

## TOSSUPS

1. After this substance's viscosity is reduced by PGPR, a vibrating table removes its "tails" during enrobing to produce irregular countlines. Instead of cold-working, this substance is typically agitated with a granite roller to remove volatiles in the process of conching. This substance's desirable beta-V ("beta-five") polymorph is pre-crystallized by slowly cooling it below 94 degrees Fahrenheit with methods like "tabling" on a granite surface in order to minimize whitish "bloom." Makers like Teuscher ("TOY-shur"), Callebaut ("KAH-luh-bout"), and Valrhona send couvertures of this substance to *mâitres*, who improve its "snap" and glossy coating with tempering. After this substance's heap-fermented nibs are processed into "liquor," its theobromine-rich solids are alkalized in the Dutch process. For 10 points, what substance's "butter" drips off in the Broma process invented by Ghirardelli?

ANSWER: **chocolate** [or **chocolat**; accept **cacao**, **cocoa** butter, **cocoa** beans, **cocoa** solids, **cocoa** mass, **cocoa** nibs, baking **chocolate**, **chocolate** coating, or compound **chocolate**; accept **chocolatiers** or **chocolateries**] (PGPR is polyglycerol polyricinoleate. Conching was invented by Rodolphe Lindt.)

<Other Academic>

2. An author of this name who had a lucky extra canine tooth traveled in a *carpentum* and published lost *commentarii* memoirs. An onyx cameo depicts two people of this name behind two wearers of the *corona civica*. A veterans' *colonia* of this name became the city of Cologne. A person of this name, who defended Vetera's Rhine bridge during a retreat, brought ashes to Brundisium for mass mourning after a suspicious death in Antioch. A foe of the freedman Narcissus with this name, who wore a gold *chlamys* to the draining of the Fucine Lake after escaping exile in Pandateria, possibly hired Locusta to poison mushrooms in order to prevent the succession of Messalina's son Britannicus. That *augusta* of this name supposedly cried "smite my womb" to assassins sent by her son. For 10 points, give this name of the wife of Germanicus and her daughter, the mother of Nero.

ANSWER: **Agrippina** [accept **Agrippina** the Younger or **Agrippina** Minor or Julia **Agrippina**; accept **Agrippina** the Elder or **Agrippina** Maior or Vipsania **Agrippina**; accept Colonia **Agrippina** or Colonia **Agrippinensis** or Colonia Claudia Ara **Agrippinensium**] (The cameo is the *Gemma Claudia*.)

<Other History>

3. A green-skinned Man of Sorrows appears in an Umbrian work in this format by the Master of the Borgo Crucifix. The 1992 cleaning of a work in this format revealed an island and a white castle on a small silver-leaf orb that tops a flagstaff. A blue velvet frame with pearls and 16 medallions bordered a work in this format with a Virgin Mary likely modeled on Agnès Sorel ("ahn-YESS so-REL"). Wax interiors were part of Byzantine "consular" works in this format, while an "imperial" one depicts a mounted emperor and is named for the Barberini family. Gothic works in this format include one named for Wilton House and one that Jean Fouquet painted for Melun. This format's devotional nature was adopted for a silkscreen of 50 garish, monochrome portraits from the 1953 film *Niagara*. For 10 points, Andy Warhol used what format to memorialize Marilyn Monroe?

ANSWER: **diptychs** [accept *Marilyn Diptych*, Melun **Diptych**, Wilton **Diptych**, or Barberini **Diptych**; prompt on **polyptychs**; prompt on **altarpieces**; prompt on **panel** painting or **hinged**; prompt on **ivory** by asking "in what format?"]

<Painting & Sculpture>

4. In a story by this author, the philosophy of Pomadism, which holds reality to be inferior to opinion, is preached by a “bonze” from the Kingdom of Bungo. In a story by this author, a man with the motto “plus ultra!” uses Socrates’s daemon and Pascal’s fear of the abyss to argue that almost everyone is insane. A thinker created by this author praises war with a parable about two starving tribes, inspiring his disciple to frequently mutter “to the victor, the potatoes!” In a story by this author, a psychiatrist causes a revolt by committing most of a town’s population to a green-shuttered asylum. This author parodied Social Darwinism and Positivism as “Humanitism,” the system of a philosopher who leaves his dog of the same name to his friend Rubião. For 10 points, “The Alienist” is a story by what 19th-century Brazilian author of *Quincas Borba*?

ANSWER: **Machado** de Assis [or Joaquim Maria **Machado** de Assis; prompt on de Assis]  
<World Literature>

5. A saddle-shaped antibiotic that behaves like one of these chemicals is a lipo-heptapeptide derived from *B. subtilis*. These chemicals are detected and removed from the efflux of wastewater treatment plants by reacting them with methylene blue. Bio-derived examples of these chemicals include rhamnolipids. Three of these chemicals spanning a wide range of HLB values are added to mineral oil and vortexed to encapsulate biomolecules for *in vitro* evolution. Nonionic examples of these chemicals that are often used to foam up enzyme buffers include Triton X-100 and Tween. Proteins are coated with one of these chemicals to provide a uniform negative charge before polyacrylamide gel electrophoresis. For 10 points, SDS is an example of what chemicals that form micelles in solution and decrease surface tension?

ANSWER: **surfactants** [or **detergents**; or **surface-acting agents**; accept non-ionic **surfactants**, ionic **surfactants**, cationic **surfactants**, or anionic **surfactants**; accept **surfactin**; accept **saponins**; prompt on soaps or emulsifiers or amphiphiles]  
<Chemistry>

6. During this conflict, Irish and Capuan (“CAP-yoo-an”) priories supported Riccardo Caracciolo’s (“kar-uh-CHO-loh’s”) campaign against Juan Fernández de Heredia (“ay-RAYD-yuh”), who translated Thucydides (“thew-SID-uh-dees”) for a leader who funded his “way of force” with *annates* (“ANN-nates”). The Subtraction of Obedience sought to end this conflict by the *via cessionis*. During this conflict, Owain Glyndŵr (“OH-wyne glin-DOOR”) offered to switch sides in the Pennal Letter, and the author of the *Dialogue of Divine Providence* beseeched Joanna I of Naples to do the same. Pierre d’Ailly (“dah-YEE”) and Jean Gerson (“zhawn zhair-SON”) promoted a conciliar resolution to this conflict, which began when 13 rebels staged an election in Fondi (“FOHN-dee”) with regalia stolen by a camerlengo. During this conflict, Florence’s indemnity from the War of the Eight Saints funded Urban VI after the so-called “Babylonian captivity.” For 10 points, the Council of Pisa elected a third claimant during what conflict between Rome and Avignon’s (“ah-veen-YON’s”) popes?

ANSWER: **Western Schism** [or **Occidental Schism**, **Papal Schism** of 1378, **Schism** in the **Catholic** Church; **double-headed papacy**, Magnum **schisma occidentale**, or Ecclesiae **occidentalis schisma**; accept **Second Great Schism**; prompt on schism or schisma; prompt on Avignon papacy until “Avignon’s” is read; reject “Great Schism” or “East–West Schism”] (Caracciolo was the “anti-Master” of the Hospitallers. The first line refers to Antipope Clement VII. Catherine of Siena wrote the *Dialogue*.)  
<European History>

7. The main character of this play repeatedly claims to not be in the “same tribe” as a woman who calls him “salvageable.” In this play, 12 photos of the protagonist as a “well-dressed little man” are found in a suitcase when George and Slick search his home for a revolver. Malcolm X may have taken the slogan “by any means necessary” from a character in this play who decries purity as “an idea for a yogi or a monk” and asks “do you suppose that it is possible to govern innocently?” In this play, a politician who bargains with the Regent’s son and the Pentagon party is shot by his secretary after being caught kissing the secretary’s wife, Jessica. In this play, the Illyrian communist “Raskolnikov” is tasked with killing Hoederer. For 10 points, what play about Hugo Barine by Jean-Paul Sartre names a “problem” of immoral political acts?

ANSWER: ***Dirty Hands*** [or *Les Mains sales*; accept problem of **dirty hands**]  
<European Literature>

8. A principle from this subfield is notably ignored by the Dorig language of Vanuatu (“VAN-oo-AH-too”) in words like *rkp<sup>w</sup>a* (“ruk-pwuh”). The “ba argument” critiques a framework [emphasize] *first* created in this subfield and expanded by John McCarthy’s candidate chains theory. Haudricourt’s (“oh-dree-COOR’s”) “panchronic” program applies this subfield historically. The QPAS tests this subfield’s namesake “awareness.” A theory [emphasize] *first* used in this subfield struggles to explain its namesake “opacity,” which results from “feeding” and “bleeding” orders. The layers “INPUT,” “GEN,” and “EVAL” make up that theory [emphasize] *first* used in this subfield, which was created by Prince and Smolensky. This was the [emphasize] *first* subfield to use the ranked constraints of Optimality Theory to explain phenomena like the sonority hierarchy and phonemes. For 10 points, name this subfield that studies how languages organize sound patterns.

ANSWER: **phonology** [accept **phonotactics**; accept **phonological** opacity or **phonological** awareness; accept morpho**phonology**; prompt on **linguistics**; prompt on **Optimality** Theory until read by asking “from what subfield of linguistics did OT originate?”; reject “phonetics” or “phonics” or “morphology”] (Dorig ignores the sonority hierarchy. The “ba argument” suggests that all lexical inputs would output the optimal syllable “ba” under OT.)  
<Social Science>

9. Rapid “horsetail motion” is visible when *S. pombe* enters this stage in response to starvation. During this phase, an unknown interference mechanism maintains a uniform spacing between assembly sites for members of the ZMM family and SPO11. Exit from this stage is preceded by a fourfold increase in cell diameter and the breakdown of the germinal vesicle. Cells in this stage are extremely radiosensitive and will be eradicated by half a gray. The activation of EGF receptors on cumulus cells causes adjacent cells to exit this stage, whose five substages are largely named for their thread-like chromosomes. A pulse of LH triggers oocytes (“OH-uh-cytes”) to exit the diplotene (“DIP-luh-teen”) portion of this stage, where they have been arrested since before birth. For 10 points, name this cellular stage when crossing-over occurs, the very first stage of meiosis.

ANSWER: **prophase I** [accept **diplotene**, **diplonema**, or **dictyate** until “diplotene” is read; prompt on meiotic **prophase**; prompt on **meiosis** or **meiotic** until “meiosis” is read; reject “mitosis” or “M phase”]  
<Biology>

10. *Specific term required.* A theatre named for these events premiered *Rio Rita*. Lillian Lorraine introduced “By the Light of the Silvery Moon” at one of these events, which borrowed “Ballin’ the Jack” from their “Darktown” version after being integrated by Bert Williams. The four arguing leads and their younger ghosts are transported to “Loveland” in a musical titled for these events, in which Carlotta recalls “Plush velvet sometimes, sometimes just pretzels and beer” in an homage to Harold Arlen. Fanny Brice is a comic bride at one of these events in “His Love Makes Me Beautiful” from *Funny Girl*. Irving Berlin’s “A Pretty Girl Is Like a Melody” was a theme song for these events, whose fictional Weismann version reunites in a Stephen Sondheim musical featuring pastiches like “I’m Still Here.” For 10 points, name these vaudeville-era revues starring showgirls and helmed by Florenz Ziegfeld.

ANSWER: **follies** [or **folly**; accept *Ziegfeld Follies* or *Weissman Follies* or *Darktown Follies*; accept **Ziegfeld Theatre** until “Ziegfeld” is read; prompt on revues, musicals, variety shows, vaudeville, comedy acts, extravaganzas, or entertainment; reject “minstrel shows” or “music hall”]

<Other Fine Arts>

11. In Sūrat al-Tahrim (“al-tah-REEM”), Muḥammad’s wives are offered the support of Allāh and this figure if they repent for gossiping. Zayn al-‘Ābidīn (“al-AH-bih-deen”) credits this figure with composing a prayer honoring Muḥammad’s “heavy armor,” the *Du‘ā Jawshan Kabīr*. This figure often receives the epithet “Trustworthy Soul,” or *Rūḥ al-‘Amīn*. An event involving this figure provides the prototype for the practices of *i’tikāf* and *murāqaba*. This figure twice prevented Muḥammad from committing suicide. This figure asks a series of basic questions about Islām, like “what is faith?” in a namesake ḥadīth. This figure removed a child’s heart from his body and washed it. On Jabal al-Nūr, this figure embraced a man who resisted his commands to “Recite” in the Cave of Hirā’ on the “Night of Power.” For 10 points, name this archangel who revealed the Qur’ān to Muḥammad.

ANSWER: **Gabriel** [or **Jibrīl**, or **Jibrā’īl**; accept **Rūḥ al-‘Amīn** or **Trustworthy Soul** until read; accept **Rūḥ al-Quddus** or **Holy Spirit**]

<Religion>

12. In 1994, Lee and Nelder introduced the “h” type of these functions, which remain controversial for their handling of unobservables. These functions are often approximated via Gauss–Hermite quadrature in GLMMs. Two transformed examples of these functions are used to find McFadden’s pseudo-R-squared in logistic regression. A theoretical approach named for these functions makes use of a law that was stated by Ian Hacking, and concerns ratios of two of them denoted by lambda. The EM algorithm works on these functions or on the posterior probability. These functions, which are commonly log-transformed, represent the joint probability density of observing data, given a set of parameters. For 10 points, name these functions whose “maximum” value names a common paradigm of parameter estimation, and which are the “L” in MLE.

ANSWER: **likelihood** functions [accept maximum **likelihood** estimation, log-**likelihood** functions, **likelihood** ratios, log-**likelihood** ratios, **likelihoodism**, **likelihoodist**, law of **likelihood**, or h-**likelihood** functions; prompt on **MLE** until read by asking “what does that stand for?”]

<Other Science>

13. Descendants of this historical state illustrated its past with a paneled *lienzo* canvas and staged Corpus Christi pageants described by Motolinía (“moh-toh-lin-EE-uh”). *The Dawn of Everything* argues that a deliberative democratic council led this state, citing a chronicle rediscovered by Zelia Nuttall. Within a viceroyalty, this state’s honorary *hidalgo* (“ee-DAHL-go”) governors ran an autonomous *cabildo* whose *Actas* record them founding Chichimeca colonies. This city-state is named for tortillas. Leaders of this confederacy detained Totonac (“toh-TOH-nock”) emissaries and led Otomí (“oh-toh-MEE”) warriors in ambush before burning Cholula. Its four sub-*āltepētls* included Tizatlan, whose *tlatoāni* (“tla-toh-AH-nee”) Xīcohtēncatl (“shee-ko-TEN-cottle”) betrothed his daughter to Pedro de Alvarado to cement an alliance with Hernán Cortés. For 10 points, Aztec Flower Wars targeted what nearby Nahua confederacy that names a small state northwest of Puebla?

ANSWER: **Tlaxcala** (“tlosh-KAH-lah”) [or **Tlaxcallān**; or Confederacy of **Tlaxcala** or Tlahtōlōyān **Tlaxcallan**; accept **Tlaxcaltecs** or **Tlaxcaltecatl** or **Tlaxcalteca**; accept Free and Sovereign State of **Tlaxcala** or Estado Libre y Soberano de **Tlaxcala**; accept *Tlaxcalan Actas*, *History of Tlaxcala*, *Historia de Tlaxcala*, or Lienzo de **Tlaxcala**; prompt on New Spain, Nueva España, Viceroyalty of New Spain, or Virreinato de Nueva España] (Francisco Cervantes de Salazar wrote the *Crónica de Nueva España*.)

<World History>

14. The author’s introduction to this novel uses “the outcropping granite” to exemplify the oft-overlooked harsh beauty of its setting, whose people have a “deep-rooted reticence and inarticulateness.” In this novel, a man realizes that his wife’s condition is serious when she grimly says she has “complications” and not mere “troubles.” That man in this novel contemplates how fast 50 years of marriage could pass by while looking at the headstone of an ancestor of the same name. During a dinner of doughnuts and stewed blueberries in this novel, a woman wearing a crimson ribbon in her hair accidentally touches a man’s hand as they both reach for a milk jug. In this novel, Mrs. Hale says it is a pity that a woman didn’t die, as her lover “might ha’ lived.” For 10 points, Mattie Silver sleds into a tree with the title character of what novel by Edith Wharton?

ANSWER: ***Ethan Frome***

<American Literature>

15. In a “vertical” argument discussed in Robert Fogelin’s book on this thinker’s “crisis,” this thinker suggested that a mathematician checking their work will face an infinite regress of decreasing credences in their judgements. A statement named for this thinker faces the Bad Company problem, since its use of equinumerosity can be swapped out to create more dubious abstraction principles. This thinker suggested that books containing neither “abstract reasoning concerning quantity or number” nor “experimental reasoning” could be committed to flames, since they contain “nothing but sophistry and illusion.” A “principle” that neo-Fregeans (“neo-FRAY-ghee-uns”) use to define numbers is named for this thinker, who grouped mathematical truths as “relations of ideas,” not “matters of fact.” For 10 points, name this author of *An Enquiry Concerning Human Understanding*.

ANSWER: David **Hume** [accept **Hume**’s principle; accept **Hume**’s *Skeptical Crisis*]

<Philosophy>

16. *Description acceptable.* Increasing public speculation about this decision led political cartoonists to depict its central figure as the Sphinx. In the aftermath of this decision, a politician delighted crowds by repeatedly rhyming the names “Martin, Barton, and Fish.” The carefully stage-managed announcement of this decision included a crowd planted with slogan-chanting supporters, who were egged on by Ed Kelly loyalist Thomas Garry, the so-called “voice from the sewers.” This decision inspired the claim that “this is no ordinary time,” which titles Doris Kearns Goodwin’s biography of its central figure. The fallout from this decision, which sank the political ambitions of James Farley and John Nance Garner, caused the passage of the 22nd Amendment. For 10 points, identify this decision that allowed an incumbent president to defeat Wendell Willkie in the 1940 election.

ANSWER: Franklin Delano **Roosevelt** running for a **third** term [accept Franklin Delano **Roosevelt** running in the **1940** presidential election until “1940” is read; accept **FDR** in place of “Roosevelt”; accept descriptions like **more than two terms** in place of “third term”; prompt on Franklin Delano **Roosevelt** running for **President** or **FDR** running for **reelection** or equivalents; reject answers that specify a “fourth term”] (Eleanor Roosevelt said, “This is no ordinary time” during a speech to quell dissent at the 1940 DNC.)

<American History>

17. *Composer and genre required.* A melody from the second of these pieces was reworked into a song whose speaker asks a lover to visit “before the thrush sings in the wood,” which sets a poem by Hermann Lingg and is the second of its composer’s Opus 105, his Five Songs. The second of these pieces opens with an unaccompanied French horn call, and has a heavy second-movement scherzo that its composer ironically called a “tiny wisp.” Before a performance of the first of these pieces, the question “who is the boss: the soloist or the conductor?” was posed by Leonard Bernstein, referring to the slow tempo choice of Glenn Gould. These two pieces are in D minor and B-flat major, and were written with encouragement from the composer’s mentor Clara Schumann. For 10 points, name these pieces for keyboard and orchestra by the composer of *A German Requiem*.

ANSWER: **piano concertos** by Johannes **Brahms** [prompt on **concertos** or **concerti** in place of “piano concertos”]  
<Classical Music>

18. A property with this name has “cutoff” values that quantify the blocking of cosmic rays in Earth’s atmosphere due to geomagnetic shielding, which are typically on the order of 10 GV (“G-V”). A “strong” theorem named for this property states that the event horizon of a fixed black hole must be a Killing horizon and was proven by Stephen Hawking. A property with this name equals the ratio of linear momentum to charge for a particle in a beam, and measures the extent of the deflection of particles in a magnetic field. The disk in Ehrenfest’s paradox exhibits a strict property with this name that cannot hold in special relativity and was proposed by Max Born. A property with this name requires all pairs of points within an object to remain the same distance apart during motion. For 10 points, what property is possessed by non-deforming “bodies”?

ANSWER: **rigidity** [accept **rigid** bodies; accept Born **rigidity**; accept Hawking’s strong **rigidity** theorem; accept geomagnetic cutoff **rigidity**]

<Physics>

19. *Description acceptable.* In 2022, this organization negotiated building a Russian naval base in a port where the National Public Health Laboratory moved during a 2021 dengue outbreak. Bentley Brown's film *Revolution From Afar* depicts murals painted outside this group's headquarters, where "resistance committees" chanted "100 percent civil" during Ramadan. "Riverine Arabs" like the Shaigiya ("shy-GHEE-yuh") dominate this group, which negotiated a 2019 power-sharing agreement with unions from the Forces of Freedom and Change and retook the Heglig oilfield north of Abyei ("abby-yay"). This group has [emphasize] *failed to integrate* a paramilitary that sells the Jebel Amir's gold and takes deadly Saudi postings in Yemen. This group deposed Abdalla Hamdok as chair of the Transitional Sovereignty Council in a 2021 coup. For 10 points, what group led by Abdel Fattāḥ al-Burhān is fighting Hemedti's Rapid Support Forces in Darfur?

ANSWER: **Sudan Armed** Forces [or **Sudanese army, military** forces of **Sudan, SAF**, Al-Quwwat al-**Musallaha** as-**Sudaniyah**, or equivalents; accept **General Command**; accept Republic of the **Sudan** or Jumhūriyyat as-**Sūdān** in place of "Sudan"; prompt on **army** or **military** by asking "of what country?"; prompt on **Transitional** Sovereignty Council, **TSC**, **Transitional** Military Council, or **TMC** until "Transitional" is read; prompt on **Sudan's** (transitional) government or equivalents; reject "Sudanese People's Liberation Army"]

<Current Events>

20. Dante Gabriel Rossetti's "Five English Poets" attributes to this poet "Shakespeare's manhood at a boy's wild heart" and describes his soul ascending a spire's "angel-trodden stair." Queen Mab summons ghosts in the graveyard of St. Mary Redcliffe in this poet's "The Parliament of Sprites." The line "the budding floweret blushes at the light" opens the "Minstrel's Marriage-Song" from this poet's *Aella, a Tragical Interlude*. This poet, Sidney, and Lucan are called "inheritors of unfulfill'd renown" in Percy Shelley's *Adonais*. The cover image of Peter Ackroyd's novel about this poet is Henry Wallis's painting of his death. Called a "marvellous Boy" in William Wordsworth's "Resolution and Independence," this Bristol poet tried to pass off his work as that of the 15th-century monk Thomas Rowley. For 10 points, name this poet whose suicide at age 17 fascinated the Romantics.

ANSWER: Thomas **Chatterton** [prompt on Thomas **Rowley** until read by asking "what was his real name?"]

<British Literature>

## BONUSES

1. This poet describes the evening star as a “young emerald” whose light allows those who “know the ultimate Plato” to tranquilize the “torments of confusion.” For 10 points each:

[10h] Name this poet of “Homunculus et la Belle Étoile.” He calls Venus a “furious star” burning in “the high west” in a poem that states, “I wish that I might be a thinking stone.”

ANSWER: Wallace **Stevens** (The poem is “Le Monocle de Mon Oncle.”)

[10e] Stevens’s “Martial Cadenza,” a poem about this war, wonders what the evening star has to do with “the blank skies over England” and “the German camps” it lit. Randall Jarrell’s “Ball Turret Gunner” dies in this war.

ANSWER: **World War II** [or **Second World War** or **WWII** or **World War 2**]

[10m] A poem set in this state, where Stevens spent most of his life, says the evening star is “wholly an inner light.” “Thirteen Ways of Looking at a Blackbird” describes a figure who “rode over” this state in a “glass coach.”

ANSWER: **Connecticut** [or **CT**] (The first poem is “An Ordinary Evening in New Haven.”)

<American Literature>

2. The “Korean wave” helped inspire this country’s investment in cosmetic centers to challenge medical tourism powerhouses like Malaysia, Singapore, and Thailand. For 10 points each:

[10e] Name this doubly landlocked country whose tourism board has traced its medical heritage from Ibn Sīnā, who was born near its historically Tājīk city of Bukhara.

ANSWER: **Uzbekistan** [or Republic of **Uzbekistan** or **O‘zbekiston** Respublikasi]

[10h] Uzbek patients often obtain Indian medical visas for procedures in this “Millennium City” near Delhi. Private investment made this former farming town in Haryana a major tech and finance hub that hosts DLF’s Cyber City.

ANSWER: **Gurgaon** [or **Gurugram**]

[10m] A company called “Eugenix” caters to medical tourists seeking this surgery’s FUE (“F-U-E”) harvesting procedure in Gurgaon. Many athletes undergo this surgery’s DHI procedure in its global hub of Istanbul.

ANSWER: **hair** transplant [or **hair** transplantation; accept **follicular** unit extraction, **follicular** unit excision, **follicular** transfer, direct **hair** implantation, or descriptions of hair **follicle** donation; accept “Turkish **Hair**lines”]

<Geography>

3. The XPC-Rad23B complex recognizes the distortions produced by these defects. For 10 points each:

[10m] Name these bulky lesions that cause polymerase stalling. Defects in NER (“N-E-R”) cause these defects to accumulate at a rate of thousands per minute.

ANSWER: **pyrimidine dimers** [accept **thymine dimers**, **TT** photodimers, **6–4 photoproducts**, cyclobutane **pyrimidine dimers**, or **CPDs**; prompt on **errors** or **mutations** or photodimers]

[10h] This process, which is triggered by PCNA ubiquitination, uses Hoogsteen base pairing to add adenines across from unrepaired dimers. Polymerases used in this process, which include zeta, eta, and iota, persist despite poor fidelity and low processivity.

ANSWER: **translesion synthesis** [or **TLS**; accept trans**lesion bypass**]

[10e] *Two answers required.* Non-canonical pairing contrasts with the system named for these scientists, which places the base ring *anti*. These two scientists were the first to publish the structure of DNA.

ANSWER: James **Watson** AND Francis **Crick** [accept answers in either order; accept **Watson–Crick** base pairing; accept James Dewey **Watson** in place of “James Watson”; accept Francis Harry Compton **Crick** in place of “Francis Crick”]

<Biology>



4. Answer the following about the Uposatha, the standard prescribed holidays in Buddhism, for 10 points each.

[10e] On Uposatha days, Buddhists make a particular point to follow the Eight Precepts described in one of the “baskets” that make up this central text of Theravāda Buddhism.

ANSWER: **Tripitaka** [or **Pāli Canon** or **Tipitaka**; prompt on Three **Baskets**]

[10m] The most important Uposatha after Vesak, the Āsālha Pūjā (“uh-SHAUL-huh POO-jah”), commemorates this event. During this event at Sarnath (“SAR-not”), Kaundinya became the first *arhat* and the Shakyamuni described the Four Noble Truths for the first time.

ANSWER: **Deer Park Sermon** [or **Migadāya** or **Mrigadāva**; accept **Dhammacakkappavātana Sūtra** or **Dharmacakrapavartana Sūtra** or descriptions of **setting the Dharma Wheel in motion**; prompt on the Buddha’s first **sermon**, **oration**, **speech**, or equivalents by asking “where did it take place?”]

[10h] In the Himalayas, the Uposatha are marked by these elaborate costumed dance festivals that often recount Tsongkhapa’s life. Characters in them include the Skeleton Dancers, the White Old Man from Mongolia, and the Black Hat.

ANSWER: **cham** dances [accept **tshechu**]

<Religion>

5. These people became early Atlantic sugar merchants in Madeira before their orphans founded plantations that fell to maroon uprisings in São Tomé and Annobom. For 10 points each:

[10e] What people’s Goan (“GO-in”) diaspora included the pharmacologist Garcia de Orta? Manuel I expelled them and Muslims a few years after the Alhambra Decree.

ANSWER: **Sephardim** [or **Sephardic Jews**, Yahadut **Sefarad**, **sefardíes**, or **sefarditas**; accept **Iberian Jews**, **Peninsular Jews**, **Portuguese Jews**, **Spanish Jews**, **judeus da nação portuguesa**, or **judíos españoles**; accept **Judeo-conversos** or **marranos** or **Crypto-Jews**; prompt on **Jews**, **Jewish people**, **judeus**, **Yehudim**, “port **Jews**,” **New Christians**, or **cristãos-novos** by asking “what specific population?”]

[10h] *One of two Portuguese terms required.* Many Sephardim became these convict-soldiers deported to Mozambique and Angola’s penal depots, and these other exiles who formed hybrid Afro-Portuguese societies in Guinea, Cape Verde, and Senegambia. Name either.

ANSWER: **degredados** OR **lançados** [accept **degreto**, **sentenciados**, **addidos**, **vadios**, Depósito de **Degredados**, or Depósito Geral dos **Sentenciados** in place of “degredados”; accept **tangomaos** or **filhos da terra** in place of “lançados”]

[10m] *Japanese term required.* Sephardic Topasses shipped Timorese sandalwood to Macau and Nagasaki in this “Southern trade” prior to Sakoku. Hybrid art depicted this trade’s Goan carracks, which exchanged sugar and guns for Japanese silver.

ANSWER: **Nanban** trade [or **Nanban** bōeki jidai; accept **Nanban** art or **Nanban** pictures or **Nanban**-byōbu; accept **Namban** in place of “Nanban”] (The “Black Portuguese” Topasses included the Sephardic Da Costa family.)

<Other History>

6. Since it mimics the effect of coprine (“cop-reen”), disulfiram helps treat this condition by exploiting the Garcia Effect. For 10 points each:

[10m] Name this psychological condition divided into five subtypes by E. Morton Jellinek. The extremely short Paddington Test screens for this condition more quickly than the MAST test or CAGE questionnaire.

ANSWER: **alcoholism** [or **alcohol** addiction or word forms of **alcoholic**; or descriptions of **drinking** problems or **alcohol** dependency; prompt on **addiction**, **substance** use, substance **dependency**, or equivalents of any]

[10e] One mechanism by which disulfiram helps treat alcoholism is by inducing a “conditioned aversion” in this faculty. Walter Mischel conducted a study of delayed gratification of this basic sense at Stanford.

ANSWER: **taste** [or **gustation** or **gustatory** sense; accept conditioned **taste** aversion] (Mischel conducted the marshmallow experiment.)

[10h] This psychologist and J. L. Hager coined the term “sauce-béarnaise syndrome” for indirect taste aversions. This author of *Authentic Happiness* argued that his CAVE screening technique also predicted elections.

ANSWER: Martin **Seligman** [or Martin Elias Peter **Seligman**]

<Social Science>

7. An essay by this author asks “how many of us can dance, or have even heard of, the Gombe Sugu?” For 10 points each:

[10h] Name this author who used 16-syllable lines in translations of *Julius Caesar* and *The Merchant of Venice*. This leader’s government included the “father” of a language’s modern literature, Shaaban Robert.

ANSWER: Julius **Nyerere** (“nee-RAIR-ee”) [or Julius Kambarage **Nyerere**; prompt on **Mwalimu**]

[10e] Under Nyerere, Ebrahim Hussein introduced this style to Swahili in *Kinjeketile*. Bertolt Brecht developed this “alienating” form of theater, which shares its name with the genre of the Mande poem *Sundiata*.

ANSWER: **epic** theater [or **episches** Theater; accept **epic** poetry or ***Epic of Sundiata***]

[10m] In Hussein’s play *The Devils*, Baba Kitaru belongs to a corrupt class named for these objects. Four girls act as one of these objects while Lakunle mimics taking photos in a dance from Wole Soyinka’s *The Lion and the Jewel*.

ANSWER: **cars** [or **automobiles** or equivalents; accept **Mercedes-Benz** or **wabenzi** or other specific cars; prompt on motor **vehicles**]

<World Literature>

8. Mary Ann Shadd Cary’s newspaper *The Provincial Freeman* encouraged readers to immigrate to this country. For 10 points each:

[10e] Name this country where *The Voice of the Fugitive* was run by Henry and Mary Bibb, who founded the Refugee Home Society to assist emigrants crossing the border near Windsor.

ANSWER: **Canada** [accept Dominion of **Canada**]

[10m] After escaping slavery, Austin Steward founded a settlement named after this abolitionist near London, Ontario. W. E. B. Du Bois taught at an AME-affiliated university in Ohio named after this Clapham Sect reformist.

ANSWER: William **Wilberforce** [accept **Wilberforce** University; accept **Wilberforce** Colony] (The AME is the African Methodist Episcopal Church.)

[10h] Migrating to Canada was appealing because of the 1793 Act Against Slavery passed by this lieutenant governor of Upper Canada. This founder of Toronto was ordered to help the French put down the Haitian Revolution, but left in disgust after two months.

ANSWER: John Graves **Simcoe**

<American History>

9. The artist's friend Arnold Rönnebeck claimed a cursive "E" in this painting referenced his patron Queen Elisabeth of Greece, but it may refer to the artist's birth name, Edmund. For 10 points each:

[10h] Name this 1914 painting that features a silver spur, a yellow-on-blue inscription of the number 24, and a gold-on-red inscription of the initials "Kv.F."

ANSWER: ***Portrait of a German Officer***

[10e] The latent homoeroticism of Marsden Hartley's *Portrait of a German Officer* is analyzed in Jonathan Weinberg's book *Speaking for Vice*, which is titled for a quote by this artist of *I Saw the Figure 5 in Gold*.

ANSWER: Charles **Demuth** [or Charles Henry Buckius **Demuth**]

[10m] Weinberg also analyzes the homoeroticism of this sculpture, which Demuth described in a letter and poem. This work was photographed in front of Hartley's *The Warriors* for the journal *The Blind Man*.

ANSWER: **Fountain** [prompt on Marcel Duchamp's urinal; prompt on readymades]

<Painting & Sculpture>

10. *Two answers required.* Analytical chemists were preoccupied with the discovery and purification of these two sets of elements in the 19th and early 20th centuries. For 10 points each:

[10e] Name these two sets of 3-plus valence elements that make up the f-block. Frank Spedding's expertise using ion-exchange to separate one of these series got him recruited to separate the other for the Manhattan Project.

ANSWER: **lanthanides** AND **actinides** [accept answers in either order; accept **rare earth** metals, **rare earths**, **lanthanoids**, or **Ln** in place of "lanthanides"; accept **actinoids** or **Ac** in place of "actinides"]

[10m] To smelt the actinide uranium, Spedding helped develop the Ames process, a variant of this reaction that transforms an oxide with aluminum to produce molten metal.

ANSWER: **thermite** reaction [accept **Goldschmidt** reaction]

[10h] Charles Allen Thomas brought staff from this company's Dayton site to the Ames lab to work on plutonium purification. William Knowles worked on the asymmetric synthesis of levodopa as an employee of this company.

ANSWER: **Monsanto** [or **Monsanto** Company; prompt on **Bayer** or **Thomas & Hochwalt** Laboratories]

<Chemistry>

11. Martin Luther King, Jr. claimed that his "basic philosophical position" was a form of this stance advocated by the Boston Personalists. For 10 points each:

[10e] Name this philosophical position that, broadly, holds reality to be the product of thought.

ANSWER: **idealism** [or **idealists**; accept specific strands such as personal **idealism**]

[10m] King took up this idealist philosopher's idea of an agapic "Beloved Community." This Harvard philosopher responded to the California Personalists in *The Conception of God* and wrote *The Problem of Christianity*.

ANSWER: Josiah **Royce**

[10h] Royce's "Beloved Community" was developed by this mentor of King's in *The Search for Common Ground*. King is reputed to have always traveled with a copy of this theologian's magnum opus, *Jesus and the Disinherited*.

ANSWER: Howard **Thurman** [or Howard Washington **Thurman**]

<Philosophy>

12. Though the plastic PET (“P-E-T”) generally lacks this property, *Ideonella sakaiensis* (“eye-dee-oh-NELL-uh sah-kai-EN-sis”) can digest it. For 10 points each:

[10e] Name this property possessed by compounds that can be decomposed by microorganisms.

ANSWER: **biodegradable** [or **biodegradability** or **biodegradation**; prompt on **bioremediation**; prompt on **degradability** or **degradable** or **degradation**]

[10m] This term denotes the process of biodegradation into simple inorganic compounds. This term also refers to the biological process by which inorganic compounds nucleate and grow in an organic matrix, such as hydroxyapatite (“hydroxy-apatite”) crystals forming on collagen.

ANSWER: **mineralization** [accept **remineralization** or **mineralized** tissues; accept bone **mineralization** or enamel **mineralization**; accept **biomineralization** or **bioprecipitation**; prompt on descriptions of forming **minerals**]

[10h] Post-mortem bone mineral uptake of rare-earth elements is increased if they have this property, which, for bone, means an element has an ionic radius similar to divalent calcium. More often, this geochemical property refers to elements that preferentially partition into the solid phase during partial melting.

ANSWER: **compatibility** [or **compatible** elements]

<Other Science>

13. A story titled for this action ends by avowing, “We don’t need to see anything out of the ordinary. We already see so much.” For 10 points each:

[10h] What action titles a novella that is by far the longest piece in Robert Walser’s *Selected Stories*? This action titles Carl Seelig’s memoir of Walser’s time in the Waldau sanatorium.

ANSWER: **walking** [accept **rambling**, **strolling**, **wandering**, **hiking**, or word forms of any; accept *Walks with Walser*, *Wanderungen mit Robert Walser*, “The **Walk**,” “A Little **Ramble**,” or *Der Spaziergang*; prompt on other synonyms; reject “running”]

[10e] Walser’s walks are detailed in a Susan Bernofsky biography titled in part for this adjective, which names Walser’s late career “scripts.” A girl with this quality is the subject of Hans Christian Andersen’s “Thumbelina.”

ANSWER: **small** [or **little**, **tiny**, **micro**, **diminutive**, **klein**, or word forms or equivalents; accept **micro**scripts; accept *Clairvoyant of the Small*]

[10m] In *Montano’s Malady*, Enrique Vila-Matas imagined the “eternal walker” Walser meeting this other writer. This author of *Three Women* wrote a three-volume novel about Ulrich set during the decline of Austria-Hungary.

ANSWER: Robert **Musil** (The novel is *The Man Without Qualities*.)

<European Literature>

14. There survives a 1904 recording of Saint-Saëns playing his own Opus 89 fantasy titled for this location. For 10 points each:

[10h] Identify this location whose namesake style of polyrhythmic percussive pianism, which developed in the late 20th century, titles a 2022 album by Rebeca Omordia.

ANSWER: **Africa** [accept **African** pianism]

[10m] Omordia’s *African Pianism* opens with a piece in this form based on Egun melodies. This is the form of Frederic Rzewski’s (“ZHEFF-skee’s”) *The People United Will Never Be Defeated!*, which is based on a Chilean protest song.

ANSWER: theme and **variations** [accept *Egun Variations*; reject “variation”]

[10e] A visit to Ghana inspired this Western minimalist composer’s piece *Drumming*, in which a 12/8 (“twelve-eight”) ostinato phases in and out of rhythm. He used similar techniques in *Clapping Music* and *It’s Gonna Rain*.

ANSWER: Steve **Reich** [or Stephen Michael **Reich**]

<Classical Music>

15. *Chinese term required.* Táng forerunners of these people, who ran “loose-rein” prefectures, included a family that ruled Bōzhōu (“bo-jo”) from Hǎilóngtún (“hye-lohng-twun”) Fortress for over 300 years. For 10 points each: [10h] Name these hereditary indirect rulers appointed to govern minorities like Mōng Mao’s Shan. Their rule was gradually replaced by autonomous prefectures for the Dǎi (“dye”), Yí, Miáo (“mee-ow”), and an ethnic group of the same name.

ANSWER: **tǔsī** (“too-sih”) [or **tǔsī** zhìdù, **t’u**-szu, **thō** ty, or **thovu** su; accept **jīmí** system, **chi-mi**, **jīmí** zhì, or **jīmí** fūzhōu; accept **Tǔjia** people or **Tu**-chia people; accept **Tǔsī** sites or **Tǔsī** Yízhǐ; accept “gǎi **tǔ** guī liú”]

[10e] Yúnnán’s (“yoon-nahn’s”) Dǎlǐ (“dah-lee”) Kingdom was converted into a tǔsī (“too-sih”) chiefdom by this first Yúan (“yoo-en”) emperor, whose four-class caste system placed Hàn Chinese people below Mongols.

ANSWER: **Kublai** Khan [or **Kübilai** Khan or **Qubilai** Khan or **Hübilie** Hàn; or **Shizǔ** of Yúan]

[10m] Kublai’s Sèmù (“suh-moo”) caste included Buddhist Uyghurs from Qocho, who were Islamized by this state’s khan Khizr Khoja. Turpan’s Uyghurs built chunche raisin sheds after this Mongol khanate split into Moghulistan and Transoxiana.

ANSWER: **Chagatai** Khanate [or **Chagatai** Ulus or **Cağadai** (“TSAH-gah-dye”) Ulus; or **Chagatayids**; accept Eastern **Chagatai** Khanate or Dōng **Chágětái** Hánguó]

<World History>

16. In a film from this country, two women wearing suits made out of newspaper whisper to each other as they clean up a dining room they had destroyed in an earlier scene. For 10 points each:

[10m] Name this country that produced that film about the antics of Marie I and Marie II, Věra Chytilová’s *Daisies*. The fire department of a small town holds a ball in another film from this country.

ANSWER: **Czechoslovakia** [accept **Czech** Republic or **Czechia** or **Česká** republika; accept **Czechoslovak** New Wave or **Czech** New Wave; reject “Slovakia”]

[10e] This member of the Czech New Wave made *The Firemen’s Ball* before moving to the United States, where he directed *One Flew Over the Cuckoo’s Nest* and *Amadeus*.

ANSWER: Miloš **Forman** [or Jan Tomáš **Forman**]

[10h] In this New Wave film by Jaromil Jireš (“YAR-oh-mill YEE-resh”), a pale-faced constable turns into a weasel and a magic earring protects the title 13-year-old girl from being burned at the stake after she escapes her vampiric grandmother.

ANSWER: *Valerie and Her Week of Wonders* [or *Valerie a týden divů*] (Some modern discourse on this film points out the potentially exploitative nature of sexually charged scenes involving its underaged lead actress.)

<Other Fine Arts>

17. Thomas and Demetrios Palaiologos divided the rule of a despotate named for this region since Constantine XI needed Demetrios out of Constantinople. For 10 points each:

[10m] Name this region controlled by the southernmost vassal state of the Latin Empire. Venice seized Dalmatia and this region from the Ottomans after the Great Turkish War.

ANSWER: **Morea** [or **Achaea** or **Achaia**; accept **Peloponnese** or **Peloponnesus** or **Peloponnesian** Peninsula; accept Despotate of the **Morea** or Despotate of **Mystras**; accept Principality of **Morea** or Principality of **Achaea**; accept Kingdom of the **Morea** or Regno di **Morea**; accept **Morean** War or Guerra di **Morea**; prompt on **Messenia**, **Laconia**, **Arcadia**, **Argolis**, **Argolida**, **Elis**, **Ilia**, or **Corinthia** by asking “it was ruled as part of what region?”]

[10e] Venice instigated the Morean War after losing this nearby island. The Ottoman siege of this island lasted over two decades and dissolved the Kingdom of Candia, which was based in modern-day Heraklion.

ANSWER: **Crete** [or **Kriti**; accept **Cretan** War or **Kritikós** Pólemos or **Girit’in** Fethi]

[10h] After the Cretan War, settlers of this Greek subgroup emigrated to the Corsican town of Cargèse (“car-zhezz”). A later pirate of this ethnicity named Lambros Katsonis joined Alexei Orlov’s Russian Navy, which invaded their homeland in 1770.

ANSWER: **Maniots** [or **Maniátes** or **Mainotes**; prompt on **Mani** Peninsula or **Mánē** or **Maína**]

<European History>

18. This writer's pamphlet *Second Thoughts Are Best*, which discusses how to improve the London night watch and stop street robberies, was one of several published under the pen name Andrew Moreton. For 10 points each:

[10e] Name this author believed to have used close to 200 pseudonyms over his career. He presented his best-known novel as the memoirs of its title shipwreck survivor, who is based on Alexander Selkirk.

ANSWER: Daniel **Defoe** [or Daniel **Foe**] (The novel is *Robinson Crusoe*.)

[10h] This novel by Defoe purports to be the military journal of an "English Gentleman" named Andrew Newport who fought under Gustavus Adolphus, and later served Charles I in the English Civil War.

ANSWER: ***Memoirs of a Cavalier***

[10m] Defoe is a leading candidate for the identity of the mysterious Captain Charles Johnson, whose *General History of the Pyrates* introduced this likely-fictional pirate utopia established in Madagascar by James Misson.

ANSWER: **Libertalia** [or **Libertatia**]

<British Literature>

19. Phrixus makes this object after a thanksgiving sacrifice for his miraculous escape from the clutches of his wicked stepmother Ino. For 10 points each:

[10e] Name this auspicious object that hangs from a tree in Colchis until Medea helps to steal it.

ANSWER: golden **fleece** [or khrysómallon **déras**; or golden **pelt** or equivalent translations]

[10h] In an early parallel to the fleece myth, this son of a storm god has a disappearance-and-return narrative that ends with a description of the *kurša*, a fleece sack that hangs from the king's *eyan* tree.

ANSWER: **Telipinu**

[10m] The Hittite *kurša* has also been compared to this object that Homer describes as a goatskin with the epithet *thussanóessan* ("thussano-essan"), or "tasselled." Zeus uses this object to distract Triton's daughter Pallas, who is impaled and dies.

ANSWER: **aegis** [prompt on **shield**]

<Mythology>

20. Because spin-orbit coupling causes sodium to have two dominant and closely-spaced "D" examples of these features, sodium lamps only weakly distinguish objects of different colors. For 10 points each:

[10e] Hydrogen's Balmer series is a set of what features?

ANSWER: **spectral lines** [or **emission lines** or **absorption lines**; prompt on D **lines**]

[10h] Sodium lamps' D lines are often combined into a single center line at this wavelength, given in nanometers to the nearest integer. This is the standard wavelength of light used when measuring optical rotation.

ANSWER: **589** nanometers [or **589** nm; prompt on **590** nanometers or **590** nm by asking "what is the wavelength of the center line specifically?"]

[10m] A narrow spectrum helps sodium lamps achieve high efficiency, often reaching values of over 100 of these units per watt. Measurements in this flux unit, which equals one candela-steradian, are weighted according to the eye's sensitivity to visible light.

ANSWER: **lumens** [or **lm**]

<Physics>