



## 2023 PACE NSC

Edited by David Bass, Jordan Brownstein, Jaimie Carlson, Ganon Evans, Athena Kern, Joseph Krol,  
Young Lee, Adam Silverman, Chandler West  
Head Editor Ganon Evans

### Round 13 - Tossups

**1. In a novel titled for one of these structures, Frank Wheeler becomes a “smiling, lifeless man” after his wife April dies inducing an abortion. A novel titled after one of these structures ends with the protagonist sitting on an “old broken-down pier” thinking of a friend, whom he earlier called a “HOLY GOOF.” In that novel titled for one of these structures, characters attend shows by jazz pianist George (\*) Shearing. The manuscript of a novel titled for one of these structures was written on one continuous scroll and is populated by drug-abusing men like Carlo Marx and Old Bull Lee. Dean Moriarty and Sal Paradise travel around America in, for 10 points, a Jack Kerouac novel titled after what kind of structure?**

ANSWER: **roads** [or *Revolutionary Road* or *On the Road*]

<Yingzhi Nyang, Literature - American - Long Fiction> ~25048~ <Editor: Chandler West>

**2. The Krefeld type of these objects were part of a broader class named for the Migration Period following the fall of Western Rome. The first version of these objects in ancient Rome was named Hispaniensis and later evolved into its Mainz version. Brennus legendarily threw one of these objects onto a scale before exclaiming “Vae victis (“why wick-tees”)!” Atilla the Hun possessed one of these objects that the Scythians reportedly made from a (\*) meteorite. The spatha was a type of this object strengthened by pattern welding. The word “gladiator” originates from a Latin word referring to these objects in general but more often the ones specifically used by Roman legions. For 10 points, name these weapons consisting of a short handle and elongated blade.**

ANSWER: **swords** [accept **gladius** before “gladiator” is read; prompt on **blades**; reject “dagger” or “knife”]

<Lalit Maharjan, History - European - Classical> ~25415~ <Editor: Michael Bentley>

**3. This force applied to fly-balls causes them to actuate proportional control in a namesake engine governor. A stargazer experiences this force in the original statement of Mach’s principle. Impellers transmit energy to fluids via this force. This force equals negative mass times omega cross quantity omega cross  $r$ . This force and gravity form the concave water surface in (\*) Newton’s bucket. This force opposes buoyancy in a technique that separates components of solutions by density. This force causes the *observer* to feel artificial g-force, unlike the Coriolis force, because their non-inertial reference frame is rotating. For 10 points, name this fictitious force directed away from the axis of rotation, opposite the centripetal force.**

ANSWER: **centrifugal** force [prompt on **fictitious** force or **pseudoforce**; reject “centripetal” force]

<Adam Silverman, Science - Physics> ~26009~ <Editor: David Bass>

4. *Description acceptable.* Minimum standards for some of these things are governed by the 1974 ERISA Act. In the US, most of these things impose a 50 percent tax if the required minimum distribution is not taken. The book *Nudge* describes how workers were automatically enrolled in and then stayed in a Swedish example of these things. TIPSTER (“tip-ster”) is an example of a calculator that helps determine how much one should allocate to these tax-advantaged programs. There is generally no (\*) contribution limit for the after-tax income added to one of these things named for a Delaware senator. In the US, defined benefit examples of these things have largely been replaced with defined-contribution examples. For 10 points, name these funds like a Roth IRA or 401(k) intended for when a person stops working.

ANSWER: retirement accounts [or pensions; accept more specific answers like 401(k) or Roth IRA before mentioned; prompt on stock portfolio by asking “for what purpose?”]

<Michael Bentley, Social Science - Economics> ~23484~ <Editor: Athena Kern>

5. An apocryphal addition to this book describes a locked room mystery where priests were consuming offerings left for the god Bel. A figure in this book is told “the sanctuary will be cleansed” after he has a vision about a goat slaying a ram with its horn. A man in this book refuses to eat the king’s meat for ten days, making him appear “fairer and fatter.” This book’s title character interprets the phrase “mene, mene, tekel, upharsin” (“MEH-nay MEH-nay TEK-el oo-FAR-seen”). After refusing to (\*) bow to a king’s golden statue in this book, Shadrach (“SHAD-rack”), Meshach (“MEE-shack”), and Abednego (“uh-BED-nuh-goh”) emerge unharmed from a furnace with “a son of the gods.” For 10 points, name this Old Testament book whose title prophet interprets a warning at Belshezzar’s (“BEL-shuh-zar’s”) feast and survives being thrown into the lions’ den.

ANSWER: Book of Daniel

<Benjamin Chapman, RMP - Hebrew Bible> ~26015~ <Editor: Athena Kern>

6. Philippe Ariès’s book on “Centuries” of these people argued that the conceptualization of them did not exist until the 15th century. In an event named for these people, 7,000 Christians marched to Genoa expecting the sea to part before them. In Ancient Rome, these people wore a *bulla* rather than a toga. In 1212, Nicholas of Cologne co-led these people in a self-proclaimed (\*) crusade. They’re not warriors, but a group of male examples of these people called *paides* were the lowest rank in the *agōgē* (“ah-go-gay”) system of Sparta. Athenian society sanctioned the use of exposure for these people, although the Catholic Church instead promoted sending them to foundling hospitals. For 10 points, name these people who in the Middle Ages frequently became orphans.

ANSWER: children [or kids; accept babies, youths, adolescents, boys, girls, teenagers, young people or minors; accept unwanted babies; accept Children’s Crusade; accept Centuries of Childhood; accept foundlings or orphans before read]

<Yingzhi Nyang, History - Cross, Historiography, and Miscellaneous> ~25577~ <Editor: Michael Bentley>

7. Environmental chemists plot the negative log of this quantity against pH on the phase diagrams of active metals like iron and uranium. Proteins in the inner mitochondrial membrane are arranged so this quantity increases from Complex I (“one”) to Complex III (“three”) to Complex IV (“four”) to oxygen. Reactivity series rank elements by this quantity relative to a value of zero for hydrogen on platinum in a (\*) SHE (“she”) cell. This quantity for a reaction is proportional to negative delta-G and decreases by “RT over nF times the natural log of Q” if it is not run at standard state. This quantity is subtracted between two half-reactions to determine the emf (“E-M-F”) and direction of a redox reaction. For 10 points, name this quantity computed using the Nernst equation and measured in volts.

ANSWER: redox potential [or reduction potential; or standard reduction potential; or cell potential; or half-reaction potential; accept cell emf or electromotive force until it is read and prompt on it afterwards; accept cell voltage until “volts” is read and prompt on it afterwards; prompt on script-E]

<Adam Silverman, Science - Chemistry> ~25034~ <Editor: Adam Silverman>

**8. Alex Colville’s painting *Pacific* inspired a scene in which a man with this profession stares out of a blue window in a Michael Mann film. A positive Pauline Kael review may have swayed public opinion on a film about two characters in this profession that ends with a gory death scene. Al Pacino yells “Attica! Attica!” while playing a man engaged in this job in (\*) *Dog Day Afternoon*. A man with this job dances to “Stuck in the Middle With You” and cuts off Nash’s ear in a film by Quentin Tarantino. Robert De Niro’s character in *Heat* has this job. Mr. Blonde in *Reservoir Dogs* has this job, as do lovers played by Faye Dunaway and Warren Beatty who are ambushed in a shootout by their car. For 10 points, name this profession of the title characters in *Bonnie and Clyde*.**

ANSWER: **robbers** [accept specific types of robbers such as a bank robber or jewelry robber; accept synonyms such as **burglar** or **thiefs** or **heistmen**; prompt on **criminals**]  
<Michael Bentley, Fine Arts - Film> ~26006~ <Editor: Young Lee>

**9. A deterministic hypothesis named for this process proposes that it evolved to purge negative epistases. Paradoxically, this process imposes a two-fold cost on fitness because it halves the maximum population growth rate. This process, the so-called “queen of evolutionary problems,” evolved to help organisms keep up with their parasites according to the Red Queen hypothesis. On Darwin’s tangled bank, this process helps organisms (\*) adapt better to varying environments. This process prevents the ratchet-like accumulation of harmful mutations that occurs during fission. This process of recombining alleles into a new germline is abandoned during parthenogenesis. For 10 points, meiosis (“MEE-oh-sis”) introduces genetic diversity during what form of reproduction?**

ANSWER: **sexual** reproduction [or **sex**; or **mating**; accept **meiosis** until it is read; prompt on genetic **recombination**; prompt on **reproduction** until it is read; reject “sexual selection”; reject “mitosis”]  
<Adam Silverman, Science - Biology> ~25284~ <Editor: Adam Silverman>

**10. A memoir by this author inspired the “dreams and hopes for the future” theme for Expo 67. André Gide (“zheed”) described this author as he who “has been through it” after reading that memoir set around the Wadi El Natrun. This author’s experiences with his Salvadoran wife Consuelo’s asthma inspired a character he created whose love is praised by a fox. This author wrote *Flight to Arras* and (\*) *Wind, Sand and Stars* before disappearing off Corsica in 1944. This aviator’s own crashes inspired a narrator he created, who attempts to draw a sheep for a rose-loving inhabitant of the asteroid B-612 in the Sahara. For 10 points, name this French author of *The Little Prince*.**

ANSWER: Antoine de **Saint-Exupéry** (“AN-twan duh san-ex-oo-PAY-ree”) [or Antoine Marie Jean-Baptiste **Roger**, comte de Saint-Exupéry]  
<Ganon Evans, Literature - European - Other> ~25527~ <Editor: Joseph Krol>

**11. In October 2022, an online depiction of this painting in over 100 billion pixels restored the image of its patron Elisabeth Borluut praying near grisaille (“grizz-EYE”) statues. An octagonal fountain appears below a figure in this painting whose eyes were made alarmingly human in a 2020 restoration. Art historians have identified soprano and bass singers amongst angelic musicians in this painting from their facial expressions. Philip the Good appears mounted in this painting’s (\*) stolen wing, *The Just Judges*. This painting in St. Bavo’s Cathedral depicts God enthroned above its *Adoration of the Mystic Lamb* panel and was completed by two brothers. For 10 points, name this altarpiece completed by Hubert and Jan van Eyck.**

ANSWER: ***Ghent Altarpiece*** [accept just **Ghent** after “altarpiece” is read; accept ***Adoration of the Mystic Lamb*** before read]  
<Ganon Evans, Fine Arts - Painting - European to 1600> ~25420~ <Editor: Chandler West>

**12. These organisms were poached by Native Americans so that the Carameros Company could make candy. The genus *Rhipsalis* of these organisms are the only ones that might originate in the Eastern Hemisphere. Luther Burbank would frequently rub his face on modified examples of these organisms as part of his efforts to make cattle food. A National Park named for these organisms protects the Rincon Mountain District as part of a (\*) Sky Island Archipelago, and is in Pima County. Fruit from one of these organisms known as *nōchtli* may provide the name of Tenochtitlan. A species of these organisms called the *visnaga* resembles a barrel. One of these organisms appears alongside an eagle and a snake on the flag of Mexico. For 10 points, name these organisms that name Saguaro National Park.**

ANSWER: **cacti** [or **cactuses**; accept **Cactaceae**; accept **prickly pear** or **nopal**; accept **saguaro** or **visnaga** before mentioned]

<Michael Bentley, Geography - World> ~25738~ <Editor: Ganon Evans>

**13. A leader with this surname kidnapped an actress and her film director husband to make movies like *Salt*. A leader with this surname was undermined by the Kapsan faction. Unit 684 recruited criminals to assassinate a leader with this surname, but its members mutinied on the island of Silmido. Forces loyal to a leader with this surname captured the USS (\*) *Pueblo* and attempted the Blue House Raid. One country's calendar begins in 1912 with the birth of an "Eternal President" of this surname, and is named for his Juche ("joo-CHAY") ideology. A leader with this surname invaded a country led by Syngman Rhee before being stopped at Incheon. For 10 points, give this surname of Il-sung, Jong-il, and Jong-un, three North Korean dictators.**

ANSWER: **Kim** [accept **Kim** Il-sung, or **Kim** Jong-il, or **Kim** Jong-un]

<Yingzhi Nyang, History - World - Asian> ~25602~ <Editor: Jordan Brownstein>

**14. The best-known invention of Philippe Oechslin ("AWK-slin") uses chains whose odd-indexed elements are these things, which are mapped to by reduction functions. The FIDO Alliance seeks to reduce reliance on these things. So-called "salt" is added to these things in order to inhibit rainbow tables. Smudge attacks employ forensic analysis of fingerprints to reveal these things. YubiKeys can store (\*) "one-time" instances of these things. John the Ripper is a tool for finding these things that can employ a dictionary attack or brute force. These things are typically stored in databases indirectly as hashes. A minimum length and inclusion of special characters may be required in, for 10 points, what secret strings used to log into accounts?**

ANSWER: **passwords** [or **passcodes** or **passphrases**; accept **PINs** or **PIN** codes or **personal identification numbers** in place of "**PINs**"; prompt on decryption **keys**, **hashes**, **hash** values, **hash** codes, or **digests**] (A smudge attack determines a PIN from smudges left on a touchscreen.)

<Michael Bentley, Science - Computer Science> ~24019~ <Editor: David Bass>

**15. This language was used for a 1901 novel in which a housewife falls in love with the cousin of her husband while he is busy running a liberal newspaper. A woman who speaks this language moves to the title East London street in the novel *Brick Lane*. During its early 20th-century "Renaissance," this language was used to write the novels *The Broken Nest* and *The Home and the World* by an author who used this language for a poem demanding "let my (\*) country awake." A 1910 collection written in this language opens with the line "Thou hast made me endless, such is thy pleasure" in its English translation, which is titled *Song Offerings*. For 10 points, name this language used to write *Gitanjali* ("GEE-tan-JAH-lee") by Rabindranath Tagore ("rah-BIN-drah-nath tah-GOR").**

ANSWER: **Bengali** [or **Bangla**]

<Joseph Krol, Literature - World and Miscellaneous> ~25271~ <Editor: Joseph Krol>

**16. Description acceptable. An object gained during this event is buried on the road to Elaeus. At the beginning of this event, a figure shoots fiery arrows into a location named for Danaus's daughter Amymone ("ah-me-mah-nee"). Due to a woman's jealousy of Iole ("AI-oh-lee"), a substance that was acquired during this event was given by that woman to her husband, causing him to self-immolate. Hera sent a (\*) crab to distract one figure in this event. Arrows dipped in poison acquired during this event are used to defeat Geryon and the Stymphalian birds. It doesn't involve stable cleaning, but King Eurystheus ("yoo-rees-thee-us") declared this event to be invalid since Iolaus ("AI-oh-loss") helped by cauterizing a monster's maimed body. For 10 points, name or describe this event culminating in the death of a monster with regenerating heads.**

ANSWER: the **killing** of the **Hydra** [accept Heracles's or Hercules's **Second Labor**; accept any answers describing Heracles or Hercules **fighting** or **slaying** or **beheading** the Lernean **Hydra**; prompt on Heracles's or Hercules's Twelve **Labors** with "Which one?"] (The Hydra resided in the spring of Amymone.)

<Lalit Maharjan, RMP - Greco-Roman Mythology> ~24754~ <Editor: Jaimie Carlson>

**17. After criticism over a previous George Hester photograph, this project depicted a censored silhouette of a man and woman, though Jon Lomberg's drawings for it depict the nude body. Blind Willie Johnson's song "Dark Was the Night, Cold Was the Ground" was used in this project to describe "nightfall with no place to sleep". This project includes a picture of a man eating a burger backwards. The brainwaves of Ann (\*) Druyan were recorded for this project as she thought about her love for its creative chair. A microscopic image of cell division and greetings in 55 different languages were included in this project, which launched the farthest human-made objects from Earth. For 10 points, name this program that showcased humanity via golden records on spacecraft.**

ANSWER: **Voyager** program [accept **Voyager** Golden Record(s); accept the **Voyager 1** or **Voyager 2** probes; prompt on the **golden records** before mention with "What program were they a part of?"] (Ann Druyan was the spouse of Carl Sagan.)

<Lalit Maharjan, Other - Other Academic and General Knowledge> ~24993~ <Editor: Ganon Evans>

**18. In one novel, this character mocks a man by throwing apples at him, and gets stuck in a tree. This character's incredibly loud scream is described as "the howl of the loser, the lament of the hell-serf." This character declares that he "had an accident. So may you all" in a John Gardner novel named for this figure, where he is implied to jump off a cliff after losing a fight. The night after this character's defeat, the saga of Finn is told before a "monstrous (\*) hell-bride" arrives. For twelve years, this descendant of Cain attacks the Shieldings until the Geats come to defend Hrothgar. This monster's mother comes to avenge him after his arm is ripped off and hung over the door of Hall Heorot ("HAIR-it"). For 10 points, name this first monster killed by Beowulf.**

ANSWER: **Grendel** [reject "Grendel's mother"]

<Jaimie Carlson, Literature - British - Long Fiction> ~25790~ <Editor: Jaimie Carlson>

**19. An "exception" named for this person was added to one state's 1924 "one-drop rule." Camilla Townsend argued that this person was kidnapped after Japazaw acceded to the demands of Samuel Argall. Baron De La Warr arranged for this person to be presented at the court of James I. This person is best known by a nickname meaning "ill-behaved child." A governor who issued the statement "He that will not work, shall not eat" prior to the (\*) Starving Time may have been saved by this person in a ceremony. After marrying a man who introduced tobacco into one colony, this person died in England before she could return to Virginia with John Rolfe. For 10 points, name this daughter of Powhatan who may have saved John Smith from execution.**

ANSWER: **Pocahontas** [or **Matoaka**; or **Amonute**; prompt on Rebecca **Rolfe**]

<Michael Bentley, History - American - Pre-1865> ~25736~ <Editor: Michael Bentley>

**20. The fourth movement of this symphony begins with timpani sixteenth-note sextuplets in thirds with an unusual mallet alternation pattern. A repeating motif throughout this symphony is first introduced by the violins playing (read slowly) “G G, up to C, down to G, up to E, E, F, E, E, D.” An English horn and an oboe play the *ranz des vaches* (“RON de VASH”) to depict a conversation between two (\*) shepherds in this symphony’s third movement. In a passage from this symphony’s final movement, two tubas and four bassoons play a C minor *Dies Irae* theme. This symphony’s *idée fixe* (“ee-DAY FEEKS”) theme occurs throughout its movements such as “Dream of a Witches Sabbath” and “March to the Scaffold.” For 10 points, name this five-movement, opium-inspired, programmatic symphony by Hector Berlioz.**

ANSWER: ***Symphonie Fantastique*** [accept ***Symphonie fantastique***: *Épisode de la vie d’un artiste... en cinq parties* or ***Fantastical Symphony***: *Episode in the Life of an Artist ... in Five Sections*]  
<Benjamin Chapman, Fine Arts - Music - Romantic> ~25786~ <Editor: Young Lee>

**21. Description acceptable. One of this group of characters claims “our court” has become “more like a tavern or a brothel,” while pushing a man to visit another of these people. One of these people tells another, “Tis his own blame... and must needs taste his folly,” leading to the command “shut up your doors.” Two of these people cut down a retinue from 100 to 50 knights, before the third leads a (\*) French army against them. One of these people poisons another after they both lust for the illegitimate son Edmund. The youngest of these people is compared to a “serpent’s tooth” after she is disowned for failing to flatter her father. For 10 points, Goneril, Regan, and Cordelia are what people whose father divides the kingdom of Britain between them at the beginning of a Shakespeare tragedy?**

ANSWER: King **Lear’s daughters** [accept anything describing King **Lear’s children** or King **Lear’s family**; accept synonyms for children like **offspring** or **descendants**; accept **Cordelia**, **Goneril**, and **Regan** before mention, prompt on partial answers if giving names]  
<Lalit Maharjan, Literature - British - Drama> ~25444~ <Editor: Jaimie Carlson>

## NSC 2023 - Round 13 - Bonuses

1. This poet's best-known work was constructed posthumously from four separate poems in their collection *Versos sencillos* ("VAIR-sos sen-SEE-ohs"), and popularized by Joseíto Fernández's ("ho-zay-EE-toh fair-NAN-dezz's") improvised additional verses. For 10 points each:

[10m] Name this poet, whose poems were put together to form the nationalist song "Guantanamera" ("GWAN-tan-ah-MARE-ah").

ANSWER: José **Martí** ("ho-ZAY mar-TEE") [or José Julián **Martí** Pérez]

[10e] "Guantanamera" is the national song of this modern-day Caribbean country, where Martí died in the Spanish-American War.

ANSWER: Republic of **Cuba**

[10h] In the standard version of "Guantanamera," the third verse uses lines from this Martí poem. The narrator of this poem does the title horticultural action "In July as in January / For the sincere friend / Who gives me his hand frankly."

ANSWER: "**I Cultivate A White Rose**" [or "**Cultivo Una Rosa Blanca**" or "**I Have a White Rose to Tend**" or "**Verse XXXIX**"]

<Joseph Krol, Literature - World and Miscellaneous> ~18777~ <Editor: Joseph Krol>

2. Places along a river at which this quantity changes suddenly are called knickpoints. For 10 points each:

[10m] Name this quantity whose maximum stable value for a pile of a granular material is given by the tangent of the angle of repose. Regions that share their name with this quantity lie between continental shelves and continental rises.

ANSWER: **slope** [or **gradient**; accept continental **slopes**]

[10e] Knickpoints are exemplified by these features at which water flows over a vertical drop. These features are also known as cataracts or cascades.

ANSWER: water**falls**

[10h] Knickpoints form from and can contribute to river rejuvenation, in which a river erodes its riverbed in response to a lowering of this vertical datum. This datum is the lower limit of an erosion process.

ANSWER: **base level**

<Joseph Krol, Science - Earth> ~21141~ <Editor: David Bass>

3. The gate of Plato's Academy had an inscription reading, "let no one ignorant of [this field] enter here." For 10 points each:

[10e] Name this field. Many early modern philosophers were inspired by the use of axioms and demonstrations in a text of this field, Euclid's *Elements*.

ANSWER: **geometry** [accept Euclidean **geometry** or **geometrical** method; prompt on **mathematics**]

[10m] Medieval scholastics called Euclid's challenging 5th Proposition the "bridge" of these animals. Jean Buridan names a thought experiment about one of these animals who is unable to choose between food and water.

ANSWER: **donkeys** [or **asses**; accept *pons asinorum* or Buridan's **ass**]

[10h] This philosopher supposedly introduced geometry to Greece after returning from a visit to Egypt. This philosopher identified water as the *arche* ("ARK-ee"), or first principle.

ANSWER: **Thales**

<Jordan Brownstein, RMP - Philosophy> ~20116~ <Editor: Jordan Brownstein>

4. Alex Ross negatively compared this composer's "On the Nature of Daylight" to Pachelbel's "Canon in D Major," noting that "It starts, it adds layers, it swells, it expires." For 10 points each:

[10h] Name this minimalist composer of the most-streamed classical album of all time, an 8-and-a-half-hour composition titled *Sleep*.

ANSWER: Max **Richter**

[10m] Because "On the Nature of Daylight" had already been heavily featured in *Shutter Island*, its use in this director's film *Arrival* made that film ineligible for Best Original Score. This Canadian director hired Hans Zimmer to score his film *Dune*.

ANSWER: Denis **Villeneuve** ("vil-nuhv")

[10e] Richter's first live performance of his 2002 album *Memoryhouse* was at the Barbican Centre, a Brutalist venue in this capital. This city's Symphony Orchestra shares the Barbican with the Royal Shakespeare Company.

ANSWER: **London**

<Michael Bentley, Fine Arts - Miscellaneous> ~21142~ <Editor: Young Lee>

5. A new free trade area on this continent aims to increase intra-continental trade from 14.5 percent to the European level of 72 percent. For 10 points each:

[10e] Name this continent whose free trade Declaration is named for the city of Kigali.

ANSWER: **Africa** [accept the **African** Continental Free Trade Area]

[10m] This small country is the only African Union member not in the African Continental Free Trade Area. In 2021, Isaias Afwerki announced this country was withdrawing troops from the Tigray Region of a nation to its south.

ANSWER: **Eritrea** [or State of **Eritrea**]

[10h] Since women conduct around 70 percent of cross-border trade, they benefit from the expansion of these agreements like the East African Community. In these agreements, countries agree on one single tariff outside the agreement and eliminate tariffs within.

ANSWER: **customs union** [prompt on trade bloc or trade pacts; prompt on a free trade area]

<Michael Bentley, Current Events - World> ~17897~ <Editor: Michael Bentley>

6. Starting in the 1960s, Katarina Taikon campaigned for the rights of these people in Sweden. For 10 points each:

[10h] Identify these people, who refer to those outside of their community as *gadje* ("gah-jay"). The Nazis persecuted these people through a campaign called the *Porajmos* ("poe-RYE-moes").

ANSWER: **Roma** [or **Romani**; or **Romany**; prompt Gypsies and politely remind that the term is a slur]

[10e] Hundreds of thousands of Roma immigrated to this country in the 19th century. Portugal's monarch relocated to this New World country during the Napoleonic Wars.

ANSWER: **Brazil** [or Federative Republic of **Brazil**]

[10m] Brazil's first president of Roma heritage, Juscelino Kubitschek ("zhoo-say-lee-noo koo-bee-check") invested heavily in this industry, especially in São Bernardo do Campo. In 1928, an American leader in this industry founded an American-style town in the state of Pará to obtain rubber.

ANSWER: **automobile industry** [or **car** industry; or **motor** industry; or **automotive** industry; prompt on transportation] (The American was Henry Ford.)

<Michael Bentley, History - Cross, Historiography, and Miscellaneous> ~18181~ <Editor: Michael Bentley>



7. Answer the following about components of bacterial culture media, for 10 points each.

[10m] The most common medium is a mixture of agar and a broth named for this stage of a virus's life cycle. During this phase, a virus lies dormant inside the host genome.

ANSWER: **lysogeny** [or **lysogenic** phase; or **lysogenic** cycle; or **lysogeny** broth; prompt on **LB**]

[10e] "Chocolate agar" supplements lysogeny broth with a lysate from these human cells, which provide the bacteria some tasty hemoglobin to feast on.

ANSWER: **red blood** cells [or **RBCs**; or **erythrocytes**]

[10h] To select for Gram-negative bacteria, add methylene blue and this pink acidic dye to the broth. A class of white blood cells is named for this dye, which is combined with hematoxylin in the most common tissue stain.

ANSWER: **eosin** Y [or **eosinophils**; prompt on **H & E** stain]

<Andrew Wang, Science - Biology> ~19281~ <Editor: Adam Silverman>

8. In a 1598 play named after these concepts, the elderly Knowell sends his servant Brainworm to spy on his son Edward, before the characters are tried by Judge Clement. For 10 points each:

[10h] Name these concepts that name a genre of play that, along with comedies of manners, dominated the Restoration Era.

ANSWER: **humors** [accept comedy of **humors**]

[10e] This playwright of *Volpone* followed up the comedy of humors *Every Man in His Humor* with *Every Man Out of His Humor*.

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

[10m] This author pioneered humors comedy in *The Blind Beggar of Alexandria* and *An Humorous Day's Mirth*. The speaker of a John Keats poem feels like a "watcher of the skies" after reading this author's English translation of Homer.

ANSWER: George **Chapman** [accept "On Looking Into **Chapman**'s Homer"]

<Jaimie Carlson, Literature - British - Drama> ~21138~ <Editor: Jaimie Carlson>

9. By the 1700s, this system had been replaced by *repartimiento* in which Indigenous Americans participated in tribute labor. For 10 points each:

[10m] Name this system of Indigenous slavery under Spanish landowners in the Americas. Bartolomé de las Casas debated against this system at the Valladolid ("vah-yah-doh-LEED") debate.

ANSWER: **encomienda**

[10h] Hatuey and Enriquillo, who revolted against the encomienda, were holders of this title. This Taíno word for "chieftain" was later broadly applied by the Spanish to leaders like Tupac Amaru II.

ANSWER: **cacique** ("ka-SEE-kay") [or **cacica**; or **kasike**; accept **kuraka**]

[10e] This king's daughters Isabel and Leonor were among the Indigenous people who were granted encomiendas. This king of the Aztec Empire encountered Hernán Cortés.

ANSWER: **Moctezuma** II [or **Montezuma** II; or **Moctezuma** Xocoyotzin]

<Ganon Evans, History - World - Latin American> ~21051~ <Editor: Jordan Brownstein>

10. In 2022, anti-government protestors in Iran knocked off black turbans indicating this status to scholars. For 10 points each:

[10h] Name this status designated by the terms Sayyid (“**sigh-eed**”) and Sharīf, whose broadest definition is connected to the Banū Hāshim.

ANSWER: **descendants** of **Muhammad** [or **Ahl al-Bayt**; accept descriptions of a person being **related** to **Muhammad**; accept **Muhammad**’s **bloodline**; accept **Muhammad**’s **family**; prompt on descendants of **Ali** or **Husayn** or **Hasan** with “With what person does the descent typically start from?”]

[10m] Iranians with the surname Moosavi or Razavi claim descent from two of these people. The largest community of Shi’a’s believe that the Mahdi is the last of a series of these people beginning with Ali and who can rule over sharia law.

ANSWER: **imams** [accept the Twelve **Imams**; prompt on **Twelvers**]

[10e] In the Ottoman Empire, *teseyyüd* were people who claimed to be Sayyid for exemptions from one of these policies. The Quran outlined one of these policies called the jizya so non-Muslims could pay for their protection in a caliphate.

ANSWER: **taxes** [accept **taxation**; accept **tribute**]

<Ganon Evans, RMP - Islam> ~20169~ <Editor: Athena Kern>

11. Modern 3D printers directly extrude filaments of these materials, which is much safer than the old method of shining light through a vat of toxic resin. For 10 points each:

[10e] Name this general class of materials used in 3D printers and formed from subunits called monomers.

ANSWER: **polymers**

[10h] Polymers like poly-lactic acid that can be extruded through a 3D printer’s nozzle must have this property, which means that they flow like liquids at high temperatures but solidify when cooled.

ANSWER: **thermoplastic** [prompt on **plastic**]

[10m] Photo-lithography instead used thermo-set polymers, which are hardened by forming these covalent bonds that connect polymer chains. Vulcanization forms these bonds in rubber.

ANSWER: **cross-links** [or **cross-linking**; prompt on **link**]

<Ganon Evans, Science - Chemistry> ~20545~ <Editor: Adam Silverman>

12. The motif (**read slowly**) “B-flat, long E-flat, short D, B-flat” represents one of these locations whose destruction is represented by a descending passage leading into the second movement of an orchestral piece. For 10 points each:

[10h] Name these locations, one of which titles an opera whose minor second motif represents blood as a character opens a series of doors.

ANSWER: **castles** [accept *Duke Bluebeard’s* **Castle**; accept **hrad** or **Vyšehrad**] (The opera is *Duke Bluebeard’s Castle*.)

[10m] The castle of Vyšehrad (“**VEE-shuh-hrat**”) and Vltava river are depicted in this Czech composer’s collection *Ma vlast*. He composed the opera *The Bartered Bride*.

ANSWER: Bedřich **Smetana**

[10e] Smetana’s *From My Life* uses assonant high E’s to represent this condition. Carolina Unger apocryphally had to turn Beethoven around after he conducted his Ninth Symphony because he had recently developed this condition.

ANSWER: **deafness** [accept word forms such as being **deaf**; accept **tinnitus**; accept **hearing loss** or word forms such as the **loss** of **hearing**]

<Ganon Evans, Fine Arts - Music - Romantic> ~20886~ <Editor: Young Lee>

13. A common Russian joke went, “Stalin proved that just one person could manage the country. [This man] proved that a country doesn’t need to be managed at all.” For 10 points each:

[10m] Name this long-ruling Soviet leader who sent tanks to quash reforms undertaken by Alexander Dubček.  
ANSWER: Leonid **Brezhnev** [or Leonid Ilich **Brezhnev**]

[10e] The Brezhnev Doctrine, which affirmed the Soviet Union’s right to intervene in favor of Communist governments, was first applied following this 1968 period of liberalization in Czechoslovakia.

ANSWER: **Prague Spring** [or **Pražské jaro** or **Pražská jar**]

[10h] One sign of Brezhnev’s declining health was his insistence of conducting this song at a party congress in Poland. The title of this song, written by anarchist Eugene Pottier, derives from an 1864 meeting in Paris.

ANSWER: “The **Internationale**” [or “**L’Internationale**”]

<Michael Bentley, History - European - 1900+> ~20896~ <Editor: Michael Bentley>

14. Four recurring journalists in this series discuss the title bank’s insider trading in the story “The House of Nucingen (“**NOO-san-ZHAHN**”).” For 10 points each:

[10m] Name this series that includes many short stories categorized as “Scenes of Parisian Life,” as well as the 1835 novel *Père Goriot* (“pair GOH-ree-oh”).

ANSWER: *The **Human Comedy*** [or *La **Comédie humaine***]

[10e] This hyperproductive 19th-century French author was supposedly fueled by 50 cups of coffee a day while writing the many short stories in his *Human Comedy*.

ANSWER: Honoré de **Balzac** (“on-aw-RAY duh BOLL-zack”)

[10h] The journalists in Balzac’s story “The House of Nucingen” discuss the source of this social-climbing character’s wealth. He first appears in the *Human Comedy* as an ambitious law student.

ANSWER: **Eugène de Rastignac** (“yoo-ZHEHN duh RASS-tin-YAK”) [accept either underlined]

<Joseph Krol, Literature - European - Short Fiction> ~20167~ <Editor: Joseph Krol>

15. This adjective describes a quantity defined as “g minus two over two” that measures the effect of quantum mechanical phenomena on electrons’ magnetic moments. For 10 points each:

[10h] Give this adjective that also names a form of the Zeeman effect in which non-zero net spin causes the appearance of alternate splitting patterns.

ANSWER: **anomalous** [accept **anomalous** magnetic moment or **anomalous** magnetic dipole moment or **anomalous** Zeeman effect]

[10m] The perturbation of an atom’s Hamiltonian due to the Zeeman effect equals this scientist’s namesake “magneton” times  $B m\text{-sub-}j g\text{-sub-}j$ . This scientist developed the correspondence principle.

ANSWER: Niels **Bohr** [or Niels Henrik David **Bohr**; accept **Bohr** magneton]

[10e] In that equation,  $m\text{-sub-}j$  is the  $z$ -component of the atom’s value for this quantity. This quantity is the rotational analog of linear momentum.

ANSWER: **angular momentum** [prompt on **L**]

<Benjamin Chapman, Science - Physics> ~21070~ <Editor: David Bass>

16. George A. Crofutt published a guide for how to use this infrastructure project to see America’s attractions. For 10 points each:

[10e] Name this massive infrastructure project completed with a Golden Spike at Promontory Summit. This project connected Sacramento to Omaha and, eventually, the rest of the country.

ANSWER: First **Transcontinental Railroad** [or **Union Pacific Railroad**]

[10m] The later Southern Pacific transcontinental railroad was made possible by this 1854 treaty which mostly settled the United States’ current border with Mexico.

ANSWER: **Gadsden** Purchase [or Treaty of **Mesilla**; or The Sale of La **Mesilla**]

[10h] The Great Northern Railway connected Seattle to this capital city. This city was once known as Pig’s Eye and more recently is home to the Hmong Archives.

ANSWER: **Saint Paul**, Minnesota [reject “Minneapolis”]

<Michael Bentley, History - American - 1865-1945> ~20868~ <Editor: Michael Bentley>

17. Answer the following about the art collection of Andrew Lloyd Webber, for 10 points each.

[10m] Webber owns over 40 works by Edward Burne-Jones, one of the leading members of this British art movement. Its other artists included John Everett Millais, who painted a drowning *Ophelia*.

ANSWER: **Pre-Raphaelite Brotherhood** [or **PRB**]

[10e] Webber's foundation owns a *vedute* ("veh-doo-tay") of *Old Horse Guards* by Canaletto, an artist from this city famed for his paintings of its canals.

ANSWER: **Venice** [or **Venezia**; or **Venetian** Republic]

[10h] Webber claims he had a chance to buy Frederic Leighton's *Flaming June* as a kid for fifty quid. The painting is now in Puerto Rico but was loaned to this New York museum in 2015, which contains Rembrandt's *Polish Rider* and occupies its steel tycoon founder's mansion.

ANSWER: **Frick** Collection [accept **Frick** Madison]

<Michael Bentley, Fine Arts - Painting - Misc> ~20469~ <Editor: Chandler West>

18. Random House shelved Sanora Babb's book *Whose Names Are Unknown* due to its similarity to this other novel, but Babb's book was released 65 years later in 2004. For 10 points each:

[10m] Name this novel, whose last chapter depicts a woman who gave birth to a stillborn baby breastfeeding a grown man on the brink of starvation.

ANSWER: *The **Grapes of Wrath***

[10e] Babb criticized this author's novel *The Grapes of Wrath* for not being as "realistic" as hers.

ANSWER: John **Steinbeck**

[10h] A 2020 Jeanine Cummins novel titled for dirt preceded by this adjective was controversially compared to *The Grapes of Wrath*. This adjective is the first title word of a Stephen Vincent Benet poem that ends with the line "Bury my heart at wounded knee."

ANSWER: **American** [or **American Dirt**; or "**American** Names"]

<Ganon Evans, Literature - American - Long Fiction> ~20826~ <Editor: Chandler West>

19. Robert Wanko pulled out one of these guns to protect Ronald Reagan during John Hinckley's assassination attempt. For 10 points each:

[10m] Name this submachine gun with a notable telescoping bolt, the first standard-issue weapon of the IDF.

ANSWER: **Uzi** [accept the Mini **Uzi** or the **Micro** Uzi]

[10e] Uzis have wire examples of these parts that press against the shoulder. The 2017 Las Vegas shooting led to bans on "bump" types of these parts that enabled high fire rates on semi-automatic rifles.

ANSWER: **stocks** [accept folding **stocks**; accept bump **stocks**]

[10h] The Uzi is still a standard weapon on these things owned by the Israeli company ZIM. Mercenaries in PMSCs defend these things, which are often fitted with water cannons to deter attacks concentrated today near the Guadarfuni Channel.

ANSWER: **cargo ships** [accept **freighters**; accept oil **tankers**; prompt on **ships**]

<Ganon Evans, Other - Other Academic and General Knowledge> ~20011~ <Editor: Ganon Evans>

20. People of this ethnicity may fly flags with five concentric squares, and consider cats unlucky because “meow” is spelled similarly to their word for “poor.” For 10 points each:

[10h] Name this ethnicity of an emperor who discovered a shining sword called Heaven’s Will, won independence, then threw the sword to a gigantic turtle so it could return to the Dragon King.

ANSWER: **Vietnamese** [or **Viet**; accept **Kinh**] (“Meow” is similar to “ngheo” in Vietnamese. The emperor is Lê Lợi.)

[10e] Vietnamese families place mirrors away from front doors and cover bathroom doors with paintings as part of this East Asian tradition of arranging the home to balance the flow of *qi*.

ANSWER: **feng shui** [or **phong thủy**, **huang chui**, **pungsu**, **fūsui**, **hūsui**, **punsóy**, or **hongsaouy**]

[10m] On this holiday, Vietnamese refuse to clean the home so as to not “sweep out” good luck. A bamboo pole called a *cây nêu* is adorned with good luck charms, and children receive red envelopes with money, during this Vietnamese New Year celebration.

ANSWER: **Tết** [or **Tết** Nguyễn Đán; prompt on **New Year** or **Lunar New Year**; do not accept or prompt on **Tết Trung Thu**]

<Ganon Evans, RMP - World Mythology> ~20814~ <Editor: Jaimie Carlson>

21. A 2021 paper from Peng Wang et al. suggests that these objects rotate. For 10 points each:

[10h] Name these enormous cosmological structures exemplified by the Pisces–Cetus Supercluster Complex and the Hercules–Corona Borealis Great Wall.

ANSWER: galactic **filaments** [or galaxy **filaments** or cosmic **filaments**]

[10m] The existence of structures as large as galactic filaments challenges the cosmological principle’s claim that the universe is isotropic and has this property. The CMB cold spot is a counterexample to this property for the temperature of the universe.

ANSWER: **homogeneous** [or **homogeneity**]

[10e] The size of galactic filaments can be expressed in megaparsecs, which are a unit for this quantity that can also be measured in astronomical units.

ANSWER: **length** [or **distance**]

<David Bass, Science - Astronomy> ~21310~ <Editor: David Bass>