

## Tossups

1. A ruler from this faction was mocked by a couplet claiming that “the Cat, the Rat, and Lovell the Dog” ruled his country “under the Hog,” a reference to heraldic signs. This faction hanged judge John Fortescue for his legal rulings against their legitimacy. This faction made William Herbert the Earl of Pembroke to reward his fighting for them in Wales. The decree *Titulus Regius* altered succession within this (\*) house. A king from this house stacked mad cash from Burgundian payouts after signing the Treaty of Picquigny. It lost a member when George, Duke of Clarence was killed, allegedly by drowning in wine, and won at Towton a decade before their decisive victory at Tewkesbury. For 10 points, name this dynastic house of Edward IV and Richard III, which was supplanted by the Tudors in the War of the Roses after ousting their Lancaster rivals.

ANSWER: House of York [or Yorkists; prompt on “Plantagenet”] <MJ>

2. The *Guerrilla* type of this discipline names the follow-up book to *Tool-Being* by object-oriented philosopher Graham Harman. The “revisionary” approach to this subject was rejected in favor of a simpler “descriptive” type in Peter Strawson’s *Individuals*. Martin Heidegger used the phrase “The Nothing itself nothings” in his lecture on this topic. The first text in this field discusses a being whose thought is “thinking on (\*) thinking.” Rudolf Carnap and the Vienna Circle sought to “eliminate” this subject, which Kant’s *Critique of Pure Reason* sought to establish as science. This field’s name was first used as a placeholder title for a work whose Book Lambda discusses the “unmoved mover,” a text on the nature of “primary substance” written down at the Lyceum after lectures on movement. For 10 points, name this subfield of philosophy concerned with the fundamental structure of the universe.

ANSWER: metaphysics <MJ>

3. A time-reversible and symplectic method for performing this task uses a technique called “leapfrogging” and is often used when the model in question is a dynamical system. While performing ragdoll physics calculations, the central difference is computed as part of an algorithm designed for this task named after Loup Verlet [“Ver-lay”]; that method improves upon the simplest method for doing this, which is an algorithm that takes an initial point and calculates the next point by evaluating a function at x and y, then multiplying that expression by the (\*) step size. That simple method for doing this task is a first-order method, which means that the error varies with the square of the step size. The most common family of algorithms for performing this task are the Runge-Kutta methods; a simple example of which is the Euler method. For 10 points, name this task of approximately computing a definite integral.

ANSWER: numerical integration to solve a differential equation [or numerical quadrature, or numerically solving an initial value problem, prompt on “integration,” prompt on “Riemannian integration,” prompt on “solving a differential equation,” prompt on “solving an initial value problem”, do not accept or prompt on “analytic integration” or “Lebesgue integration.”] <IJ>

4. One work by this poet begins “In the cold, cold parlor,” and describes a stuffed loon, shot by Uncle Arthur, who “took his own counsel / on his white, frozen lake / the marble-topped table” of the title event. In another poem, the narrator admires the “shapes like full-blown roses / stained and lost through age” displaying on an object whose “brown skin hung in strips / like ancient wallpaper.” This author wrote the poem “First Death in Nova Scotia” while living in Brazil, where she carried on a tempestuous relationship with her (\*) lover Lota de Mercedo Soares. Robert Lowell’s “Skunk Hour” was dedicated to this woman, who described returning her catch after “everything was rainbow, rainbow, rainbow” in one poem and asserted that “the art of losing isn’t hard to master” in another. For 10 points, name this American poet of “The Fish” who wrote the villanelle “One Art.”

ANSWER: Elizabeth Bishop <MI, ed.>

5. In one of this man’s works, a broken window is casually blamed on “some Jew passing by” even though a person inside the house broke it. This man showed several people smashing a wall to reach a water pipe in a film inspired partly by Sartre’s *No Exit*, set in a bourgeois music room. Another film directed by this non-Pasolini man showed a man slapping a woman’s face for spilling wine on his hand, ends with “120 Days of Depraved Acts,” and depicts a couple played by Gaston Modot and Lya Lys getting repeatedly (\*) sexually thwarted. This director of *The Exterminating Angel* was the alphabetically-prior collaborator on a short film in which ants crawl out of a person’s hand and a razor slits a woman’s eyeball. For 10 points, name this director of *L’Age d’Or*, who worked with fellow Spaniard Salvador Dalí on *Un chien andalou*.

ANSWER: Luis Buñuel <MJ>

6. A group of reagents named for and using this paradigm were developed by Life Technologies for use in bio-orthogonal labelling. MG Finn and Hartmuth Kolb helped develop this paradigm. The prototypical method used in this paradigm occurs in copper-catalyzed and metal-free variants, and produces 1,2,3-triazoles; that is the Huisgen cyclization, in which an azide is added to an alkyne. This paradigm emphasizes modularity, high (\*) atom economy, and green solvents. This paradigm was discovered by the same scientist who names a method using one of two AD-mixes for asymmetric dihydroxylation, as well as an epoxidation reaction using diethyl tartrate. For 10 points, name this synthetic chemistry paradigm that emphasizes connecting small units to make complex molecules in imitations of biological systems, developed by Nobelist K. Barry Sharpless.

ANSWER: click chemistry <EM>

7. This country's military has trump cards called Assassin's Maces to counter more advanced militaries. Preventing movement within the first and second island chains is the main priority of this country's extensive A2/AD weapon systems. This country is developing a series of weapons named after the East Wind such as the DF 21D anti-ship ballistic missile that has been dubbed a "carrier (\*) killer." This country is testing fifth generation fighter jets such as the J-31 and the J-20 while its S-19 anti-satellite ballistic missile was successfully tested in 2007 on one of its own satellites. The American military's new "Air Sea Battle" doctrine and its more diplomatic "Pivot to Asia" are measures to contain this rising superpower. For 10 points, name this country whose People's Liberation Army, like its population, is the world's largest.

ANSWER: People's Republic of China [or PRC; or Zhonghua Renmin Gongheguo; do not accept "Republic of China" or "ROC"] <PL>

8. A horrific diary from this place, which uses Latin abbreviations like "*sup. terr.*" to record thousands of near-daily rapes of slaves, was written by Thomas Thistlewood. Emigrants from this place arrived in Tilbury aboard the *Empire Windrush*. Tacky's Rebellion was led by a Coromantee slave in this place, where Cudjoe and Nanny were two leaders of a population of (\*) mountain-dwelling fugitives. During the protectorate of Oliver Cromwell, this site of the Maroon Wars was used as a base of operations for sieges on Panama by privateer Henry Morgan. Britain seized this colony from the Spanish in 1655. For 10 points, name this former slave colony home to Port Royal, a now-independent Caribbean island where news of Haile Selassie inspired the Rastafarian movement.

ANSWER: Jamaica <MJ>

9. A 2007 stage adaptation of this tale, which ends with Athena and Hera making constellations, was directed by Mary Zimmerman. Vespasian was the dedicatee of an incomplete Latin version of this tale by Gaius Valerius Flaccus. The seer Idmon foresees his own death in this myth, in which a clod of earth is entrusted to Euphemus by a lake god who also receives a sacred tripod from a set of two. Absyrtus is cut into pieces by his (\*) sister during an escape in this story. In the backstory setting up this storyline, Helle falls into the Hellespont while flying away from home with Phrixus. As told by the epic poet Apollonius of Rhodes, the protagonist of this story relies on Calais and Zetes to drive off harpies, then manages to yoke fire-breathing bulls in Colchis, where he falls for Medea. For 10 points, name this quest tale in which a team of heroes sail to recover the Golden Fleece.

ANSWER: the Argonautica [accept answers indicating the quest of Jason and the Argonauts; accept answers indicating the quest for the Golden Fleece before "Golden" is read] <MJ>

10. This novel's protagonist is disappointed that there are no banners and "no Scottish monarch sleep[ing] below" in a plain chapel, after traveling in an open air four-seater carriage called a barouche. In this novel, the sailor William obsesses over whether a ship called the *Thrush* has left harbor. Susan and Betsey fight over their dead sister's knife in this novel, in which recollections of a bawdy performance at Lord Ravenshaw's estate inspire Mr. (\*) Yates to cast his friends in a makeshift production of *Lovers' Vows*. The wealth of this novel's title locale comes from Sir Thomas's slave plantations in Antigua. This novel's protagonist is often reprimanded by Mrs. Norris, and refuses a bad marriage to Henry Crawford. For 10 points, name this novel in which Edmund Bertram marries Fanny Price, a ward raised at the title estate, the third major novel by Jane Austen.

ANSWER: Mansfield Park <MJ>

11. A protein responsible for inactivating this protein is mutated in a disease in which patients have Lisch nodules and/or more than large café au lait spots; besides being downregulated by NF1, a group of proteins that help inactivate these proteins share an “arginine finger” which increases the rate of nucleophilic attack by water. Mutations of G12 in the P-loop of this protein can cause PIN lesions in a mouse model. Cdc25 and son of sevenless belong to a group of proteins responsible for switching out the cofactor of this protein. The activation of this protein is controlled by (\*) GAP and GEF factors, which cause cleavage or exchange of its nucleotide cofactor. This protein, which activates the MAPK cascade, has K, H, and N isoforms and is mutated in 96% of pancreatic cancers. For 10 points, name this single-subunit G-protein and oncogene, which gets its name from its discovery in rat sarcomas.

ANSWER: Ras [or K-ras, H-ras, or N-ras] <EM>

12. This character is taken prisoner while attempting to flee disguised as an Indian witch-doctor, and his mother discerns that he has been killed when she discovers worms in a pot of milk. In fact, this character had shot himself in the chest where the doctor had drawn a circle of iodine, but the bullet passes clean through without hitting any vital organs. After retiring, he spends his time making gold fishes in his workshop. Most of this man’s 17 (\*) illegitimate sons are found assassinated with permanent Ash Wednesday crosses on their foreheads. He loses all of the 32 wars he fights after a Conservative regime firing squad is driven off by his brother Jose Arcadio. As he faces that firing squad, this character remembers “that distant afternoon when his father took him to discover ice.” For 10 points, name this Liberal revolutionary from *One Hundred Years of Solitude*.

ANSWER: Colonel Aureliano Buendia [or Coronel Aureliano Buendia; or Aureliano senior or obvious equivalents indicating that he’s the first Aureliano; prompt on partial answers; prompt on “Buendia”] <AR>

13. The original score of one of these compositions contained the instructions “wait for nod” to indicate when the orchestra should resume playing. A composition of this type opens with a nine-bar introduction before an A-C-B-A-E motif and presents a D-flat major melodic inversion of one of the works that inspired it. Another one of these compositions was originally composed for two pianos and was premiered by at the Aeolian Hall by Ferde Grofé and Paul (\*) Whiteman’s orchestra in the concert, *An Experiment in Modern Music*. A composition of this type consists of twenty-four variations on the last of another composer’s caprices, while another opens with a two-and-a-half octave clarinet glissando. For 10 points, identify this kind of composition, exemplified by one “on a theme of Paganini” by Rachmaninoff and one “in Blue” by George Gershwin.

ANSWER: rhapsody [or rhapsodies; or Rhapsody on a Theme of Paganini; or Rhapsody in Blue] <WA>

14. In this city, Daniel Drayton helped organize an attempt by dozens of slaves to escape aboard the ship *Pearl*, which was betrayed after winds stalled. In this city, the free black man James Wormley founded a hotel where a precursor to the electoral Compromise of 1877 was hammered out. Many African-Americans here used a tent community called “Resurrection City” as part of the Poor People’s Campaign, which was destroyed along with many black businesses on the U Street Corridor in the riots after (\*) Martin Luther King’s assassination. The black polymath Benjamin Banneker helped survey this city, where gay civil rights leader Bayard Rustin organized a demonstration “for Jobs and Freedom.” For 10 points, name this city, where a controversial Marian Anderson concert and Martin Luther King, Jr.’s “I Have a Dream” speech were both delivered at the Lincoln Memorial.

ANSWER: Washington, DC [or District of Columbia; or DC] <MJ>

15. In 1988, 117 martyrs from this country were given the feast day of November 24 and canonized by Pope John Paul II. An eccentric monk from this country lived on a three-story boat and advocated living off of only coconuts. Catholics whose ancestors are from this country celebrate the Marian Days in Carthage, Missouri. Alexander de Rhodes was a missionary to this non-China country, where a religion symbolized by a (\*) left eye in a triangle counts Sun Yat-Sen and Victor Hugo among its saints. That religion from here has a Pope and a name that translates as “High Power.” Historically, a lunar new year festival in this country was the date of a massive truce-breaking offensive. For 10 points, name this home of the religion of Cao Dai and the holiday of Tet.

ANSWER: Socialist Republic of Vietnam <WA>

16. One poem by this writer consists of eight “medallions,” or quatrains, that speak about the art of Rubens, Da Vinci, Rembrandt, Michelangelo and others who challenged the dignity of God. This author of “The Beacons” wrote another poem in which a bottle of wine sings a “song that’s full of brotherhood and light” to a disinherited man. He wrote another poem in which the speaker imagines his blood “gushing out in rhythmical sobs” from his body so that the city is turned into “islands of paving stones” amidst the flooding. This author’s poems “The (\*) Fountain of Blood” and “The Soul of Wine” are found in a collection whose prologue is addressed to a “hypocrite reader--my likeness--my brother!” For 10 points, “Revolt,” “Wine,” “Death,” and “Spleen and Ideal,” are sections from which French Symbolist’s collection *Flowers of Evil*?

ANSWER: Charles Baudelaire [or Charles Pierre Baudelaire] <IJ>

17. In imitation of an artist born in this modern-day country, Pablo Picasso painted a Cubist version of that artist’s portrait of a man in black with a brush and a rectangular palette. In another painting depicting this country, a black man plants a banner and a hand lies crushed under a piece of rubble; that painting shows a personification of this country with her arms stretched out in despair. An artist born in this modern-day country showed gray figures holding up yellow and green cloth as a man in blue raises his hands to the sky in (\*) *Opening of the Fifth Seal*. A painting set here shows a peasant woman lying underneath the feet of a rearing horse ridden by a turban-clad soldier. This country is shown “on the ruins of Missolonghi” in a painting by Delacroix, who used it as the setting of *Massacre at Chios*. For 10 points, name this country of origin of El Greco.

ANSWER: Greece [or Hellas; or Hellenic Republic; or Republika Ellinika] <WA>

18. This man led studies in which people wrote down everything they did on the previous day via the “day reconstruction method.” One of this man’s books proposed that overconfidence is the “Engine of Capitalism.” This man’s early work in vision showed that increased cognitive workload correlates with pupil dilation. In a seminar he led, this man devised a game whose only action is giving money to another person, the “dictator game.” In a (\*) 2011 book, he wrote that the mind has an analytical, but lazy, “System Two” and impulsive “System One.” With an now-deceased Israeli colleague, he showed that people avoid risk far more than they seek reward, and studied anchoring among many heuristics and biases that aren’t classically rational. For 10 points, name this Nobel laureate and author of *Thinking, Fast and Slow*, who worked with Amos Tversky on prospect theory.

ANSWER: Daniel Kahneman <MJ>

19. So, et al. developed one of these devices that uses PAA and PEI-doped agarose hydrogels. These components can be combined into cross-bar latches. At high frequencies, these components’ pinched hysteresis curves will degenerate into linear IV relationships. An example of these devices uses oxygen vacancies as charge carriers. The first of these devices was originally created by separating a platinum electrode and a titanium electrode, then placing a two-layer (\*) titanium dioxide film between them; that example of these devices was originally developed at HP labs. These devices have a magnetic flux proportional to the amount of charge moving across their two terminals. For 10 points, name these circuit elements first theorized by Leon Chua, which maintains its opposition to current based on the history of current flowing across it.

ANSWER: memristor <EM>

20. A legendary king of these people tied a woman named Sunilda to two horses which ran in opposite directions to pull her apart as a punishment to her husband. This ethnic group regained its hold on Salona when they killed the opposing general Mundus. A *foederatus* from this people named Gunthigis Baza employed the historian Jordanes as a scribe. Under the rule of this ethnicity, construction of the octagonal (\*) San Vitale basilica began. These believers in Arianism fought a drawn-out bloody stalemate with Belisarius after the death of their most powerful leader, who executed Boethius and usurped Odoacer to rule from Ravenna. For 10 points, name this barbarian tribe once led by Hermanaric, which ruled the Italian peninsula under Theodoric the Great after branching off from the Visigoths.

ANSWER: Ostrogoths [prompt on “Goths” until the last word] <MJ>

## Bonuses

1. This man was baptized alongside his son Adeodatus, whom this man fathered at age seventeen and then fretted over as his intellectual abilities grew beyond this man's own. For 10 points each:

[10] Name this Church father of probable Berber heritage, whose foundational contributions to 5th century Christianity include *Confessions*, *De Trinitate*, and *City of God*.

ANSWER: Saint **Augustine** of Hippo [or **Augustinus**; do not accept "Saint Augustine of Canterbury"]

[10] Augustine accused this British-born theologian of heresy for his denials of heritable original sin and his belief that humans could free themselves from sin if they worked hard enough at being good.

ANSWER: **Pelagius**

[10] By contrast, Augustine's views developed into this Calvinist doctrine that the Holy Spirit must and does act, often suddenly, on each member of the predestined elect to bring them out of sin which they couldn't escape alone.

ANSWER: **irresistible grace** [or **efficacious grace**; or **effectual calling**; prompt on "grace" or "calling"] <MJ>

2. Name the following ethnomusicologists, for 10 points each.

[10] This composer orchestrated folk songs from the Auvergne region of France in his *Chants d'Auvergne*. His first opera, *Le Mas*, was set on a Provençal farm, and his second opera was about Vercingétorix.

ANSWER: Joseph **Canteloube** [or Marie-Joseph **Canteloube** de Malaret]

[10] This father of ethnomusicology broke Hungarian folk songs into "old" and "new" styles, a classification still used for Slovak and Romanian folk music. Kubrick used his *Music for Strings, Percussion, and Celesta* in *The Shining*.

ANSWER: Béla **Bartok** [or Béla Viktor János **Bartok**]

[10] This composer preserved many of the rapidly-disappearing folk songs of the English countryside. He's best known for *The Lark Ascending*.

ANSWER: Ralph **Vaughan Williams** [or **RVW**] <CV>

3. In the epilogue, we learn that this character's daughter Tania is a day laborer who is protected by his half-brother Evgraf. For 10 points each:

[10] Identify this poet who goes to Yuriatin to meet his true love, despite her marriage to Pasha Antipov, in a certain novel.

ANSWER: Dr. Yuri **Zhivago** [or Dr. **Yuri** Zhivago]

[10] Dr. Zhivago and his love Lara were created by this Russian writer, who was forced by the USSR to decline the Nobel Prize in Literature.

ANSWER: Boris **Pasternak** [or Boris Leonidovich **Pasternak**]

[10] For eighteen months, Dr. Zhivago is held captive by Red Partisans who are part of this organization, which is led by the Bolshevik Liberius.

ANSWER: The Highway and **Forest Brotherhood** [or **Forest Brothers**] <IJ>

4. Diborane is often used to affect this kind of transformation, though it doesn't work that well on ketones. For 10 points each:

[10] Identify this kind of chemical reaction in which the reactant gains electrons, which is contrasted with an oxidation reaction.

ANSWER: **reduction**

[10] Many reducing agents serve as donors of this chemical group. Four of this group are bonded to aluminum in one such agent, and DIBAL serves as a selective donor of them to acyl chloride groups.

ANSWER: **hydride**

[10] This reducing agent, which is sometimes named for Cleland, contains two hydroxyl and two sulfhydryl groups on a butane backbone. It is often used in molecular biology to reduce disulfide bonds of proteins.

ANSWER: **dithiothreitol** [or **DTT**] <EM>

5. Sites of this civilization were excavated under Sir John Marshall, and the Painted Gray Ware culture and the Northern Black Polished Ware culture occurred after the decline of this civilization. For 10 points each:

[10] Identify this civilization sometimes named for its capital at Harappa but usually named for the river valley where its cities were found.

ANSWER: **Indus** Valley civilization

[10] This other city of the Indus Valley civilization has a name meaning “mound of the dead” and contains a notable flush-toilet system. The “College of Priests” here are found next to its Great Bath.

ANSWER: **Mohenjo-Daro**

[10] This statue, found in Mohenjo-Daro, is about 4 inches tall and depicts a woman with her hand on her hip. The existence of this statue proved that the Indus Valley civilization was capable of metalwork.

ANSWER: **Dancing Girl** <EM>

6. This thinker described the subject of his magnum opus as a paradoxical trinity of “primordial violence,” “the play of chance,” and its “subordination as an instrument of policy.” For 10 points each:

[10] Name this German thinker whose magnum opus is largely about how to find and defeat the centre of gravity of another country. The standard translation of his work today is by Howard and Paret.

ANSWER: Carl Maria von **Clausewitz**

[10] Clausewitz is best known as a theorist on this subject. Another such thinker described nine grounds, fire attacks, and intelligence in a treatise on the “art” of this subject and was called Sun Tzu.

ANSWER: **warfare** [or **military** theory; or **soldierly** affairs]

[10] This Clausewitzian concept is defined as “the force that makes the apparently easy so difficult.” It encompasses unexpected setbacks caused by the randomness of war such as those caused by the fog of war.

ANSWER: **friction** [or **nachrichten**] <PL>

7. In post-unification Italy, this belief manifested in calls to annex South Tyrol from Austria-Hungary. For 10 points each:

[10] Name this type of nationalistic sentiment, the belief that territories outside the mother country where ethnically similar people live should be added “back” to the mother country.

ANSWER: **irredentism** [or **irredentist**; accept answers indicating that **irredenta** should be taken back]

[10] This two-part region on the border of France and Germany was seen as an irredenta to be recovered after it changed hands via the Franco-Prussian war. Cities here include Strasbourg.

ANSWER: **Alsace-Lorraine** [or **Elsass-Lothringen**; prompt on “Alsace”, “Lorraine”, “Elsass”, or “Lothringen”]

[10] This popular historian discussed how irredentist feelings towards Alsace-Lorraine and calls for *revanche* against the Germans intensified the Dreyfus affair in *The Proud Tower*.

ANSWER: Barbara Wertheim **Tuchman** <MJ>

8. This paper’s central story describes Pierre, a Frenchman who assents to the sentence ‘*Londres est joli*’ but then moves to a squalid corner of London which he hates, not realizing it’s the same city as ‘*Londres*.’ For 10 points each:

[10] Name this article which attempts to challenge the strong disquotational principle, and thus the idea that the title type of mental content is language-independent.

ANSWER: “A **Puzzle About Belief**”

[10] Saul Kripke saw his puzzle about belief to be as critical as this German logician’s puzzle regarding the differing cognitive values of identity statements and equating statements. He wrote “Sense and Reference.”

ANSWER: Gottlob **Frege**

[10] Frege’s primary example of a puzzle solved by the sense-and-reference theory of meaning involved differing names for this astronomical object at different times of day.

ANSWER: **Venus** [or **the morning star**; or **the evening star**; or **Hesperus**; or **Phosphorus**] <MJ>

9. Obey the mad whims of Ike Jose by naming the following countries associated in various ways with John Steinbeck, for 10 points each.

[10] Steinbeck was Newsweek's correspondent for the war in this country, which also served as the setting for most of Tim O'Brien's *The Things They Carried*.

ANSWER: Socialist Republic of **Vietnam** [or Cong hoa Xa hoi chu nghia **Viet Nam**]

[10] Steinbeck collaborated with Robert Capa on a "journal" chronicling their tour of this country. Native authors from this country wrote the short story "The Gentleman from San Francisco" and the dystopian novel *We*.

ANSWER: the **Soviet Union** [or the **USSR**; or the **Union of Soviet Socialist Republics**; or **Russia**; or **SSSR**; or the **Soyuz Sovetskikh Sotsialisticheskikh Respublik**]

[10] A peasant from this country becomes its king in a novel by Steinbeck named for that character's "short reign." A modern author from here wrote about his own decapitation in *The Map and the Territory*, while another wrote *Missing Person*.

ANSWER: **France** [or the **French** Republic; or République **française**] <IJ>

10. The isomerization of this amino acid can significantly slow down protein folding. For 10 points each:

[10] Name this amino acid which occurs in cis and trans isomers, whose side chain loops back and binds to its amine group.

ANSWER: **proline** [or **Pro** or **P**]

[10] Proline is hydroxylated in this protein, which is a component of connective tissue that has a triple helix. The fourth isoform of this protein is commonly found in basement membranes.

ANSWER: **collagen**

[10] In this disease, mutations in collagen make patients' joints hypermobile and skin easily bruised and hyperelastic. A vascular version of this disease causes blood vessel walls to easily rupture.

ANSWER: **Ehlers-Danlos** syndrome <EM>

11. B.R. Myers claimed that this novel's "story about losing a father and finding a grandfather" would "elicit sneers from critics if the cover had *The Key* on it and Nicholas Sparks's name underneath." For 10 points each:

[10] Identify this 2005 novel about the precocious Oskar Schell, who attempts to contact every person with the surname "Black" in New York City to search for the lock belonging to a particular key.

ANSWER: **Extremely Loud and Incredibly Close**

[10] *Extremely Loud and Incredibly Close* was written by this contemporary American author, who hacked up a Bruno Schulz book to create his *Tree of Codes* and also wrote *Everything is Illuminated*.

ANSWER: Jonathan Safran **Foer**

[10] The protagonist of *Everything is Illuminated* goes to Ukraine to search for the woman who saved his grandfather from the liquidation of Trachimbrod during this event, also the subject of Art Spiegelman's *Maus*.

ANSWER: the **Holocaust** [or Ha**Shoah**; prompt on "**World War II**"]

12. This method requires no understanding of manifolds or tensor calculus, making it of widespread use when introducing to special relativity to undergraduates and also 10-year-olds. For 10 points each:

[10] Name this approach to special relativity that takes its name from the variable used for the Doppler shift in Hermann Bondi's *Relativity and Common Sense*.

ANSWER: **k-calculus**

[10] The pretty rad Hafele-Keating experiment tested both relativities by simply flying a couple of atomic clocks based on this element around the world twice, eastward and westward. It's the premier atomic clock element and was used to define the second.

ANSWER: **cesium** [or **Cs**]

[10] Every point on one of these diagrams is called an event, and paths on them are called worldlines. These graphical constructs basically just show position as a function of time and nicely illustrate the Lorentz transformation.

ANSWER: **spacetime** diagram [or **Minkowski** diagram] <CV>

13. This island east of the Mentawai Islands is the home of a namesake and extremely rare striped rabbit that makes its home in the Barisan Mountains. For 10 points each:

[10] Name this westernmost of the Greater Sunda Islands. Its most populous cities include Palembang and Medan and it is located on the south side of a major piracy hotspot.

ANSWER: **Sumatra** [or **Sumatera**]

[10] Sumatra was greatly affected by this type of disaster in 2004, the result of a megathrust earthquake close to the northern Sumatran Coast. This disaster helped bring an end to the Free Aceh insurgency.

ANSWER: **tsunami**

[10] Clearing forest to cultivate this commodity on Sumatra caused the 2013 Southeast Asian haze. This agricultural product is used more after widespread rejection of trans fats and is derived from the mesocarp of the eponymous tree.

ANSWER: **palm oil** [or **dendé oil**; prompt on “oil” and “vegetable oil”] <DF/PL>

14. Answer the following about agriculture in art. For 10 points each:

[10] Hieronymous Bosch painted a triptych with this title showing an agricultural conveyance in the middle and a burning village on the right. John Constable’s painting with this title shows a scene on the River Stour.

ANSWER: *The **Hay Wain***

[10] This oil painting by a member of the Barbizon school shows three women picking grains after a harvest.

ANSWER: *The **Gleaners***

[10] This painter showed a man pouring wine for an older man to his left in *The Farmers’ Lunch*. His other paintings of commoners include one showing a salesman in a brown coat grasping a water jug and a wine glass.

ANSWER: Diego Rodríguez de Silva y **Velázquez** <WA>

15. Andrew J. Smith was the first commander of this military unit after its organization at Fort Riley, Kansas. For 10 points each:

[10] Name this unit of the U.S. Army, which used Fort Abraham Lincoln as their base for exploring gold mining prospects in the Black Hills, and thereby drew Native American retaliation.

ANSWER: United States **7th Cavalry** Regiment [prompt on “Garryowen”; prompt on “Custer’s regiment” or similar]

[10] This man’s company created the “Peacemaker” revolving pistol used by the 7th Cavalry Regiment at Little Bighorn and elsewhere. After his death, his company made the industry-standard .45 ammo cartridge.

ANSWER: Samuel **Colt**

[10] Colt started his gun factory in this state, where he competed with Winchester. Other politicians from this state include circus huckster P.T. Barnum. A private Pfizer plant in this state was built after a use of eminent domain challenged in the *Kelo* case.

ANSWER: **Connecticut** [or **CT**] <MJ>

16. In Mayan lore, the Bacabs are each tagged to one of these points. For 10 points each:

[10] Name these geographical concepts. Notus, Boreas, Eurus, and Zephyrus each travel from a distinct one.

ANSWER: cardinal **directions** [or compass **directions**; or **point**s on the **compass**; accept **north, south, east, and west**; prompt on “edges of the earth/map”]

[10] This Egyptian god’s four sons, each representing a cardinal direction, were shown on canopic jars buried with mummies. He won a race in a wooden boat against a stone boat.

ANSWER: **Horus** [or **Heru**; or Ra-**Horakhty**; or **Harpocrates**]

[10] This rare animal is the guardian animal of the West in a Chinese tetrad in which the Black Turtle represents North, an ocean dragon represents East, and the *fenghuang* bird represents South.

ANSWER: **white tiger** [or **byakko**; or **baihu**; prompt on “tiger”] <MJ>

17. This character, who was heavily inspired by its author’s friend Italo Svevo, carries a potato talisman as a reminder of his mother. For 10 points each:

[10] Name this character, an advertising salesman for the *Freeman’s Journal*, who masturbates while watching Gerty MacDowell undress on Sandymount Strand, in an episode titled “Nausicaa”.

ANSWER: Leopold **Bloom** [or **Leopold** Bloom]

[10] Leopold Bloom is the protagonist of this modernist novel by James Joyce set in Dublin on June 16, 1904, and loosely based on the *Odyssey*.

ANSWER: **Ulysses**

[10] In *Ulysses*, Leopold’s wife Molly carries on an affair with this man, her manager, due to frustration at her celibate marriage to Leopold.

ANSWER: **Hugh** “**Blazes**” **Boylan** [accept any underlined part] <AR>



18. The surface gravity of one type of these entities is equal to one over four times its mass, and they get their name from the fact that light can't escape them. For 10 points each:

[10] Name these objects that are created after a spherical mass distribution is compressed to smaller than the Schwarzschild radius. Their namesake information paradox was recently solved by introducing a firewall.

ANSWER: **black hole**

[10] This theorem states that a black hole can be completely characterized by mass, charge, and angular momentum.

ANSWER: **no-hair** theorem

[10] The aforementioned calculation of the surface gravity of a black hole relies on the use of members of one of these vector fields, which preserve the metric of a Riemannian manifold.

ANSWER: **Killing** vector field <EM>

19. During one summer in this city, left-wing protests occupied a public university called the Sorbonne and the Odeon theater. For 10 points each:

[10] Name this city, where student unrest along the Left Bank briefly ground the government of Charles de Gaulle to a standstill in May 1968.

ANSWER: **Paris**, France

[10] This type of labor disturbance, in which groups of employees refuse to work even without the approval of their labor union leaders, accompanied the student protests of May '68.

ANSWER: **wildcat** strike [prompt on "strike" or "general strike"]

[10] This academic circle, ring-led by Guy Debord, was popular with the May '68 protesters. Its brand of Dada-inspired Marxism was exemplified by the pamphlet *On the Poverty of Student Life*.

ANSWER: **Situationist** International [prompt on "SI"] <MJ>

20. Answer some questions about American performance venues for non-classical musicians, for 10 points each:

[10] I.M. Pei designed this pyramid-shaped building that houses exhibits and memorabilia from artists such as The Beatles and Elvis Presley. This Cleveland venue features a first-floor stage and a third-floor theatre for performances.

ANSWER: **Rock and Roll Hall of Fame** Museum

[10] This radio show was once broadcast from Ryman Auditorium, and performances are now taped in a namesake "House" in Nashville. The weekly stage concerts with this name are critical for fledgling folk and country musicians.

ANSWER: The **Grand Ole Opry** [prompt on "Opry"; do NOT accept answers containing "Old"]

[10] Boxer Jack Johnson opened this Harlem jazz establishment, which began as a "Whites Only" club despite employing primarily black musicians. Duke Ellington's residency here is the subject of the musical *After Midnight*.

ANSWER: **Cotton Club** <TK>