

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 9 – Tossups

1. A city in this country was razed by Friedrich-Wilhelm Müller, the “butcher” of an area in this country, in part for preventing German troops from landing during the Damasta sabotage. In the book *Abducting a General*, Patrick Leigh Fermor recounted how he and a group of *Andartes* (“ann-DAR-teez”) guerilla fighters kidnapped Heinrich Kreipe (“KRY-puh”) in this country. Kurt Student commanded the last primarily airborne operation attempted by the Nazis, an invasion of an island in this country. (*) Operation Mercury targeted this country, whose government-in-exile was in Cairo during World War II. In response to Italian demands to occupy it, this country’s prime minister allegedly responded with just the word “no.” It’s not Turkey, but this country ruled by George II (“the second”) was aided by funds from the Truman Doctrine. For 10 points, the Nazis and Italians jointly occupied what country’s island of Crete?

ANSWER: Greece [or Hellenic Republic]

2. One set of programs for performing this task uses the Ochiai (“OH-chee-aye”) or Tarantula metrics to rank segments by suspiciousness. It’s not reduction, but one method of performing this action repeatedly samples smaller substrings to find a 1-minimal test case; that method developed by Zeller is named for the letter delta. Another method of performing this action, which is analogized to dividing up Alaska until the title animal howls, is the Wolf Fence algorithm. By comparing to previous versions, github’s (“git-hub’s”) (*) bisect command is used for this task. “Commenting out” is frequently done during this process, which can involve inserting print and break statements to isolate statements that throw exceptions. Talking to a rubber duck is one method of, for 10 points, what task of removing errors from code?

ANSWER: debugging [or fault localization; accept descriptive answers like finding bugs or finding errors or fixing errors or fixing bugs in code; prompt on software testing]

3. This city is conquered after invaders enter through a water shaft to defeat a people who boasted “even the blind and the lame” could ward off attacks. Many archaeologists believe a fortification called the “Millo” in this city may be the unearthed Stepped Stone Structure. A ruler of this city purchases the threshing floor of Araunah (“ah-RAHV-nah”) while his people suffer from a plague caused by his foolish (*) census. While on his way to this city, Uzzah (“oo-ZAH”) is struck down after irreverently touching an object on a cart. According to Samuel, this city was once a Jebusite stronghold named “Jebus.” Hiram of Tyre provided many cedar trees for a building in this city, which contained a curtain separating a sanctuary from the Holy of Holies. The Temple of Solomon was built in, for 10 points, what city in Israel?

ANSWER: Jerusalem [or Yerushalavim or al-Quds; accept Jebus before “Jebus”]

4. In a story by this author, a couple places a plaque reading “YOU HAVE BEEN WARNED” on their front gate in a series of escalating security measures, which culminate in their son dying when he climbs into razor wire. The protagonist considers Pushkin’s frizzy hair and a photo of his own prospector great-grandfather in a story by this author in which Frederick Morris fails in his search for dark-skinned ancestors, after hearing a comment on the radio about a (*) composer’s African heritage. This author of the stories “Once Upon a Time” and “Beethoven Was One-Sixteenth Black” wrote a novel in which Bam teaches Daniel how to use a gun, while a servant drives a bakkie that used to belong to the Smales family, who flee from Johannesburg. For 10 points, name this South African author of *July’s People*.

ANSWER: Nadine Gordimer

5. This country is the *origin* of an eco-terrorist group which sends letter bombs to nanotech companies named Individuals Tending to the Wild, or I·T·S. This country’s SEDENA agency has deployed troops to guard a train project that is opposed by the National Indigenous Congress. Mayor Claudia Sheinbaum has tried to address over-extraction of water from aquifers in this country’s capital, which causes it to (*) sink up to 20 inches per year. This country’s president has used Article 27 powers to nationalize lithium mining and apologized to the Yaqui (“YAH-kee”) people for water rights violations. Its traditional *ejido* (“eh-HEE-doh”) land management system is promoted by a revolutionary group based in its state of Chiapas (“chee-YAH-puss”). For 10 points, what country is led by a president nicknamed AMLO (“AM-loh”)?

ANSWER: Mexico [or United Mexican States or Estados Unidos Mexicanos; reject “Estados Unidos”]

6. In this book, the author argues that a dog’s recognition of the call of its master is a form of understanding the will of others, but only humans can understand the conceptions and thoughts of others. This book contrasts the terms “Peter, John, this man, this tree” with the terms “man, horse, tree” to explain the difference between Common and Proper names, leading to the declaration that there is “nothing in the world Universal but Names,” in this book’s first section, “Of (*) Man.” This book argues that man’s fear of death inspires the pursuit of peace, which is best attained by ceding rights to an absolute sovereign in a Christian commonwealth. For 10 points, name this book that describes the life of man in nature as “nasty, brutish, and short,” the chief political text of Thomas Hobbes.

ANSWER: Leviathan [or Leviathan or *The Matter, Forme and Power of a Commonwealth Ecclesiasticall and Civil*]

7. After a character with this name dies from cancer, a female protagonist concludes that humans cannot give each other “the gift of the idyll.” A character with this surname cracks his knuckles throughout a novel, whenever he tries to soothe himself or gather his thoughts, including rehearsing confronting his wife about speaking too animatedly to another man during a dinner party. A novel whose seventh and final section is titled for the “smile” of a character with this name includes two sections named for its title concept “and (*) Weight.” This is the name of Tereza and Tomas’s dog in *The Unbearable Lightness of Being*. A woman with this surname has an affair with Vronsky and ends a novel by throwing herself under a train. For 10 points, name this surname of the title heroine of a Tolstoy novel.

ANSWER: Karenin [or Karenina; accept Alexei Alexandrovitch Karenin; accept Anna Karenina]

8. **One population of cells in this organ contains D2 receptors that respond to the tubero-infundibular pathway. This organ rests in the inferior sella turcica. Cranio-pharyngiomas (“cranio-fuh-RIN-jee-OH-muhs”) and adenomas (“add-uh-NOH-muhs”) of this organ can cause bi-temporal hemi-anopsia by pressing on the optic chiasm (“KYE-azz-um”). The axon terminals of magno-cellular secretory cells lie in one portion of this organ. The hypo-physeal portal system transports molecules from the arcuate (“AR-kew-ayt”) nucleus to the (*) anterior portion of this organ. Damage to this organ causes the central form of diabetes insipidus. This organ’s anterior portion secretes A·C·T·H, L·H, and F·S·H, and its posterior portion secretes oxytocin and vasopressin. For 10 points, name this master endocrine gland that hangs below the hypo-thalamus.**

ANSWER: pituitary gland

9. **After this man was killed, Muammar Qaddafi invited his killer to plead his innocence with Jerry Rawlings. This man timed a revolution for the anniversary of France’s abolition of feudalism, August 4th. Hyacinthe Kafando and the longtime head of the Regiment of Presidential Security, Gilbert Diendéré (“d’yen-day-RAY”), were convicted of involvement in this man’s murder. This member of the marginalized Silmi-Mossi ethnic group created Cuban-inspired Committees for the Defense of the Revolution. The national anthem (*) “One Sole Night” was written by this jazz guitarist in the group *Tout-à-Coup* (“too-tah-KOO”) Jazz. In 2022, Blaise Compaoré (“kom-pao-RAY”) was found guilty of coordinating the assassination of this man, who renamed his country the “Land of Upright Men.” For 10 points, name this man, “Africa’s Che Guevara,” who ruled Burkina Faso.**

ANSWER: Thomas Sankara

10. **This composer subjected a descending ground bass to 21 variations in a standalone G-major keyboard work. Right-hand triplets and left-hand triplets respectively are the focus of variations three and four of an E-major five-variation movement by this composer. John Christopher Smith served as this composer’s amanuensis (“uh-MAN-yoo-EN-siss”) during his blindness in the last eight years of his life. The six pieces in this composer’s Opus 4 are the earliest concertos for chamber (*) organ and orchestra, and were performed as parts of *Alexander’s Feast*, *Esther*, and other oratorios by him. A set of three orchestral suites by this composer includes two hornpipes and was meant to accompany a barge trip by George I (“the first”) of Great Britain. For 10 points, name this Baroque composer of “The Harmonious Blacksmith” and *Water Music*.**

ANSWER: George Frideric Handel [or Georg Friedrich Händel]

11. **This god turned himself into a drop of honey to defeat the immortality-granting serpent Shushna. Before one battle, the sage Brihaspati (“brrr-HUSS-puh-tee”) informs him that the omens in the sky indicate his enemy is approaching. This god once killed a three-headed sage who threatened to overthrow him, named Trishiras (“TRISH-uh-russ”). This god once gave Sumukha (“SOO-moo-kuh”) some amrit at Matali’s request. This god only managed to strike one feather from (*) Garuda, who had stolen his pot of nectar. The apsaras fawn over this god in his realm called Svarga. Because one of this god’s enemies could not be defeated at night or day or with anything dry or wet, he used seafoam at twilight. This god smashed 99 fortresses to defeat a dragon that had taken all the world’s water, named Vritra. For 10 points, name this wielder of vajra, the Hindu god of thunder.**

ANSWER: Indra

12. The speaker of a poem by this author searches for a “secret meaning” by contemplating how, “of fifty seeds,” often only one sprouts into a plant. This author claims that “hope of answer, or redress” lies “Behind the veil, behind the veil” in a poem that compares “Dragons of the prime, / That tare each other in their slime” to “mellow music” in its “Dinosaur Cantos.” A fifteen-line sonnet by this author imagines “Huge sponges of millennial growth and height.” This author wrote about a creature (*) “Far, far beneath in the abysmal sea” in “The Kraken.” This author described nature as being “red in tooth and claw” in a long poem mourning the death of his friend Arthur Henry Hallam. For 10 points, name this Victorian poet of “In Memoriam A.H.H.”

ANSWER: Alfred, Lord Tennyson

13. These people were targeted by a newspaper that lent its name to a group of “vindicators” including Arthur Tappan and George Bourne. Riots targeting these people destroyed a building on Ploughed Hill in Charleston, Massachusetts. A novel ghostwritten to stoke anger at these people was Maria Monk’s *Awful Disclosures*. George D. Prentice inflamed tensions prior to the “Bloody Monday” riots against these people in Louisville. Samuel Burchard paired these people with (*) rum and rebellion in a speech attacking James Blaine. A crocodile representing these people menaces some children on a beach in a Thomas Nast cartoon. Immigration of people belonging to this faith was opposed by the Know Nothing Party. For 10 points, name these people who nativists worried would infiltrate America with popery.

ANSWER: Catholics [accept Catholic priests or Catholic nuns; prompt on Irish-Americans; prompt on priests or nuns with “of what denomination?”; prompt on immigrants]

14. A compound of carbon and this element is used to create a xanthate (“ZAN-thayt”) in the first step of the Chugaev (“choo-GAH-yeff”) elimination. International Klein Blue and lapis lazuli derive their color from a tri-atomic radical ion of this element. Four atoms of this element are present in the center of Lawesson’s reagent, which is used to introduce this element to compounds. Because of the presence of a leaving group centered on this element, epoxides (“eh-POCK-sydes”) form in the (*) Johnson–Corey–Chaykovsky reaction, which uses non-phosphorus ylides (“ILL-idds”) based on this element. Polymer crosslinks were formed using this element in the earliest type of vulcanization. Natural gas leaks are detected by the addition of odorous compounds based on this element, such as thiols (“THIGH-ols”). For 10 points, name this element located directly below oxygen on the periodic table, with chemical symbol S.

ANSWER: sulfur [accept S before mentioned]

15. Captains of industry have been succeeded by “captains” of this concept as objects of cultural fascination, according to the “Images of Power” section of *The Lonely Crowd*. Different attitudes towards this activity are held by groups called “U·A·W” and “P·A·W” in a book by Thomas Stanley and William Danko. In *The Protestant Ethic*, Weber (“VAY-ber”) notes the contradiction of Protestant asceticism both constraining this activity and promoting “rational (*) acquisition.” Servants living in “lavish quarters” is a “vicarious” form of this activity, which the lower classes seek to perform in “pecuniary (“puh-KEW-nee-uh-ree”) emulation” of the wealthy, according to *The Theory of the Leisure Class*. For 10 points, Thorstein Veblen labeled the signaling effects of which economic activity “conspicuous”?

ANSWER: conspicuous consumption [accept spending; accept conspicuous waste; prompt on accumulation; prompt on leisure by asking “what activity allows the leisure to happen?”]

16. The first episode of Kenneth Clark's *Civilization* compares a nuclear submarine's periscope to the head posts created by this people's anonymous "Baroque Master" and "Academician." Those sculptors from these people depicted the "ribbon-animal" and "gripping-beast" motifs in the zoomorphic Style E. The metal openwork style of this people's art include Borre-style (*) brooches. A blindingly-white hero from this people's literature wields a hooked chain in an allegory of the French Revolution painted by Henry Fuseli. A mass of entangled animals forms a snarling creature in a head post from this people's Oseberg ("OOH-suh-berg") burial site. The Christianization of this people's art is depicted on the Jelling ("yelling") runestones. For 10 points, longships were used by which seafaring Scandinavians?

ANSWER: Vikings [accept Norsemen; accept Danes; accept Swedes; prompt on Scandinavians]

17. In 1896, Carolus Plummer published a highly influential introduction to a work titled for this author's *Opera Historica*. This man engaged in the practice of *computus* in a "little book on the fleeting and wave-tossed course of time," his *The Reckoning of Time*. Roger of Howden wrote a precisely continued sequel to a book by this man, who supposedly died immediately after completing his translation of the (*) Gospel of John. This man was the teacher of Archbishop Egbert. Though he almost never left Wearmouth-Jarrow, the wide usage of this man's writings in Europe popularized a system invented by Dionysius Exiguus ("eg-ZIG-yoo-uss") of dating with the currently used BC and AD years. For 10 points, name this Northumbrian monk whose influential chronologies of the Anglo-Saxons include the *Ecclesiastical History of the English People*.

ANSWER: the Venerable Bede [or Saint Bede]

18. A story about this activity is ambiguous about the fate of a Texas millionaire who loved polo but "went away when the telegram came." In that story about this activity, the protagonist overhears himself say that he has a right to eat canned food if he's "willing to carry it," and notices that "[h]is voice sounded strange in the darkening woods." The protagonist of that story about this activity fills a jar with (*) grasshoppers that have turned black after a town burned down. A character who does this activity for a living tells his apprentice of his admiration for Dick Sisler and Joe DiMaggio. A Nick Adams story centering on this activity is titled for a "Big Two-Hearted" natural feature. For 10 points, name this activity that Santiago does for a living in *The Old Man and the Sea*.

ANSWER: fishing [or catching fish; or angling]

19. A ceramic sculpture by this artist depicts a bare-breasted woman standing on a dead wolf while crushing a wolf cub. This artist created ten woodcuts to illustrate a fictionalized journal entitled *Fragrant Scent*. An angel with colorful wings greets a haloed mother wearing a red *pareo* ("PAH-ray-oh") in this artist's unusual religious painting *Hail Mary*. As a child, this artist lived in Peru, the ancestral home of his grandmother Flora Tristan. A mythical (*) ghost titles a painting by this artist in which a hooded, black-clad specter looms over a nude woman on a bed. Birth, life, and death are depicted from right to left in a large painting by this artist in which a blue idol represents "the Beyond." For 10 points, name this artist of *Where Do We Come From? What Are We? Where Are We Going?*, which is set in Tahiti.

ANSWER: Paul Gauguin ("go-GAN") (the painting of the ghost is *Spirit of the Dead Watching*)

20. A two-part device that removes this property is named for Bernard Lyot (“lee-YOH”). R·A·E and R·P·E configurations are used in a technique that characterizes the change in this property using the parameters psi (“sye”) and delta. A closed curve on a mathematical object that represents this property can be used to derive Pancharatnam’s phase. Three quantities that characterize this property appear on the surface of a Poincaré (“pwan-kah-RAY”) sphere. An object that imparts this property transmits (*) cosine-squared-theta of the incident intensity, per Malus’s (“muh-LOOSS’s”) law. This property, which is characterized by the Stokes parameters, is perfectly transmitted at the inverse tangent of the ratio of two refractive indices, which is called Brewster’s angle. For 10 points, name this property that can be linear, circular, or elliptical, and describes the direction of oscillation of the electric field of a beam of light.

ANSWER: polarization [or word forms like polarized; accept polarizer or Lyot depolarizer; accept linear, circular, or elliptical polarization]

Round 9 – Bonuses

1. In one of this play’s subplots, the traveler Peregrine listens to Sir Politic Would-be’s get-rich-quick scheme to sell a European city to the Ottoman Empire. For 10 points each:

[10m] Name this play in which Peregrine and Politic listen to a flowery speech in which a mountebank doctor tries to sell a vial of medicinal oil for eight crowns.

ANSWER: Volpone (“vohl-POH-nay”)

[10e] This playwright of the Jacobean Era wrote the satirical plays *Volpone* and *The Alchemist*.

ANSWER: Ben Jonson

[10h] In the fifth act of *Volpone*, Peregrine humiliates Politic with a prank in which Politic is duped into acting like this animal while hiding in a wine butt from some merchants who supposedly want to turn Politic over to the Venetian government for treason.

ANSWER: tortoise [or turtle]

2. Morpheus appears during these experiences, which the Greeks personified as the Oneiroi (“OH-nay-roy”). For 10 points each:

[10e] In Greek and Roman beliefs, true and false examples of what experiences leave the underworld from gates of horn and ivory? Gilgamesh sees a falling star during one of them.

ANSWER: dreams [or somnium or somnia; prompt on visions]

[10m] In the *Aeneid*, this man’s shade explains the gates of horn and ivory to his son Aeneas, then bids Aeneas to head back through the ivory gate.

ANSWER: Anchises (“ann-KYE-zees”)

[10h] Anchises explains that these spirits send false visions through the ivory gates. This word usually denotes all ancestral spirits in Roman belief, but Apuleius distinguishes them as morally ambiguous, as opposed to the good Lares (“LAH-rees”) and bad Lemures.

ANSWER: Di Manes (“MAY-nees” or “MAH-nace”)

3. Suzanne Corkin, who trained under this psychologist, has recently come under fire for destroying data and attempting to conceal a brain lesion of an amnesiac patient. For 10 points each:

[10h] Name this pioneering Canadian neuro-psychologist, who made many discoveries researching H.M., a patient who could not form new long-term memories after surgery to remove parts of his brain.

ANSWER: Brenda Milner

[10e] Milner’s research on H.M. demonstrated that this region of the brain plays a major role in encoding declarative memories. This seahorse-shaped structure is part of the limbic system.

ANSWER: hippocampus

[10m] At McGill, Milner collaborated with Wilder Penfield, who applied electric current to map this region of the brain that controls voluntary movement. An EMG tests neurons that transmit signals to this part of the brain.

ANSWER: primary motor cortex [or M1]

4. Name some things about the *Tableria Peutingeriana*, (“TAB·lair·ee·uh PEW·ting·gairy·anna”) a 22 foot long, one foot tall map that *Rome’s World* author Richard A. Talbert argued was more a boast about empire than an actual road map. For 10 points each:

[10h] Talbert investigated whether the *Tableria* was a source for this theologian's San-Sever map in his *Commentary of the Apocalypse*. This Bishop of Liébana opposed adoptionism.

ANSWER: Saint **Beatus** of Liébana

[10m] Conrad Celtes discovered the *Tableria Peutingeria* while working as this emperor’s librarian. This Hapsburg ruler took control of Burgundy by marrying Mary the Rich.

ANSWER: **Maximilian I** [prompt on **Maximilian**]

[10e] When Peutinger died, the map was given to Marcus Welser, the Mayor of Augsburg who worked in this industry. The Fugger and Rothschild families made their wealth in this industry.

ANSWER: **banking**

5. An example of this kind of system in Cygnus is a blue supergiant and a black hole. For 10 points each:

[10e] Name this kind of system that has two stars gravitationally bound to each other.

ANSWER: **binary** star system

[10m] The aforementioned binary in Cygnus emits strongly in this portion of the EM spectrum. Generally binaries that emit in this range have a donor star that donates mass into an accretor like a black hole or neutron star.

ANSWER: **X-ray**

[10h] A high-mass X-ray binary in this constellation is driven by the stellar wind of the supergiant HD 77581. It’s gamma is a multiple system that contains a very bright Wolf–Rayet star, and it also contains the first optically confirmed pulsar.

ANSWER: **Vela**

6. In this style of dance, routines usually begin with standing movements called toprock and transition to floor-based downrock moves like the airframe and the swipe. For 10 points each:

[10e] Name this style of street dance improvised to hip-hop. It originated among African-Americans in the Bronx in the 1970s.

ANSWER: **breakdancing** [or **breaking**; or **b-boying**; or **b-girling**]

[10h] Breakdancing was inspired by this DJ, who used two turntables to isolate and extend the most danceable parts, or “breaks,” of songs. On August 11, 1973, he threw a “Back to School Jam” party often cited as the birth of hip-hop.

ANSWER: DJ **Kool Herc** [or Clive **Campbell**]

[10m] Breakdance routines typically end with one of these body positions held without movement. Advanced dancers are able to perform “stacking,” where they smoothly transition between different types of these positions.

ANSWER: **freezes**

7. Answer some questions about circuit analysis, for 10 points each:

[10e] This German physicist’s “loop” and “junction” laws are used to analyze simple circuits. With Robert Bunsen, this physicist used a spectroscope to analyze the elements in the Sun.

ANSWER: Gustav (Robert) **Kirchhoff** (“KEER-koff”)

[10m] This theorem, used in circuit analysis alongside Norton’s theorem, states that any two-terminal DC circuit can be replaced by a single voltage source and impedance source in series.

ANSWER: **Thévenin**’s (“TEV-uh-noon’s”) theorem

[10h] One method for analyzing planar circuits breaks them up into these closed paths with no other paths inside them. Two circuits are dual to each other if the nodal equations for one circuit correspond to the equations for these things in the other.

ANSWER: **meshes** [accept **mesh** analysis, or **mesh** current method]

8. This play opens with the title character's wife finding an encyclopedia entry predicting his death. For 10 points each:

[10h] Name this one-act play by David Ives, collected in *All in the Timing*. Each scene in this play ends with the title character dying again from the mountain-climber's axe protruding from his skull.

ANSWER: Variations on the Death of Trotsky

[10m] A character named Leon Trotsky, who is the son of this fictional author, narrates the novel *Galápagos*. This fictional author's book *Now It Can Be Told* hastens Dwayne Hoover's descent into madness in the real-life novel *Breakfast of Champions*.

ANSWER: Kilgore Trout [accept either name]

[10e] While traveling in Mexico, the title character finds that his friend Sylvester has become a bodyguard for Trotsky in this American author's novel *The Adventures of Augie March*.

ANSWER: Saul Bellow [or Solomon Bellows]

9. Some Tamil nationalists suggest that this continent contained Kumari Kandam, a civilization that sank into the sea. For 10 points each:

[10h] Name this lost continent, originally proposed to explain the similarity of animals in India and Madagascar. It often shows up in mythic fiction, as well as Theosophist accounts of its civilization of seven-foot-tall people.

ANSWER: Lemuria [or Lemuria]

[10m] Though this man's book *The Malay Archipelago* promotes the idea of Lemuria as a land bridge, he later became one of the idea's critics. He names a boundary between Asian and Australian faunal regions.

ANSWER: Alfred Russell Wallace [accept Wallace Line]

[10e] A Rosicrucian ("rosy-KROOSH-ian") legend claims that Mount Shasta, a volcano in this range, contains a hidden city of Lemurians. This range in the Pacific Northwest includes Mount Rainier ("ruh-NEAR").

ANSWER: Cascade Mountains [or Cascades]

10. For his *Notes on the State of Virginia*, Thomas Jefferson excavated one of these features along the Rivanna River at Monasukapanough ("MAH-nuh-SOO-kuh-puh-NAW"). For 10 points each:

[10e] Name these features. Trappist monks name the largest of these features built by the Mississippian culture at Cahokia ("kuh-HO-kee-uh").

ANSWER: mounds [or burial mounds]

[10m] While excavating Etowah Mound C, John P. Rogan found copper plates depicting this figure, which was also depicted on a sandstone tablet at Cahokia.

ANSWER: birdman

[10h] A 133-foot plaza separates two mounds at Medora, a type site of the Plaquemine ("PLACK-uh-min") culture found in this modern-day state. Mounds line six concentric man-made rings at Poverty Point in this state.

ANSWER: Louisiana

11. Answer the following about the chemistry of bulletproof vests, for 10 points each:

[10h] Many popular bulletproof vests are composed of Kevlar, a para-aramid ("PAR-uh-AR-uh-mid") fiber invented by this pioneering chemist, who for many years was the only woman to win DuPont's Lavoisier ("lah-vwazz-YAY") Medal.

ANSWER: Stephanie (Louise) Kwolek ("KWOH-leck")

[10m] The "Dragon Skin" ballistic vest used discs of carborundum ("KAR-buh-RUN-dum"), which is this sort of compound of silicon. A very stiff tungsten example of these compounds is popular in drills and cutting tools.

ANSWER: carbide [reject "carbene"]

[10e] Early bulletproof vests used types of this class of poly-amides originally patented by Wallace Carothers ("kuh-RUH-thers"). Their other popular applications include stockings and classical guitar strings.

ANSWER: nylons

12. After his brother ordered his servants to start serving half-cups of wine to curb his drinking, this ruler ordered cups that were twice as large. For 10 points each:

[10h] Name this ruler, who, according to Rashid al-Din, neglected ruling duties in favor of drinking, leading his wife Töregene Khatun to gain power at court.

ANSWER: **Ögedei Khan**

[10e] Mongol society drank *airag*, an alcoholic beverage made from the fermented milk of these animals, which were ridden by Mongolian archers in battle.

ANSWER: **horse**

[10m] Fearing cholera, this khan's forces drank wine rather than water while campaigning against the Song Dynasty. This brother of Hulagu Khan commissioned a silver tree with four serpent-shaped spouts that dispensed alcohol.

ANSWER: **Möngke Khan**

13. This philosopher invented a case in which Smith seemingly knows what city Brown is in, just because Jones owns a Ford. For 10 points each:

[10m] Name this philosopher, who also invented a case in which Smith correctly predicts that a man with ten coins in his pocket will get a job, but believes that it will go to Jones and not to himself.

ANSWER: Edmund **Gettier** [or Edmund Lee **Gettier** III]

[10e] Gettier problems are part of this field of philosophy, whose name derives from the Greek for "knowledge."

ANSWER: **epistemology**

[10h] Alvin Goldman tried to circumvent Gettier problems by defining knowledge in terms of appropriate connections to facts, in a paper titled for this kind of "theory of knowing." A D.M. Armstrong paper partly titled for this adjective proposes understanding mental states as things that bring about results.

ANSWER: **causal** [accept "A **Causal** Theory of Knowing"; accept "The **Causal** Theory of Mind"]

14. Answer the following about assemblage artist Joseph Cornell, for 10 points each.

[10h] Cornell created a series of assemblages he dubbed "slot machines" named for this family, although Cornell inadvertently included portraits of unrelated subjects as well.

ANSWER: **Medici** ("MED-ih-chee") family [or House of **Medici**]

[10e] One of Cornell's *Medici Slot Machines* features a depiction of a prince created by this Tenebrist painter of *The Calling of Saint Matthew*.

ANSWER: Michelangelo Merisi da **Caravaggio**

[10m] Cornell may have inspired the use of "found objects" by this artist, whose "combines" include a sculpture featuring a stuffed goat, *Monogram*.

ANSWER: Robert **Rauschenberg** [or Milton Ernest "Robert" **Rauschenberg**]

15. One of 366 poems in a collection calls this person the “sole Siren from heaven” who “winds, unwinds / the thread of life that was granted me.” For 10 points each:

[10m] Name this woman whose name is represented in capitalized parts of words in a poem that begins “When I utter sighs, in calling out to you.” She is first encountered on Good Friday, when the sun “darkened in pity for its Maker.”

ANSWER: **Laura** [or **Laureta**]

[10e] This 14th-century Italian poet expressed his love for Laura in his *Canzoniere* (“kan-zoh-N’YAIR-ay”).

ANSWER: **Petrarch** [or Francesco **Petrarca**]

[10h] The *Canzoniere* features many poems in this form, in which a *ripresa* (“ree-PRAY-zuh”) and *volta* are separated by *pedi* (“P’YAY-dee”). This Italian-named form is more similar to a *virelai* (“veer-uh-LAY”) than to the French *chanson* form that has a similar but non-identical name.

ANSWER: **ballata** [reject “ballade”]

16. This policy is intended to benefit eight categories of people, and applies to those whose total assets are above a threshold called the *niṣāb* (“nuh-SOB”). For 10 points each:

[10e] Give the Arabic-language term for this pillar of Islam, in which one-fortieth of one’s wealth is donated to charity yearly.

ANSWER: **zakāt** (“zuh-KOT”) [or **zakāh**]

[10m] While zakat is voluntary, this tax on non-Muslim subjects within a caliphate is not. This tax offsets the cost of non-Muslims being exempt from conscription.

ANSWER: **jizya**

[10h] This other form of almsgiving is voluntary and above the level of zakat.

ANSWER: **sadaqah** (“SAH-duh-kah”) [or **sadqah**; or **sadaqāt**]

17. The sponge-derived toxin latrunculin (“luh-TRUNK-yoo-lin”) prevents the polymerization of this protein. For 10 points each:

[10e] Name this protein in the cyto-skeleton that polymerizes to form thin filaments. It also interacts with myosin (“MY-uh-sin”) in muscles.

ANSWER: **actin**

[10m] Upon polymerization, actin transitions to its filamentous configuration to a form given this name. This form of actin is an approximately spherical, soluble monomer.

ANSWER: **globular** [or **G-actin**]

[10h] This poison found in death cap mushrooms binds exclusively to F-actin. Fluorescently-conjugated versions of this molecule are used to image thin filaments.

ANSWER: **phalloidin**

18. In a newspaper review, César Cui (“kew-EE”) said that the defects of this man’s opera *Boris Godunov* revealed its “indiscriminating, self-complacent, hasty method of composition.” For 10 points each:

[10e] Name this Russian composer of *Pictures at an Exhibition*.

ANSWER: Modest (Petrovich) **Mussorgsky**

[10m] Cui’s review of this composer’s first symphony claimed that it sounded like a student in a conservatory in Hell writing on the subject of the Seven Plagues of Egypt. That disastrous premiere led this man to quit composing for two years, until he received hypnosis therapy from Nikolai Dahl.

ANSWER: Sergei (Vasilyevich) **Rachmaninoff**

[10h] Cui said that giving musicians blank paper and letting them play whatever they wish would be better than this four-movement tone poem, whose three opening themes represent a father, mother, and child.

ANSWER: **Symphonia Domestica**, Op. 53 (by Richard Strauss) [or **Sinfonia Domestica**, Op. 53]

19. Saleem Sinai uses telepathy to gather together those born at the instant that India became independent in this author's novel *Midnight's Children*. For 10 points each:

[10e] Name this Indian-born author, who had a fatwa issued against him for writing *The Satanic Verses*.

ANSWER: Salman **Rushdie** [or Ahmed Salman **Rushdie**]

[10h] In the final chapter of *Midnight's Children*, Saleem first meets his wife-to-be at one of these businesses, which is run by Saleem's former nanny, Mary. In a novel by a different author, the Dalit Velutha ("vay-LOO-tah") works for one of these businesses owned by Mammachi ("MAH-mah-chee").

ANSWER: **pickle** factory [or **preserves** factory; or **chutney** factory; or **jam** factory; accept Paradise **Pickles & Preserves**; accept Braganza **Pickles**; prompt on **factory** by asking "What does the factory make?"]

[10m] Pickle factory employee Velutha is beaten to death by police after being falsely accused of complicity in the drowning of Sophie Mol in this novel.

ANSWER: *The **God of Small Things*** (by Arundhati Roy)

20. Two members of this family were nicknamed the "Adam and Eve of Virginia" because of their dozens of prominent descendants, including Thomas Jefferson and Robert E. Lee. For 10 points each:

[10m] Name this planter family. Peyton, a member of this family, was the first president of the Continental Congress, while his nephew Edmund was the first U.S. attorney general.

ANSWER: **Randolph** family [or Peyton **Randolph** or Edmund **Randolph**]

[10h] John Randolph was a close ally of his cousin Thomas Jefferson before breaking to lead this political faction, also known as the "Old Republicans." This radically anti-Federalist faction opposed national land acquisitions.

ANSWER: tertium **quids**

[10e] Randolph also opposed Thomas Jefferson's attempts to buy what is now this state from Spain. The Seminole Wars were fought in this state.

ANSWER: **Florida**