyrinths.” The phase of the moon determines the hierarchy of men tattooed with Hebrew letters in this city, which is claimed by a story’s last sentence to itself be “nothing but an infinite game of chance.” A shadowy “Company” operates lotteries in this city in a story by Jorge Luis Borges. For 10 points, Borges used what city’s Hebrew name for an infinite expanse of hexagonal rooms in a story titled for its “Library”?

ANSWER: **Babylon** [or **Babel**; accept **Babylonia**; accept “The Library of **Babel**”; accept “The Lottery in **Babylon**”]
<World Literature>

20. A “radical” form of this concept based on Plenty Coups’s response to the devastation of the Crow nation has been theorized by Jonathan Lear. A book titled for this concept opens by comparing Heidegger’s “thrownness” to the life of a dog and elaborates a dialectic of the “no-longer” and “not-yet-conscious.” Jürgen Moltmann’s theology of this concept and José Esteban Muñoz’s *Cruising Utopia* draw on a three-volume work on the “Principle” of this concept by the Marxist Ernst Bloch. This concept is offered as a pragmatic “substitute” for representationalism in a Richard Rorty collection partly titled for its “Social” form. This concept is the alphabetically last of a set of three dispositions that Aquinas distinguished from Aristotle’s “cardinal virtues.” For 10 points, what concept is grouped in the theological virtues with faith and charity?

ANSWER: **hope** [or **Hoffnung**; or **spes**; accept *Philosophy and Social **Hope***, *The Principle of **Hope***, theology of **hope**, or *Radical **Hope***]
<Philosophy>

BONUSES

1. A three-course set lunch offered during weekdays in this country was originally conceived of as part of a campaign claiming that this country “is different” to attract foreign tourists in the 1960s. For 10 points each:
[10e] Name this country where postwar autarkic policies pushed by the Falange (“fah-LAHN-hay”) Party caused a widespread famine until the 1950s.

ANSWER: **Spain** [or **España**; or **Spanish** State or Estado **Español**]

[10h] José Antonio Primo de Rivera’s sister Pilar headed this subset of the Falange Party that organized cooking lessons and published cookbooks to reinforce traditionalist gender norms.

ANSWER: **Sección Femenina** [or **SF** or **Feminine Section** or **Women’s Section**]

[10m] Francisco Franco attempted to address food shortages by signing a 1946 trade agreement with this non-European leader, who extended Spain a line of credit to import wheat and beef.

ANSWER: Juan **Perón** [or Juan Domingo **Perón**]

<European History>

2. This thinker was the first to suggest that mereological nihilists could analyze ordinary talk about tables as paraphrases of sentences about particles “arranged tablewise.” For 10 points each:

[10h] Name this University of Notre Dame (“NOTE-er daym”) philosopher who answered the Special Composition Question by holding that the only composite objects are living organisms in his 1990 book *Material Beings*.

ANSWER: Peter **van Inwagen**

[10m] Van Inwagen’s organicism contrasts with Ned Markosian’s view that statements about composite objects have this property. G. E. M. Anscombe coined this term for matters of fact with no further explanation.

ANSWER: **brute** facts [accept **brutal** composition or **brutality** of compositional facts]

[10e] Brutal composition rejects Van Inwagen’s argument that simples can make up this kind of set. In a type of logic named for this adjective, truth values can be any number between 0 and 1.

ANSWER: **fuzzy** [accept **fuzzy** logic; accept **fuzzy** set]

<Philosophy>

3. This process can be initiated by glass, though *in vitro* it typically begins with tissue factor. For 10 points each:

[10e] Name this process in which factors VII and VIII activate factor X (“ten”), which in turn activates thrombin.

ANSWER: **coagulation** [or word forms of **coagulate**; or blood **clotting**]

[10m] The transglutaminase (“trans-gloo-TAM-in-ace”) factor XIII (“thirteen”) is one of the few proteins in the coagulation cascade that are not these enzymes. Serpins like antithrombin can inhibit these enzymes, which include thrombin.

ANSWER: **serine proteases** (“PRO-tee-aces”) [or **serine proteinases** or **serine endopeptidases**; prompt on **proteases** or **proteolytic** enzymes or endopeptidases]

[10h] Degranulation introduces elastase and myeloperoxidase (“MY-lo-per-OX-id-ace”) to these structures, which promote coagulation and are common in preeclampsia. In eosinophils (“ee-oh-SIN-oh-fills”), the DNA in these structures may be mitochondrial, and in general, they are produced in a namesake type of programmed cell death.

ANSWER: **extracellular traps** [accept **NETs**, **NETosis**, **EETs**, or **EETosis**; accept neutrophil **extracellular traps**, eosinophil **extracellular traps**, macrophage **extracellular traps**, monocyte **extracellular traps**, or mast cell **extracellular traps**; prompt on **traps**]

<Biology>

4. This movement's verse forms included the "elementary morality" and the heterogram, the latter of which is referenced in the calligram that ends the 2020 novel *The Anomaly*. For 10 points each:

[10m] Name this movement whose N+7 game inspired Harryette Mullen's poetry collection *Sleeping with the Dictionary*. The book *Hundred Thousand Billion Poems* began this movement that focused on "constrained writing."

ANSWER: **Oulipo** ("oo-lee-poh") [or **Ouvroir de Littérature Potentielle**; or **Workshop for Potential Literature**] (*The Anomaly* is by Hervé Le Tellier. *Hundred Thousand Billion Poems* is by Raymond Queneau and François Le Lionnais.)

[10e] Oulipo member Jacques Jouet invented a verse form named for this place. A Raymond Queneau novel about Zazie is set in this place, which titles a short imagist poem by Ezra Pound.

ANSWER: Paris **Metro** [accept **subway**; accept "In a Station of the **Metro**"; accept *Zazie in the **Metro*** or *Zazie dans le **Métro***; accept poeme de **metro**; prompt on **train**]

[10h] Oulipo poets like Jouet and Oskar Pastior loved this verse form derived from Malay poetry. In this form, the second and fourth line of each quatrain becomes the first and third of the next.

ANSWER: **pantoum** [or **pantun**]

<European Literature>

5. This composer taught at El Salvador's National Conservatory and took the *galopa* rhythm in one of his *Danzas* from his home country's diatonic harp music. For 10 points each:

[10h] Name this virtuoso who made early classical guitar recordings. He billed himself as a "Paganini of the guitar from the jungle" and performed his piece *La Catedral* on palm-draped platforms.

ANSWER: Agustín **Barrios** [or Agustín Pío **Barrios**; accept Agustín Barrios **Mangoré** or **Nitsuga** Mangoré]

[10e] The Paraguayan genre of Barrios's *London Carapé* is misleadingly named for this genre, which influenced Norteño's use of accordions. *The Bartered Bride's* Act I ends with one of these 2/4-time Bohemian dances.

ANSWER: **polka** [accept **polca** paraguaya]

[10m] Barrios inspired Antonio Lauro to write guitar waltzes named for this country. Teresa Carreño names the national youth orchestra of this country, whose government sponsors a music program for impoverished youth.

ANSWER: **Venezuela** [or Bolivarian Republic of **Venezuela** or República Bolivariana de **Venezuela**; accept **Venezuelan** waltz or vals **venezolano**; accept Republic of **Venezuela**, United States of **Venezuela**, or State of **Venezuela**]

<Classical Music>

6. Alongside Mary Hunter Austin and Zitkála-Šá ("zit-KAH-lah SHAH"), this author is profiled as a herald of a "golden morrow" in a study of women writers by Elaine Showalter titled for one of her stories. For 10 points each:

[10m] Name this author who adapted that story, "A Jury of Her Peers," from her play in which a dead bird suggests to Mrs. Hale and Mrs. Peters that Minnie Foster killed her husband.

ANSWER: Susan **Glaspell** [or Susan Keating **Glaspell**] (The play is *Trifles*.)

[10h] Another writer from Showalter's "golden morrow" is this pseudonymous mixed-race author, who wrote about Chinese Americans in her 1912 collection *Mrs. Spring Fragrance*.

ANSWER: Sui Sin **Far** [or **Sui** Sin Far or **Shuǐ** Xiān Huā; or Edith Maude **Eaton**]

[10e] In the collection's title story, Mrs. Spring Fragrance calls this English poet a "noble American" before reciting his lines, "'Tis better to have loved and lost / Than never to have loved at all."

ANSWER: Alfred, Lord **Tennyson** [or Alfred **Tennyson**, 1st Baron Tennyson]

<American Literature>

7. W. C. Bennett proposed a localized chronology in this mountain range and inspired Gordon Willey to study regional settlement patterns in its Virú Valley Project. For 10 points each:

[10e] Name this mountain range where eclectic Vicús (“vee-KOOSE”) ceramics challenged the seriation of the Moche culture.

ANSWER: **Andes** [or **Andes** Mountains, **Andean** Mountains, Cordillera de los **Andes**, or **Anti**; accept **Altiplano**, **Andean** Plateau, **Collao**, or **Qullaw**]

[10h] This Peruvian gentleman-archaeologist periodized the Andean North Coast from the Formative Cupisnique (“koo-peese-NEE-kay”) culture through five Mochica phases. His family’s namesake museum in Lima showcases erotic Moche pottery.

ANSWER: Rafael **Larco** Hoyle [accept **Larco** Museum, Museo **Larco**, Rafael **Larco** Herrera Archaeological Museum, or Museo Arqueológico Rafael **Larco** Herrera; accept Rafael **Larco** Herrera or Teófilo Rafael Andrés Wenceslao **Larco** Herrera; accept **Larco** chronology; prompt on **Hoyle** or **Herrera**]

[10m] The Larco Museum exhibits condor-head cups from this altiplano state. The Urus of Lake Titicaca’s reed islands may have adopted the Puquina (“poo-kee-nah”) language from this state, which built the Bennett Monolith and Gate of the Sun.

ANSWER: **Tiwanaku** [or **Tiahuanaco** or **Tiahuanacu**; accept **Tiwanaku** Empire]

<Other History>

8. Answer the following about visual aspects of musical theater stagecraft, for 10 points each.

[10m] *Les Misérables* pioneered the use of these structures by using one to reveal Enjolras (“on-jole-ROSS”) on the barricades. One of these physical structures illustrates time rewinding as Angelica recalls meeting Hamilton in the song “Satisfied.”

ANSWER: **revolving** stages [accept **turntables** or **rotating** stages; or word forms of **revolve** or **rotate** or **spin**; accept descriptions of a device that allows the stage to move in a **circle**]

[10e] Irene Sharaff is often considered to have founded the field of Broadway costume design with her work on Rodgers and Hammerstein musicals like this one, for which she imported authentic Thai silks for the actor playing King Mongkut.

ANSWER: *The **King and I***

[10h] Bradley King is responsible for the austere, historically-inspired, Tony Award-winning lighting design that characterizes this director’s productions, like *Hadestown* and *Natasha, Pierre, and the Great Comet of 1812*.

ANSWER: Rachel **Chavkin**

<Other Fine Arts>

9. This style's offshoots included the "Petrine" of Tallinn's Kadriorg ("KAH-tree-oak") Palace, the "Elizabethan" of Kyiv's Mariinskyi Palace, and the "Cossack" style that influenced the Naryshkin estates. For 10 points each:

[10e] Name this opulent 17th-century art style of the Palace of Versailles, which inspired Peterhof Palace's grandiose formal gardens.

ANSWER: **baroque** [accept Petrine **baroque**, Elizabethan **baroque**, Naryshkin **baroque**, Muscovite **baroque**, Moscow **baroque**, Cossack **baroque**, Ukrainian **baroque**, or Mazepa **baroque**; accept **barokko** in place of "baroque"; reject "baroque revival"]

[10m] Catherine II fired Russia's baroque architect Bartolomeo Rastrelli, so he designed this duchy's Rundāle ("ROON-dah-lay") and Jelgava ("YELL-guh-vuh") palaces. This Latvian duchy, which controlled Semigallia, shares the name of a Baltic lagoon and spit.

ANSWER: **Courland** [or **Curonians** or **Kurzeme** or **Kurāmō**, accept **Curonian** Spit, **Curonian** Lagoon, Duchy of **Courland** and Semigallia, **Kurs**, **Kurzemes** un Zemgales, **Kurlyandiya** i Semigaliya, **Kurland** und Semgallen, **Kuršu**, **Kuršiu**, **Kūrshskaya**, **Kurshskiy**, **Kurische**, **kurši**, or **kuršiai**]

[10h] This city's namesake oblast contains Eastern Europe's oldest baroque church, Corpus Christi, which served the Radziwiłł ("rahd-JEE-veew") family's baroque Nesvizh Castle. Mir Castle stands between Grodno and this larger city.

ANSWER: **Minsk** [accept **Minsk** Oblast, **Minsk** Region, **Minsk** Voblasts, **Minskaya** oblast, or **Minskaja** voblasć] <Geography>

10. The fourth example of these graphs to be known is named for the pseudonym used by its discoverer, Blanche Descartes. For 10 points each:

[10h] The Petersen graph is the smallest of what non-planar bridgeless cubic graphs with a literary name? Their edge chromatic number [emphasize] *isn't* three.

ANSWER: **snarks**

[10e] The statement that snarks are non-planar is equivalent to this theorem, whose proof by Wolfgang Haken and Kenneth Appel used a computer at UIUC and considered reducible configurations in maps with bordering regions.

ANSWER: **four-color** theorem

[10m] The "snark conjecture" asserts that the Petersen graph has this relationship, more general than a subgraph, to all other snarks. By Wagner's theorem, finite graphs are planar precisely when neither K5 nor K3,3 ("K-three-three") has this relationship to them.

ANSWER: graph **minors**

<Other Science>

11. In one dimension, this equation is often numerically solved using a method developed by the fittingly named Boris Numerov. For 10 points each:

[10e] Name this differential equation, whose 1-D time-independent version is written "H psi equals E psi."

ANSWER: **Schrödinger** equation [or time-independent **Schrödinger** equation; prompt on "**SE**" or "**TISE**"]

[10h] The 1D Schrödinger equation can be solved using this general method in which a boundary value problem is converted to an initial value problem by trying multiple initial conditions at one boundary until the trajectory meets the required point on the other boundary.

ANSWER: **shooting** method

[10m] For the triangular potential well, the Schrödinger equation reduces to $y'' = xy$, whose solutions are these functions named after a British Astronomer Royal. These functions patch together wavefunctions in the WKB method.

ANSWER: **Airy** functions [accept **Airy** functions of the first kind, **Airy** functions of the second kind, **Ai** of x , or **Bi** of x]

<Physics>

12. Kalonymus ben Kalonymus began a tradition of satirical writings named for this holiday with a “tractate” that uses tortured Rabbinical logic to mandate a flogging for anybody who drinks water during it. For 10 points each:
[10e] Name this holiday when Jews are commanded to drink until they can no longer distinguish the phrases “blessed be Mordecai” and “cursed be Haman.”

ANSWER: **Purim** [accept Festival of **Lots**]

[10m] During Purim and Hanukkah, the section *al-HaNissim* (“all-ha-NEE-seem”) or “For the Miracles” is added to the *Birkat Hamazon* (“beer-COT ha-ma-ZONE”) and to this prayer. This daily “standing prayer” contains 19 blessings.

ANSWER: **Amidah** (“ah-mee-DAH”) [or *Tefilat ha-Amidah*; accept **Shemoneh Esreh**]

[10h] Congregations in the Middle East sang these Sephardic hymns at 2 a.m. on Purim and other holidays. Jerusalem’s Ades Synagogue has revived Syrian versions of these hymns, which often follow Arabic *maqāmāt*.

ANSWER: **baqashot** (“ba-ka-SHOAT”) [or **maftir**; prompt on **piyyutim**]

<Religion>

13. A “Bible War” broke out in this city in the early 1870s when its school board voted to prohibit religious instruction in schools despite objections from large German Catholic and Jewish populations. For 10 points each:
[10h] Name this city where a mob rioted in 1884 after William Berner was not convicted of murder for killing his employer. After the riots, “Boss” Cox consolidated control over this city’s politics.

ANSWER: **Cincinnati**

[10m] The 1884 Cincinnati riots destroyed one of these buildings. “Boss” Tweed funded a lavish neoclassical building of this type in Lower Manhattan that now houses the city’s Department of Education.

ANSWER: **courthouse** [accept Tweed **Courthouse**; accept Hamilton County **Courthouse**; accept Cincinnati **Courthouse Riots**] (Tweed embezzled state funds earmarked for his namesake courthouse’s construction and was later tried in the unfinished building.)

[10e] Cincinnati police guarded the courthouse with this predecessor of the machine gun, named for the North Carolinian who invented it during the Civil War.

ANSWER: **Gatling** gun [accept Richard **Gatling** or Richard Jordan **Gatling**]

<American History>

14. This word titles both a short story whose protagonist experiences a neck itch when she faces big decisions, and a novel in which the insult “itchtail” is used for Dr. Sweet Mother. For 10 points each:

[10h] Give this word that titles an O. Henry Prize-winning story by Lesley Arimah, as well as a 2022 novel featuring the refrain “tholukuthi” in which the New Dispensation seizes power in Jidadah.

ANSWER: **glory**

[10e] In Arimah’s story, Glory’s grandfather teaches the moral “trick the gods” with a story about two of these beings. NoViolet Bulawayo’s novel *Glory* was inspired by a George Orwell allegory titled for these beings.

ANSWER: **animals** [or **beasts**; accept **porcupines**; accept **tortoises** or **turtles** or **reptiles**; accept **Animal Farm**; accept **beast** fables]

[10m] Both Arimah and Bulawayo have won this prize named for a former chairman of the Booker Group, which is awarded annually to an African short story in English.

ANSWER: **Caine** Prize [or **Caine** Prize for African Writing]

<World Literature>

15. The SH2 domain recognizes this amino acid after it is phosphorylated. For 10 points each:

[10e] Name this aromatic amino acid symbolized Y. Its alcohol remains protonated at physiological pH.

ANSWER: **tyrosine** [or **Tyr**; accept phospho**tyrosine**]

[10h] The redox-active Yz (“Y-Z”) residue forms a neutral radical via this mechanism during oxygen evolution. In mammalian ribonucleotide reductase, this mechanism is used in each step of the long-range transfer of a tyrosine radical to a cysteine dozens of angstroms away.

ANSWER: **proton-coupled electron transfer** [or **PCET**; accept **hydrogen atom transfer**; accept descriptions of the **transfer** of both a **proton** AND **electron**; prompt on **electron transfer** or **proton transfer** or **hydrogen transfer**]

[10m] PCET often competes with this process, whose rate drops off exponentially with distance. This process’s role in the mechanism of alcohol dehydrogenase produces an anomalously large kinetic isotope effect.

ANSWER: quantum **tunneling** [prompt on **hydrogen transfer**]

<Chemistry>

16. Robert Haug argued that this empire’s defeat formed a “shatterzone” where Arabs initially raided Hephthalites and Sogdians rather than “conquering” Ṭukhāristān and Transoxiana. For 10 points each:

[10e] Name this empire that fell after the Battle of Nahavand in 642. Haug disputed al-Ṭabarī’s report that its last shah, Yazdegerd III, fled to Khorasan.

ANSWER: **Sasanian** Empire [or **Sassanid** Empire, **Sasanians**, **Sassanids**, **Sasan**, or **Ērānšahr**; prompt on Neo-**Persian** Empire or New **Persian** Empire or **Iranian** Empire] (Haug wrote *The Eastern Frontier: Limits of Empire in Late Antiquity and Early Medieval Central Asia*.)

[10h] A Sasanian pretender aided these Duōlù Turks who crushed the Umayyads in the “Day of Thirst” and Battle of the Pass. Qutayba began formal Arab rule in Transoxiana after these Turks disrupted the Western Turkic Khaganate.

ANSWER: **Türgesh** [or **Türgesh** Khaganate, **Turgeshi**, **Türgish**, **Türüges**, **Tūqíshī**, or **T’u-ch’i-shih**; prompt on **On-Oq** or **Ten Arrows**] (The pretender was Khusrow, who claimed to be Peroz III’s son.)

[10m] Haug argued that the Táng conquest of Sūyāb from the Türgesh incited this general to stage the Battle of Ṭalās to control Transoxiana. This Persian governor of Khorasan led the Abbasid Revolution.

ANSWER: **Abū Muslim** [or **Behzādān**; or **Abū Muslim** al-Khurāsānī; or **Abū Muslim** ‘Abd al-Raḥmān al-Khurāsānī; prompt on **al-Khurāsānī**] (Haug more specifically claims that he retaliated for the Táng’s further incursion on Chāch around modern Tashkent.)

<World History>

17. In an allegorical play with this title, society cycles through peace, plenty, pride, envy, war, and poverty, and the poet Posthaste forms an acting company called Sir Oliver Owlet’s Men. For 10 points each:

[10h] Give this title of a play attributed to John Marston subtitled *The Player Whipped*. William Prynne’s 1632 text with this title attacked theater as impious and landed him in prison for sedition.

ANSWER: **Histriomastix** [accept **Histriomastix**: *The Player’s Scourge*, or *Actor’s Tragedy* or **Histriomastix**, or; *The Player Whipped*]

[10e] In *Histriomastix*, Marston uses the pedantic character Chrisoganus to satirize this opponent of his in the War of the Theatres. This man parodied Marston in *Cynthia’s Revels* before writing *Volpone*.

ANSWER: Ben **Jonson** [or Benjamin **Jonson**]

[10m] Thomas Dekker’s *Satiromastix* lampoons Jonson as this writer. A poem in the manner of this poet describes a general who “could not cease / In the inglorious arts of peace.”

ANSWER: **Horace** [or Quintus **Horatius** Flaccus] (The poem is “An Horatian Ode Upon Cromwell’s Return from Ireland” by Andrew Marvell.)

<British Literature>

18. Mary Annette Pember criticized an umbrella term for gender-nonconforming identities from this continent for excluding identities that do not “mix” masculine and feminine qualities. For 10 points each:

[10e] Name this continent where a 1990 conference popularized the term “two-spirit” as an umbrella term for indigenous non-binary gender identities, like the *nádleehi* (“nud-LAY-heh”) among the Diné.

ANSWER: **North America** [accept **Turtle Island**; prompt on the **Americas**]

[10m] Gender non-conforming *lhamana* (“LAH-min-uh”) performed both masculine and feminine tasks in this culture, which Ruth Benedict used to exemplify the “Apollonian” in *Patterns of Culture*.

ANSWER: **Zuni** [or **A:shiwj**; prompt on **Pueblo** peoples or **Puebloans**]

[10h] This theorist’s global transgender health policy proposals drew on practices of the *hijra* (“HIJ-ruh”), a transfeminine “third gender.” This advocate of “Southern Theory” coined the term “hegemonic masculinity” with James Messerschmidt.

ANSWER: Raewyn **Connell** [or R. W. **Connell**]

<Social Science>

19. In a letter to Elizabeth Barrett Browning, Hiram Powers drew on this man’s work to describe how sculptures like *Proserpine* depicted “unveiled souls.” For 10 points each:

[10h] Name this man whose work also inspired hazy landscapes of Montclair, New Jersey by George Inness. This man’s ideas inspired Inness’s series on *The Triumph of the Cross*.

ANSWER: Emmanuel **Swedenborg** [or Emanuel **Swedberg**; accept **Swedenborgianism** or **Swedenborgians**]

[10m] Inness painted Swedenborgian landscapes in the tonalist style, which also characterized this eccentric artist of *Siegfried and the Rhine Maidens*. A suicide at the Hotel Albert inspired his *Race Track (Death on a Pale Horse)*.

ANSWER: Albert Pinkham **Ryder**

[10e] Ryder had ten paintings shown at this 1913 modern art exhibition, which featured Teddy Roosevelt yelling “that’s not art,” John Sloan saying Cubism causes dementia, and the American debut of *Nude Descending a Staircase No. 2*.

ANSWER: **Armory Show** [or **International Exhibition of Modern Art**]

<Painting & Sculpture>

20. Penguin’s book *African Myths of Origin* credits the Sao for creating many of these places, like Goulfeil, where liquid gold provides light near a dark and salty sea. For 10 points each:

[10m] Seven of what places arise after Bayajidda slays the serpent guarding Kusugu’s water in one called Daura? Pemba Island’s bat demon popobawa exemplifies a type of folklore named for these places by Richard Dorson.

ANSWER: **cities** [or **city**; accept **towns**, **villages**, **settlements**, **city-states**, or equivalents at any scale; accept **urban** legends or **urban** belief tales or **urbanization**; prompt on **states**, **polities**, **kingdoms**, **emirates**, or equivalents by asking “in the form of what sort of place?”]

[10h] Kru mariners spread this spirit across urban Atlantic Africa, homogenizing local goddess cults. Images of the snake charmer Nala Damajanti influenced icons of this transnational mermaid spirit.

ANSWER: **Mami Wata** [accept **Water Mama**, **Mother of Water**, **Mama Dlo**, **Maman Dlo**, **Mama Glo**, **Maman de l’eau**, **Mama Snakie**, **Mamba Muntu**, **Lamanté**, or **Pesce Donna**; prompt on **Lasyrenn** or **La Sirène**]

[10e] Suriname’s urbanization displaced belief in the spirit Watramama, who both heals and commits this crime. La Llorona perpetrates this crime in a river.

ANSWER: **infanticide** [or descriptions or **killing children** or **killing babies** or equivalents; accept **filicide**; prompt on **drowning** or **murder** or equivalents by asking “who are the victims?”]

<Mythology>