

2023 IQBT Undergraduate Championship

Questions written by: Mike Cheyne, Erik Christensen, Kurtis Droge, Joseph Krol, James Lasker, Leo Law, Jonathan Magin, Ben Miller, Matt Weiner, and Chandler West

Questions edited by: Will Alston, Matt Bollinger, Emmett Laurie, John Lawrence, Evan Lynch, Eric Mukherjee, and Ryan Rosenberg

Round 3 – Tossups

1. **PVDC and aluminum are used in tandem by Stelvin as an alternative to this material. Production of tri-bromo- and tri-chloro-anisole, often by fungi, causes a “taint” named for this material. This material is generally harvested once every nine years, provided there is no damage to phellogen, a cambium which is also named for this material. The Poisson’s (“pwah-SAHN’s”) ratio of this material is approximately zero, and its primary constituent is suberin (“SOO-buh-rin”). Whilst writing *Micrographia*, Robert (*) Hooke first used the word “cell” to describe honeycomb-like cavities in this material. Rings of this material are commonly used in laboratories as stands for round-bottom flasks. For 10 points, name this buoyant material historically used to stop wine bottles.**

ANSWER: cork [prompt on bark with “what material is made from the bark?”]

2. **A governor of this colony began the process of giving brass breastplates to indigenous leaders like Bungaree and Cora Gooseberry. Forger William Henshall punched holes in Spanish coins to create this colony’s first currency, the holey dollar. In this colony, settlement was limited to the Nineteen Counties until the Robertson Land Act, which challenged its “squattocracy.” The forfeiture of a bond on the schooner *Parramatta* triggered a rebellion in this colony led by (*) George Johnston and John Macarthur, which led to the appointment of Lachlan Macquarie (“LACK-lun mac-KWAH-ree”) as Governor. Arthur Philip led the First Fleet to this colony, where the Rum Rebellion overthrew Governor William Bligh. For 10 points, name this colony which shares its name with the Australian state which contains Sydney.**

ANSWER: New South Wales [prompt on Australia or British Australia]

3. **An offshoot named for these symbols was founded by Samuel Mathers after his expulsion from the Hermetic Order of the Golden Dawn. *The Promised Key* says “the paymasters of the world” are a King and Queen named for these symbols. In one text, these symbols are listed immediately before ordering the addressee to write what he sees and send it to the seven churches in Asia. In western Christianity, a Paschal (“PASS-kul”) candle is inscribed with these symbols above and below the (*) cross, and is lit every year on Easter. These symbols appear on either side of the Chi Rho (“kye roh”) in the Chrismon of St Ambrose. The earliest versions of one text omit God repeating these symbols to John of Patmos in verse 1:11 (“one eleven”). For 10 points, in Revelation 1:8 (“chapter one, verse eight”), God states “I am” what two Greek letters, representing the beginning and the end?**

ANSWER: Alpha and Omega [accept in either order; prompt on partial answer; prompt on letters or Greek letters]

4. In a story by this author, a girl calls an old man a “Whore of Babylon” leading him to reply, “A whore is a woman! [...] That’s how much you know!” A girl created by this author is horrified when a man reveals his plan to sell off the lawn where her father grazes his calves. That girl created by this author defiantly declares that she’s “pure PITTS” after beating her grandfather, leading him to fatally bash her head against a rock, before suffering a heart attack. In another story by this author of “A (*) View of the Woods,” a woman says “Why you’re one of my babies. You’re one of my own children!” before touching an escaped convict who shoots her three times in the chest. For 10 points, The Grandmother is killed by The Misfit in what author’s short story “A Good Man Is Hard to Find”?

ANSWER: Flannery O’Connor [or Mary Flannery O’Connor]

5. The book *Braiding Sweetgrass* uses these creatures as a metaphor for those who have become greedy due to exclusion from the “web of reciprocity.” In one story, one of these creatures carries a thin boy and repeatedly cuts his hand. These creatures are said to dwell in a cave near the city of Kenora and to have killed the family of Swift Runner. Jack Fiddler killed family members in order to defeat these creatures. They are commonly depicted with blue tongues, yellow (*) fangs, and antlers. Insatiable hunger characterizes a condition named for these creatures, sometimes described as a culture-bound syndrome of Algonquian peoples. A cannibalism-inducing “psychosis” is named after, for 10 points, what monsters from northern Native American tradition?

ANSWER: wendigos [or wiitigo or widjigo or wihtikow or wetikow or wentiko or windgo or wintsigo; accept wendigo psychosis]

6. This thinker argued that blackness’s aesthetic power comes from being “partial darkness” contrasted with color, in a work that divides the most powerful passions in the human mind into those of self-preservation and those of society. Before writing a work titled for women, Mary Wollstonecraft made this thinker the primary target of her *A Vindication of the Rights of Men*. This thinker touted the superiority of educated “prejudice” over “naked reason” in a work that begins by lengthily criticizing a discourse by Richard (*) Price. This thinker preceded Kant in being the first to treat the beautiful and the sublime as opposites. For 10 points, fond personal recollections of seeing Marie Antoinette before she died appear in what conservative Irish author’s *Reflections on the Revolution in France*?

ANSWER: Edmund Burke

7. This poem’s prologue recalls the “glitter and din of balls,” where goblets overflowed with foam and punch bowls burned with a blue flame. This poem’s three-part structure is compared to sonata form in John Dewey’s comments on his own translation. The author’s foreword to this poem says that it was inspired by an account by V. N. Berkh. In this poem’s prologue, the protagonist imagines striking fear into the heart of the Swede and building a citadel that will act as a (*) “window on Europe.” This poem’s protagonist later sits astride a pair of marble lion statues to escape a phenomenon that destroys Parasha’s house. Yevgeny (“YIV gen-y”) goes insane during a historic flood of the Neva (“nee-yeh-vah”) River in, for 10 points, what Alexander Pushkin poem titled for a statue of Peter the Great?

ANSWER: “The Bronze Horseman” [or “The Bronze Horseman: A Petersburg Tale” or “Mednyy vsadnik” (“myehd-nee vuh-sahd-neek”)]

8. Pribham et al. found that lesions to this structure in rhesus monkeys caused a fall to the bottom of the social hierarchy. This structure is divided into central, baso-lateral, and centro-medial nuclei, all of which have a role in valence assignment. Subjects with damage to this structure or the prefrontal cortex had blunted anticipatory skin conduction responses in the Iowa Gambling Task. Damage to this structure causes compulsive eating and hypersexuality in Klüver–Bucy (“KLOO-ver–BEW-see”) syndrome. Daniel Goldman posited that overwhelming response to (*) stress is due to “hijack” of this structure. This structure, like the hippocampus, thalamus, and cingulate gyrus, is part of the limbic system. For 10 points, name this brain structure responsible for aggression and fear responses, whose name is Latin for “almond.”

ANSWER: amygdala (“uh-MIG-duh-luh”) [prompt on brain, temporal lobe or limbic system]

9. Michael Livingstone’s book about this battle “of five kings” questioned this battle’s location, from which its winning commander supposedly sat in a windmill, locating it instead alongside the Hesdin road. This battle began with a group of mercenaries advancing without their protective pavises (“PAH-visses”). At this battle, a prince legendarily adopted a crest of three feathers and the motto “Ich dien” (“ick deen”) from a fallen opponent. This battle occurred two days after one at a ford in (*) Blanchetaque (“blansh-TACK”). Jaume III (“zhom the third”) of Mallorca and the blind King John of Bohemia were among the losing commanders at this battle. The victors at this battle proceeded to besiege the nearby port of Calais (“kuh-LAY”). For 10 points, English longbowmen triumphed over larger French forces at which battle, a victory for Edward III (“the third”) over Philip VI (“the sixth”)?

ANSWER: Battle of Crécy (“kray-SEE”)

10. In a two-part painting from this country, the same hunter waves decoy birds on the left and fishes for erotically suggestive tilapias on the right. The hunter’s pose in that painting references this country’s typical “smiting” scene. Products from this country were used to create a namesake “brown” pigment that a horrified Edward Burne-Jones buried in his garden. The world’s oldest surviving panel paintings are strikingly lifelike (*) funerary portraits from this country. The Neues (“NOY-uss”) Museum in Berlin houses a sculpture from this country of a crowned woman with a right pupil of painted quartz. A catfish and chisel appear at the top of a cosmetic palette found in this home of the Fayyum portraits. For 10 points, name this country whose ancient art includes the Narmer Palette and the Bust of Nefertiti.

ANSWER: Arab Republic of Egypt [or Misr]

11. On his eightieth birthday, this author wrote that the ruins of the West “strewn like a vast heap of futility” would not make him “commit the grievous sin of losing faith in Man.” This author described the “blood-red clouds of the West” in a poem from a book of lectures on nationalism “in Japan,” “in the West,” and in his own country. A poem by this author envisions a place where “the clear stream of reason has not lost its way” as the (*) “heaven of freedom.” Another poem by him addresses “the ruler of the minds of all people” as the “dispenser of [...] destiny.” A poem by this author of “Where the mind is without fear” became his country’s national anthem. For 10 points, the line “Thou hast made me endless, such is thy pleasure” was written by what author of “Jana Gana Mana” (“JUH-nuh GUH-nuh MUH-nuh”) and *Gitanjali* (“ghee-TAHN-juh-lee”)?

ANSWER: Rabindranath Tagore

12. At a newspaper in this city, Jay Jackson refashioned Bungleton Green into a superhero for a strip about the Mystic Commandos. This city's "Inter Ocean" paper was bought by Charles Yerkes during his fight to control its streetcars. In this city, Finley Peter Dunne created the Irish bartender Mr. Dooley. A newspaper publisher founded the Bud Billiken Parade in this city, where Dean O'Banion participated in the Circulation Wars. In this city, newspaper editor Arch Ward created the MLB All-Star Game for the (*) Century of Progress Exposition. The McCormick family established a media conglomerate in this city. Robert Sengstacke Abbott founded this city's "Defender" to promote the Great Migration. For 10 points, the headline "Dewey Defeats Truman" was published by what city's *Tribune*?

ANSWER: Chicago, Illinois

13. A composer with this first name wrote a treatise in which Master Gnorimus teaches music to brothers Poly-mathes and Philo-mathes. An organist with this first name compiled a book of 121 keyboard pieces, most of which are based on Catholic liturgical music, called *The Mulliner Book*. A composer with this first name wrote the most popular setting of "In ieiunio et fletu" ("yay-YOO-nee-oh et FLEH-too") and included pieces nicknamed his canon, his ordinal, and the "third (*) mode melody" in a psalter written for Archbishop Matthew Parker. That composer with this first name and his student were granted a 21-year monopoly on polyphonic music by Elizabeth I ("the first"). For 10 points, give the first name of that composer who taught William Byrd, wrote the 40-voice motet *Spem in alium* ("AH-lee-um"), and had the last name Tallis.

ANSWER: Thomas [accept Thomas Morley; accept Thomas Mulliner; accept Thomas Tallis]

14. This is the *second* word in a situation that is described as a product of anarchy in a Robert Jervis paper titled for "cooperation" under it. This noun appears in the name of a situation in international relations, in which a security-increasing action taken by one state causes other states to increase their security, making the original state less secure. This is the second word in a situation that was studied in a computer tournament where professors were solicited to enter programs by (*) Robert Axelrod. This is the second word of a situation whose iterated version can feature "tit-for-tat" strategy, and which Thomas Schelling analogized to the Cold War arms race. For 10 points, what noun is used in the name of a situation in game theory in which players must choose to cooperate or defect with jailers?

ANSWER: dilemma [accept security dilemma or prisoner's dilemma]

15. Activation of the Ohira–Bestmann reagent forms an alkylidene carbene that reacts with this functional group to form alkynes in the Seyferth–Gilbert homologation. Phosphonate carbanions react with this functional group to generate alkenes ("al-keens") in the Horner–Wadsworth–Emmons reaction. This functional group can be removed by reaction with a di-thiol ("DYE-thigh-ol") and Raney ("rainy") nickel, or through reaction with hydrazine ("HY-druh-zeen"), in the Mozingo and (*) Wolff–Kishner reductions respectively. Adding two equivalents of alcohol to this functional group in the presence of acid generates an acetal ("ASS-uh-TAL"). Nucleophilic addition of hydride ("HY-dryde") reduces this functional group to an alcohol. For 10 points, name this functional group common to both aldehydes and ketones ("KEE-tones"), a carbon atom double-bonded to an oxygen.

ANSWER: carbonyl ("kar-BAH-nill") [prompt on "aldehydes" or "ketones" with "What general functional group is present in those?"; prompt on "C-O double bond" or "C-double-O bond" before "double-bonded"; reject "carboxyl"]

16. Policymakers seeking to increase this variable often study a “speed premium” introduced in Sweden and a “code” introduced in France in July 1939. Increasing this variable is the main reason that Hungary introduced the CSOK subsidy in 2015 and a lifetime income tax exemption for some individuals in 2019. Its deliberate lowering in another country created the “4-2-1” problem. A collapse in this variable produces an (*) “inverted pyramid” structure over time and occurs in stages 3 and 4 of a classic demographic transition. In South Korea, this variable is the lowest in the world at about 0.8, well below the value of 2.1 needed to reach “replacement level.” Pro-natalist policies seek to increase, for 10 points, what variable which was once restricted in China by the one-child policy?

ANSWER: **fertility** rates [or **birth** rates; accept **TFR** or total **fertility** rate; accept **family size**; accept answers indicating the number of **children** such as “number of **children** per woman” before “one child” and prompt after]

17. A region of this country was subject to martial law after a 1958 uprising led by Sellam Amezian, which had demands like the return of a rebel leader who had pioneered tunneling techniques during an earlier conflict. A ruler of this country used a secret prison called Tazmamart. Dámaso Berenguer (“DAH-muh-soh beh-ren-GAIR”) dropped mustard gas onto civilians in this country after his army was routed at the Battle of (*) Annual (“an-WAL”). The combined forces of Spain and France landed in this country at Alhucemas (“ah-loo-SAY-muss”) during a war in which Spain was led by Miguel Primo de Rivera. This country’s ‘Alawi (“ah-lah-WEE”) Dynasty included Hassan II (“the second”) and Mohammed VI (“the sixth”). For 10 points, Abd el-Krim established a republic in what country’s Rif Mountains during an unsuccessful Berber rebellion?

ANSWER: Kingdom of **Morocco**

18. In the opening of a play, a character calls one of these objects “my study’s ornament” that once contained “two heaven-pointed diamonds,” in a speech that begins by condemning a “royal lecher” and “gray-haired adultery.” While addressing one of these objects, a character in another play says, “Now get you to my lady’s chamber, and tell her, let her paint an inch thick, to this favour she must come.” The Duke dies after being tricked by Vindice (“vin-DEE-chay”) into kissing a poisoned one of these objects in *The* (*) *Revenger’s Tragedy*. While holding one of these objects, a character asks its owner “Where be your gibes now? Your gambols” and calls him “a fellow of infinite jest.” For 10 points, name this object that Hamlet holds while saying “Alas, poor Yorick! I knew him” in the gravediggers’ scene.

ANSWER: **skull** [prompt on **bones**, **skeleton**, or **head**]

19. A quantity representing this force is squared in the formula that defines the Oswald efficiency number. It’s not electromagnetism, but a variant of the Biot–Savart (“bee-YOH-suh-VAR”) law is applied to a “horseshoe” configuration in deriving a theory named for this force’s “line,” which was independently developed by Frederick Lanchester and Ludwig Prandtl. In unseparated and steady conditions, this force per unit length equals the quantity “density-at-infinity times velocity-at-infinity times (*) circulation,” per the Kutta–Joukowski (“zhoo-KOFF-skee”) theorem. This force is generated by a difference between upper and lower camber, though not for the commonly-cited reason of “equal transit time.” This force’s magnitude suddenly decreases above a critical angle of attack during a stall. For 10 points, airfoils generate what force that acts in the opposite direction to gravity on an airplane in flight?

ANSWER: (aerodynamic) **lift** [accept **lifting**-line theory or **lift** coefficient]

20. Decades apart, Renata Scotto made her singing and directorial debuts at the Met with this opera, whose lead role she recorded twice with John Barbirolli and Lorin Maazel. Since 2006, the Met has used a production of this opera that controversially replaces one character with a puppet and that was directed by Anthony Minghella. A wedding in this opera is interrupted by a man who curses his niece for converting to Christianity. A character sings the aria (*) “Con onor muore (“KAWN oh-NAWR MWOH-ray”)” after reading the inscription on her father’s knife in this opera, whose male lead is represented by the melody of “The Star-Spangled Banner.” The title character sings of when Pinkerton’s ship will arrive, in the aria “Un bel dì, vedremo” in,

for 10 points, what Puccini opera titled for the Japanese girl Cio-Cio (“cho-cho”) San?

ANSWER: Madama Butterfly [or Madame Butterfly; reject “M. Butterfly”]

Round 2 – Bonuses

1. Journal entries about caring for a woman with this disease form the “Now” chapter of a memoir titled *Elegy for the author’s wife*. For 10 points each:

[10h] Name this disease. That woman’s last year with this disease was chronicled by her husband in a book titled for her *and the Friends*. After her death from this disease, her husband wrote *Widower’s House*.

ANSWER: **Alzheimer’s** disease [prompt on **dementia**]

[10m] Those books were written by John Bayley about this British novelist and moral philosopher. Her novels include *The Sea*, *The Sea* and *The Bell*.

ANSWER: Iris **Murdoch** [or Jean Iris **Murdoch**]

[10e] Grant cares for Fiona as she lives with Alzheimer’s in “The Bear Came Over the Mountain,” a story by this prolific Canadian short story writer, who wrote the collection *The Moons of Jupiter* and won a Nobel in 2013.

ANSWER: Alice **Munro** [or Alice Ann **Laidlaw**]

2. In a text named for this figure, he lists the four core tenets of Islam as: the five pillars, the six articles, the hour, and *ihsan*. For 10 points each:

[10m] Name this being that commanded another figure three times to “read.”

ANSWER: **Jibril** [or **Gabriel**]

[10e] Jibril appeared to this prophet of Islam in a cave on Mount Hira, an event celebrated on Laylat al-Qadr.

ANSWER: **Muhammad** [or Abū al-Qāsim **Muhammad** ibn ‘Abd Allāh ibn ‘Abd al-Muṭṭalib ibn Hāshim]

[10h] Jibril and one thousand of his compatriots appeared and fought for the victorious Muslims at this first large battle between Muhammad’s forces and the Quraysh. Abu Jahl was killed after this battle.

ANSWER: Battle of **Badr** [or **Yawm al-Furqan** or The **Day of the Criterion**]

3. This dynasty’s founder, Wéndì, built a city with two walled markets, an Eastern Market for domestic goods and a Western Market for foreign goods, which served as the eastern terminus of the Silk Road. For 10 points each:

[10m] Name this dynasty, which built its capital Dàxīng on the site of Cháng’ān. This Dynasty began construction on the Grand Canal.

ANSWER: **Suí** dynasty

[10e] The Grand Canal links the Yellow River with this largest Chinese river, which is dammed by the Three Gorges Dam.

ANSWER: **Yangtze** River [or **Yangzi** River; or **Cháng Jiāng**]

[10h] The Suí southern capital was this city, whose location on the Grand Canal made it the center of the salt trade during the Míng era. Marco Polo claimed to have held a government post in this city.

ANSWER: **Yángzhōu** shì [or **Yangchow**; or **Jiāngníng qū**]

4. This tuber must be carefully prepared to eliminate its high hydrogen cyanide content. For 10 points each:

[10m] Name this tuber, which is ground to make a flour called *garri* and is mashed with plantain or cocoyam to produce a dough called *fufu*.

ANSWER: **cassava** (“kuh-SAH-vuh”) [or **manioc**; or **yuca**; or **mandioca**; or **guacamota**; or **aipim**]

[10e] This is the standard term in English for cassava starch. Its namesake “pearls” are used to make a common North American pudding and the boba in bubble tea.

ANSWER: **tapioca**

[10h] A couscous (“kooss-kooss”)-like side dish made from grated cassava is called *attiéké* (“ah-chay-KAY”) in this country, the world’s largest exporter of cacao. A poultry stew called *kedjenou* (“kuh-juh-NOO”) is the national dish of this country, which like Burkina Faso, refers to fried plantains as *allico* (“ah-loh-KOH”).

ANSWER: Republic of **Côte d’Ivoire** (“coat dee-VWAR”) [or **Ivory Coast**]

5. Isidor Rabi used a version of this experiment to force a state transition using a time-varying field, leading to the discovery of his namesake oscillation. For 10 points each:

[10m] Name this experiment in which an inhomogeneous magnetic field separated a beam of silver atoms.

ANSWER: **Stern–Gerlach** (“GAIR-lock”) experiment

[10e] The Stern–Gerlach experiment proved that atomic nuclei have this property, for which fermions (“FER-mee-ons”) have half-integer values and bosons (“BOH-zons”) have integer values.

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

[10h] Cascading Stern–Gerlach experiments can be analyzed using these constructs, which are used to represent two-level quantum systems. Antipodal (“ann-TIP-uh-dull”) points on this construct are orthogonal state vectors.

ANSWER: **Block** (“block”) **sphere** [prompt on partial answer]

6. This poem recasts Ariel’s song from *The Tempest* as “Deep in the festering hold thy father lies, / of his bones New England pews are made, / those are altar lights that were his eyes.” For 10 points each:

[10h] Name this poem by Robert Hayden about the Atlantic slave trade, titled for something described as the “voyage through death / to life upon these shores.”

ANSWER: **Middle Passage**

[10e] Hayden wrote a poem about his father in wintertime partly titled for this day of the week. Wallace Stevens described “casual flocks of pigeons” making “Ambiguous undulations” in a poem titled “[This day] Morning.”

ANSWER: **Sunday** [accept “Those Winter **Sundays**” or “**Sunday** Morning”]

[10m] Hayden’s poem titled for this man imagines him remembered not with “legends or poems” or “bronze,” “but with the lives grown out of his life.” This writer’s memoirs relate how he once worked as a caulker in a Baltimore shipyard and how he stood up to Edward Covey.

ANSWER: Frederick **Douglass**

7. In the Fujiwhara effect, two of these weather events orbit around each other. For 10 points each:

[10e] Name these weather events which contain a low-pressure center and a spiral of surrounding thunderstorms. They only rarely occur in the South Atlantic Ocean.

ANSWER: **hurricane** [or **typhoon**, **cyclone**, tropical **cyclone**, **tropical storm**, **cyclonic storm**, **tropical depression**; reject “tornado”]

[10m] This scale rates hurricanes from 1 to 5 solely based on one-minute maximum sustained wind speeds.

ANSWER: **Saffir–Simpson** scale

[10h] Hurricanes tend to move pole-ward and westward in a drift named for this letter. This letter names an approximation in which the derivative of the Coriolis parameter with respect to y is set to a parameter denoted by this letter.

ANSWER: **beta** [or **beta** drift or the **beta** plane approximation]

8. This film opens with an image of two components of a movie projector’s lamp turning on. For 10 points each:

[10m] Name this Swedish film depicting the relationship between Alma and Elizabet Vogler, whose faces are shown merged into one in an iconic shot.

ANSWER: **Persona**

[10e] This director paid tribute to the doubling theme of *Persona* in his own film *Mulholland Drive*, which stars Naomi Watts and Laura Harring. This director also created the series *Twin Peaks* with Mark Frost.

ANSWER: David **Lynch**

[10h] Two women with seemingly unconnected lives, a singer in Poland and a music teacher in France, are both played by Irene Jacob in this 1991 film by Krzysztof Kieslowski.

ANSWER: *The **Double Life of Veronique*** [or *La **Double Vie de Veronique***; or ***Podwojne zycie Weroniki***]

9. Stanley Cavell wrote the opening essay of this collection, which also includes the John McDowell essay, “Non-cognitivism and Rule-following.” For 10 points each:

[10h] Name this collection, published in 2000 and edited by Alice Crary and Rupert Read. It shares its name with a school of interpretation advanced by James Conant and Cora Diamond, who emphasize continuities across a certain thinker’s early and late periods.

ANSWER: *The New Wittgenstein*

[10m] This philosopher’s contribution to the volume was the essay “Rethinking Mathematical Necessity.” He pioneered the theory of “multiple realizability” to defend functionalism.

ANSWER: Hilary (Whitehall) Putnam

[10e] Martin Stone’s contribution, titled “Wittgenstein on Deconstruction,” contrasts Wittgenstein’s approach with that of this author of *Of Grammatology*.

ANSWER: Jacques Derrida [or Jackie Élie Derrida]

10. During the first Nagorno-Karabakh War, Ayatollah Khomeini theorized that the 17 cities ceded by Iran in these two treaties would be happy to reunite with it. For 10 points each:

[10h] Name these two treaties, signed in 1813 and 1828, by which Iran ceded land in the Caucasus to Russia.

ANSWER: Treaty of Gulistan and Treaty of Turkmenchay

[10m] Russia’s annexation of the Caucasus included the brutal genocide of these northwestern Caucasian people, many of whom fled to Anatolia in the aftermath.

ANSWER: Circassians

[10e] After the Second Karabakh War, Azerbaijan held a parade at which this current President of Turkey read a poem lamenting the Treaty of Turkmenchay’s division of Azerbaijan.

ANSWER: Recep Tayyip Erdogan (“air-doh-wan”)

11. These entities lie at the saddle points of potential energy surfaces developed by Rory More O’Ferrall and William Jencks. For 10 points each:

[10m] Name these configurations often marked with a double-dagger symbol. Hammond’s postulate provides a frame of reference for the geometry of these entities.

ANSWER: transition states [do not accept “intermediates”]

[10e] Transition state theory was incorporated into the Eyring (“AY-ring”) equation, which like the Arrhenius (“uh-RAY-nee-uss”) equation describes how an increase in this physical quantity increases reaction rate. This quantity remains constant in isothermal reactions.

ANSWER: temperature [or T]

[10h] Reaction mechanisms can be determined using relationships named for this quantity. Those relationships include the Brønsted catalysis law, which can inform on the geometry of a transition state.

ANSWER: free energy [accept Gibbs free energy, linear Gibbs energy relation, linear free energy relationships, LFERs; prompt on Gibbs; reject “Helmholtz free energy” as temperature is not held constant]

12. Name some things about the ancient Egyptian board game senet (“SEN-et”), which represented the journey to the afterlife. For 10 points each:

[10h] The earliest representations of senet were found at the Mastaba of Hesy-Re, the oldest named practitioner of this field. Pierre Fauchard (“faux-shard”), who proved worms did not cause many common afflictions, is the modern father of this field.

ANSWER: **dentistry** [prompt on medicine]

[10e] Senet is referenced in this collection of funerary spells, whose most complete version is written on the Papyrus of Ani.

ANSWER: (Egyptian) **Book of the Dead** [or The **Book of Coming Forth by Day**; or **Pert em hru**; or **Prt m hrw**]

[10m] A painting from this queen's tomb at QV66 shows her playing senet against an invisible opponent. This first Great Wife of Ramses II is the subject of a temple at Abu Simbel.

ANSWER: **Nefertari** [or **Nefertari** Meritmut]

13. Alvin Gouldner’s book *The Coming Crisis of Western Sociology* lambasted this thinker’s attempt to fit human behavior to a single theoretical system. For 10 points each:

[10m] Name this Harvard sociologist who popularized structural functionalism in books like *The Social System*.

ANSWER: Talcott **Parsons**

[10e] Gouldner also studied managers at a mine for a book about the industrial type of this system. Max Weber (“VAY-ber”) argued that this administrative structure is based on strict hierarchy and following official rules.

ANSWER: **bureaucracy**

[10h] After the graduate student Laud Humphreys mocked Gouldner, Gouldner punched him in the face. Humphreys is better known for this book about casual gay sex in public restrooms, which stands out both for the complex social code it revealed and Humphreys’s unethical research methods.

ANSWER: **Tearoom Trade: Impersonal Sex in Public Places** [accept **Tearoom Trade: A Study of Homosexual Encounters in Public Places**]

14. Name some people who are depicted in Diego Rivera’s mural *Dream of a Sunday Afternoon at Alameda Central Park*, for 10 points each.

[10e] This wife of Rivera is slightly left of the center of the mural. She depicted herself with a unibrow in many self-portraits, such as one with a thorn necklace and hummingbird.

ANSWER: Frida **Kahlo**

[10h] Directly to the right of Kahlo is *La Calavera Catrina*, a female skeleton in fancy dress, who was created by this Mexican lithographer who himself appears in the mural.

ANSWER: José Guadalupe **Posada** [or José Guadalupe **Posada** Aguilar]

[10m] This man is on the right of the mural, standing near Mariano Escobedo under some balloons. This man’s death is depicted in a series of Édouard Manet (“muh-NAY”) paintings modeled on Goya’s *The Third of May, 1808*.

ANSWER: **Maximilian** I (“the first”) of Mexico [or Ferdinand **Maximilian** Josef Maria von Habsburg-Lothringen; or Fernando **Maximiliano** José María de Habsburgo-Lorena; accept *The Execution of Emperor **Maximilian***; accept *L’Exécution de **Maximilien***]

15. Over a 40-plus-year period, this author gave hundreds of wildly popular public lectures where he read his translations of Shakespeare and performed all the roles of Offenbach's operettas. For 10 points each:

[10h] Name this author of the 200-scene anti-war play *The Last Days of Mankind*. He relentlessly attacked his contemporaries in a satirical one-man magazine from 1911 to 1936.

ANSWER: Karl **Kraus**

[10e] With his magazine *The Torch*, Karl Kraus dominated the intellectual life in this capital city, where Theodor Herzl ("TAY-oh-dor HURTS-ul") developed Zionism and Sigmund Freud developed psychoanalysis.

ANSWER: **Vienna** [or **Wien**]

[10m] This Bulgarian-born author admired Kraus so much that he titled the second volume of his autobiography *The Torch in My Ear*. He analyzed the behavior of mass movements in his book *Crowds and Power*.

ANSWER: Elias **Canetti**

16. In one story, this creature eats a group of women and children in a hut, then regurgitates them after being bitten by an ant. For 10 points each:

[10m] Give the English name for this creature called Wollunqua by the Warumungu, and Waagal by the Noongar. This creature dives into and emerges from watering holes.

ANSWER: **rainbow serpent**

[10e] The rainbow serpent appears in the mythologies of various Aboriginal groups in this modern-day country. In this country's mythology, mythical figures moved along songlines during the Dreamtime.

ANSWER: **Australia**

[10h] These creatures from Aboriginal mythology leaps out of trees, swallows an unsuspecting person, and later regurgitates them, leaving them a little bit shorter than before.

ANSWER: **Yara-ma-yha-who**

17. A novel by this author includes a radio play, or novela, about the inept son of a businessman who becomes a famous Peruvian soccer referee. For 10 points each:

[10e] Name this author of *Aunt Julia and the Scriptwriter*.

ANSWER: Mario **Vargas Llosa** ("VAR-gahss YOH-sah")

[10m] In *Aunt Julia and the Scriptwriter*, Mario falls in love with and marries his divorced aunt Julia, while this "scriptwriter" churns out dozens of radio plays as he descends into insanity.

ANSWER: **Pedro Camacho** [accept either name]

[10h] A Camacho serial is about Lituma, a member of this profession who encounters a naked, starving African man in a warehouse. Another Vargas Llosa character named Lituma, who also has this profession, appears in a novel partly titled for Palomino Molero.

ANSWER: **policeman** [or **police** officer; accept **detective**; accept **sergeant**; accept member of the **civil guard**]

18. An all-female staff in identical outfits and with a mandatory curfew staffed this man's namesake "Houses," which sought to elevate the standard of railroad food and became the first American chain restaurant. For 10 points each:

[10h] Name this man, whose namesake "girls" worked at his restaurants, which operated alongside railroad tracks in the Western U.S.

ANSWER: Fred **Harvey** [accept Fred **Harvey** Company]

[10m] The first Harvey Houses opened alongside a railroad named for this city, Atchison, and Topeka. After Facundo Melgares ("mell-GAH-ress") welcomed William Becknell to this city, a trail named for this city opened that ran from this city to Missouri.

ANSWER: **Santa Fe** ("fay") [accept Atchison, Topeka, and **Santa Fe** Railway]

[10e] The Santa Fe competed in Southern California with a "Southern" railroad named for this body of water, whose name follows "Union" and "Central" in the names of the operators of the transcontinental railroad.

ANSWER: **Pacific** Ocean [accept Southern **Pacific** Transportation Company; accept Union **Pacific** Railroad; accept Central **Pacific** Railroad]

19. During a competition, these two musicians had to improvise variations on a theme from André Grétry's *The Samnite Marriage* and sight-read sonatas by Giovanni Paisiello ("pye-s'YELLOW"). For 10 points each:

[10h] Name these two musicians that Joseph II ("the second") pitted against each other in a 1781 competition. One was a local star and the other was a visitor from London.

ANSWER: Wolfgang Amadeus **Mozart** and Muzio **Clementi**

[10m] Clementi wrote a set of 100 instructional pieces for piano with this three-word Latin title, which it shares with a counterpoint treatise by Johann Joseph Fux.

ANSWER: **Gradus ad parnassum**

[10e] Clementi is satirized in the *Sonatine bureaucratique* by this quirky late 19th-century French composer, who wrote seven *Gnossiennes* ("g'nohss-YEN") and three *Gymnopédies*.

ANSWER: Erik **Satie** ("sah-TEE") [or Eric Alfred Leslie **Satie**]

20. You work in a lab, and your boss wants you to express a protein in cell culture. For 10 points each:

[10e] You start by cloning your protein of interest into a vector consisting of one of these small circular segments of DNA. Originally discovered by Joshua Lederberg, these DNA segments often carry genes for antibiotic resistance.

ANSWER: **plasmid**

[10m] Your plasmid has a signal sequence from the SV40 virus that adds this modification to the transcript. This modification occurs on the three-prime end of mRNA, and consists of several copies of one nucleotide.

ANSWER: **poly(A)** tail [or **poly·adenyl**; prompt on **tail**, accept **poly·adenylation**]

[10h] Your plasmid is also designed to add this tag to the C-terminus of your protein. This epitope tag has the sequence D·Y·K·D·D·D·D·K, and is sometimes used in tandem with an H·A tag.

ANSWER: **FLAG** ("flag")