

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 15 – Tossups

1. A “training student workbook” leaked in 2012 instructs employees in these buildings to use the “feel, felt, found” technique. Towson, Maryland is home to the first of these buildings whose workers unionized, doing so in June 2022. The firm Bohlin Cywinski Jackson designs many of these buildings, the first of which were designed by Tim Kobe as part of a go-to-market strategy created by Ron Johnson. So-called “forums” in some of these buildings feature massive (*) LED screens called “video walls.” At 767 Fifth Avenue in New York, you can enter a flagship example of these buildings through a glass cube. Customers in these buildings may find technical support at Genius Bars. For 10 points, name these buildings where customers browse minimalist wooden tables for AirTags and iPhones.

ANSWER: Apple Stores [prompt on stores; reject “App Store”]

2. Sandor Krasna makes a pilgrimage to the sites depicted in this film, which is praised for its depiction of “insane memory,” in the film-essay *Sans Soleil* (“sawn soh-LAY”). Chris Marker’s *La Jetée* (“zhuh-TAY”) alludes to a scene from this film depicting a tree trunk whose rings are marked with historical events like the Battle of Hastings. Spiraling lissajous (“lee-suh-ZHOO”) waves emerge from a woman’s eyes, which are shown in close up with red lighting, in this film’s (*) title sequence. The protagonist of this film follows a woman to an art museum where she views a portrait of Carlota Valdes. At the end of this film, a nun rings a mission bell after Judy Barton falls to her death. For 10 points, name this Alfred Hitchcock film in which Jimmy Stewart plays a detective who develops a fear of heights.

ANSWER: Vertigo

3. More luminous examples of these objects tend to have a higher n -index and increased rotation support. One of these objects is the dominant object in the Ophiuchus (“off-YOO-kuss”) supercluster. These objects can be sub-characterized by the shape of their iso-photes into disky and boxy types. One of these structures is home to an object called Pōwehi (“poh-WAY-hee”). The fourth power of the velocity dispersion is related to the luminosity of these objects via the (*) Faber–Jackson relation. The Event Horizon Telescope imaged a supermassive black hole in a large one of these objects called M87. These objects mostly occupy the red sequence of a color magnitude diagram, and appear on the left “handle” of the Hubble tuning-fork diagram. For 10 points, name these oval-shaped galaxies contrasted with spiral galaxies.

ANSWER: elliptical galaxies [prompt on galaxy or galaxies]

4. An author who died in exile from this country wrote a cycle of poems memorializing his dead wife Leonor and a poem that declares “traveler, there is no road / the path is made by walking.” A poem from this country describes “[b]ig hoarfrost stars” that “come with the fish of shadow / that opens the road of dawn.” An elegy from this country says of its subject, “How fine a mountaineer in the sierra! / How gentle with ears of wheat! / How fierce with the spurs!” (*) Miguel Hernandez and Antonio Machado were from this country; as was a man who wrote a poem that begins “Green, how I want you green” and a five-part elegy that begins “At five in the afternoon.” For 10 points, from what country was the author of “Lament for the Death of a Bullfighter,” Federico Garcia Lorca?

ANSWER: Spain [or Espana]

5. These people sent envoys sailing south to form the Alliance Conducted at Sea, which split conquests from a proposed invasion. These people won the Battle of Sarhu during a conflict preceded by their leader issuing his Seven Grievances. Ming-era sources divide these people into three groups: the Haixi (“hye-shee”), Jianzhou (“j’YEN-joh”), and a “wild” one. Wu Sangui (“sahn-gway”) allowed these people through Shanhai Pass, where they defeated (*) Li Zicheng’s army. Hong Taiji adopted a new name for these people, who were led by members of the Aisin Gioro clan beginning with Nurhaci (“noor-hah-chee”). The Dzungar (“JOONG-gar”) genocide was part of the Ten Great Campaigns perpetrated by these people, who created the Eight Banners system. For 10 points, name these nomadic people from northeastern China who founded the Qing (“cheeng”) dynasty.

ANSWER: Manchu [or Jurchen or Nuzhen or Jusen; accept Yeren or Jianzhou until read; accept Jin Dynasty Later Jin Dynasty or Great Jin Dynasty; accept Qing Dynasty]

6. Giovanni Boccaccio (“bo-KAH-cho”) interpreted this story as a quest for unity with God in a commentary from his *Genealogia*. After resting in a dale, a woman in this story walks into a mosaic-covered palace with golden walls, where she believes she will meet a snake-like monster. An old woman calms the kidnapping victim Charite (“KAH-ree-tay”) by telling this story, which ends with the birth of Voluptas. After the advice of a talking tower helps her reach the (*) underworld, a character in this story falls into a deep sleep after opening a box containing Proserpina’s beauty. The protagonist of this story from *The Golden Ass* breaks a promise by shining a lamp on her husband’s face, after which a jealous goddess imposes several trials upon her. For 10 points, name this story in which a princess weds the son of Venus.

ANSWER: *The Tale of* Cupid and Psyche [accept answers which refer to both Cupid and Psyche; accept Eros or Amor in place of Cupid; prompt on *The Golden Ass* or *The Metamorphoses* of Apuleius before “The Golden Ass”; reject “Metamorphoses”]

7. During a protest in this town, civil rights activist Ray Robinson disappeared, which has been blamed on Richard Wilson’s private militia called the GOONs. Two years after marrying during a protest in this town, Anna Mae Aquash was murdered amid accusations that she was an FBI informant. For their actions in this town, Dennis Banks and Russell Means were indicted for conspiracy. To show support for a protest in this town, (*) Marlon Brando had his Oscar accepted for him by activist Sacheen Littlefeather. In 1973, the A·I·M occupied this town on the Pine Ridge Reservation, near the same location where James Forsyth’s 7th Cavalry tried to suppress the Ghost Dance movement. For 10 points, name this South Dakota town, which shares its name with a nearby creek where 300 Lakota people were massacred in 1890.

ANSWER: Wounded Knee [or Čaŋkpé Opí (“chank-PAY oh-PEE”); accept Wounded Knee occupation or Wounded Knee Massacre or Second Wounded Knee; prompt on Pine Ridge Reservation before mention]

8. An essay collection whose title plays on a work by this thinker praises 1950s porn for its silliness, calls Sarah Palin “how not to be a feminist,” and is by Nina Power. This thinker analyzed positivism as a reaction against Hegelian “negative philosophy” in one book and opened another by condemning “comfortable, smooth, reasonable, democratic unfreedom.” This thinker distinguished between basic repression necessary for human survival and (*) “surplus repression” through social domination. This author of *Reason and Revolution* argued for a “Great Refusal” against consumer society and influenced 1960s counterculture by espousing a non-repressive society that embraces Freud’s Eros. For 10 points, name this Frankfurt School philosopher who wrote *One-Dimensional Man* and *Eros and Civilization*.

ANSWER: Herbert Marcuse (The first collection is *One-Dimensional Woman*)

9. Members of this genus encode phenol-soluble modulins, whose beta type help form biofilms. Ornithine (“OR-nuh-teen”) de-carboxylase activity is used to distinguish this genus’s *lugdunensis* species. One member of this genus encodes a pore-forming protein called Panton–Valentine leukocidin (“LEW-koh-SYE-din”). Novo-biocin resistance separates this genus’ *sapro-phyticus* and *epidermidis* species, both of which are coagulase-negative. In some members of this genus, the SCCmec (“S-C-C-meck”) cassette encodes P·B·P·2·A, which has decreased affinity for (*) beta-lactams like methicillin (“METH-uh-SILL-in”). Vancomycin is used to treat infection with a particularly resistant strain of this genus called M·R·S·A. Members of this genus tend to grow in clusters, unlike *streptococcus* which grows in chains. For 10 points, name this genus of bacteria that includes an *aureus* species.

ANSWER: staph [or Staphylococcus]

10. This author created a male protagonist who has sex with a female truck driver, but shoots her upon discovering that she’s the mistress of a dwarf who owns a local tavern. In one of this author’s novels, the defection of a pilot inspires his midwife fiancée to fix her image by forcing local women to have abortions. This author wrote a novel in which a detective attends a banquet serving a braised baby, all while investigating claims of cannibalism. This “hallucinatory realist” set (*) *Frog* and many other novels in his hometown of Gaomi and uses a pen name meaning “don’t speak.” Commander Yu resists Japanese invaders in a novel by this author that follows a family of winemakers who grow the title crop. For 10 points, what Chinese Nobel Laureate wrote *The Republic of Wine* and *Red Sorghum*?

ANSWER: Mo Yan (“yen”) [or Guǎn Móyè]

11. A ring of this many atoms is continually present in the nickel-phosphine complex used in the Shell Higher Olefin Process. Vanadium has this oxidation number when it occurs in a bright yellow oxocation (“oxo-CAT-eye-on”). Di-ketones are used to form hetero-cyclic rings of this size in the Paal–Knorr synthesis. A set of criteria used as a rule of thumb to estimate a compound’s druglikeness is based on multiples of this number and named for Lipinski. The smaller ring in the dark blue chromo-phore (*) azulene (“AZ-yoo-leen”) has this many carbon atoms. A molecule with this many carbon atoms exists in “half-chair” and “envelope” conformations. This many atoms of oxygen are found in the vanadium-based catalyst for the contact process. Two planar rings each with this many carbon atoms coordinate to iron in ferrocene. For 10 points, give this number of carbon atoms in pentane.

ANSWER: five [accept Lipinski’s rule of five]

12. This adjective partly titles a painting that John Constable dismissed as a failure for attempting “that which is outside the reach of art.” The ruins of Egmont Castle appear, counterfactually, in the background of a painting titled for this adjective, which contains many allegorical elements like a broken birch tree hanging over a stream. A half-rainbow appears in both the “Dresden” and “Detroit” versions of a 17th-century (*) Dutch landscape titled for this adjective. A man in gold-brown, pleated garments lays his hand over a woman’s breast in another Dutch painting titled for this adjective, which may depict Isaac and Rebecca. Jacob van Ruisdael (“ROYZ-dall”) painted a “cemetery” described by, for 10 points, what religious term, which also applies to a “bride” in a portrait by Rembrandt?

ANSWER: Jewish [accept *The Jewish Bride*; accept *The Jewish Cemetery*]

13. While engaging in this activity, a woman relates her experiences into a recorder disguised as a spur of bone in her hand. In another novel, a woman performs this activity for the first time on her twenty-sixth birthday, leading her to save a young red-haired boy from drowning in a river. Professor James Dunworthy leads a group of Oxford students who perform this activity using The Net in the novel *Blackout/All Clear*, part of a series titled for this activity by (*) Connie Willis. This activity leads Dana Franklin to meet the slave owner Rufus in Octavia Butler’s novel *Kindred*. After engaging in this non-sporting activity in a short story, Eckles finds a butterfly crushed under his boot. For 10 points, what plot mechanic in Ray Bradbury’s “A Sound of Thunder” allows characters to hunt dinosaurs?

ANSWER: time travel [or going back in time]

14. Nikolai Yezhov led a crackdown on a fictional namesake “military organization” of this ethnicity, during which he had Vsevolod Balytsky (“buh-LIT-skee”) executed for not prosecuting it hard enough. A violinist of this ethnicity, Artur Gold, led an orchestra at a mock train station in these people’s country which had a fake infirmary staffed by August Miete (“MEE-tuh”). A man of this ethnicity was the first leader of both the OGPU and Cheka. The (*) Augustów (“ow-GOOS-tooff”) Roundup, which targeted people of this ethnicity’s underground Home Army, is sometimes called the “little” version of a massacre primarily targeted at this ethnicity’s officers ordered by Lavrentiy (“luh-VREN-tee”) Beria, the Katyn (“KAH-tun”) Massacre. For 10 points, give this ethnicity of people from a country invaded by both the Soviet Union and Germany in September 1939.

ANSWER: Polish [or Pole; prompt on Jewish with “of what national ethnicity?”]

15. A controversial one of these works about COVID was written by Djilou in response to the “inimitability challenge” to produce a single one of these texts. The last two of these texts are collectively named for seeking refuge. By assuming their style changes unidirectionally, Theodor Nöldeke (“TAY-oh-dor NULL-duh-kuh”) ordered these texts chronologically. Several of these texts begin with the “mysterious letters.” The ninth of these texts unusually does *not* begin by addressing the (*) beneficence and mercy of a certain figure. There are 114 of these texts, arranged in approximately decreasing size. The second of these texts is the longest, and has a section named for a throne. The first of these texts is called “The Opening.” They are subdivided into verses called *ayat* (“ah-yahṭ”). For 10 points, name these chapters of the Qu’ran.

ANSWER: surahs [or suwar; prompt on answers like chapters or chapters of the Qu’ran]

16. One construct named for this person has its isometries equal to all transformations that take the time axis to itself. The quantity “ $48M^2$, over r^6 ,” gives the Kretschmann (“KRETCH-mahn”) scalar for a system named for this person. A construct named for this person can be “maximally extended” to produce a diagram showing four hyperbolic regions, named for Kruskal (“KRUSS-kull”) and Szekeres (“SECK-uh-resh”). Birkhoff’s theorem states that (*) spherically-symmetric solutions to the Einstein field equations are equivalent to this person’s metric, which describes an uncharged static black hole. By setting escape velocity equal to the speed of light, one obtains a quantity named for this person equal to “ $2GM$ over c^2 .” For 10 points, name this physicist who names the radius of the event horizon of a black hole.

ANSWER: Karl Schwarzschild (“SHVARTS-shilt”) [accept Schwarzschild radius or Schwarzschild metric]

17. A man with this profession has a “purchase” “well better than his rent,” meaning that the money he makes from his “limit” is more than the license fee that he pays for his territory. While talking with a sick, old man, a member of this profession states that letters can be deadly, and that interpretation, or “glosing” (“glossing”), is “a glorious thing.” In a story narrated by a member of this profession, a farmer curses at his horses after his cart gets stuck in the mud, a widow refuses to part with a new (*) frying pan to pay a bribe, and a corrupt bailiff befriends a yeoman (“YO-min”) who is actually the devil. The farmer Thomas farts in the face of a money-grubbing man with this profession in “The Summoner’s Tale.” For 10 points, the Summoner’s rival in *The Canterbury Tales* is what sort of religious beggar?

ANSWER: friar [or mendicant; reject “monk” or “priest”]

18. A mausoleum from this kingdom was partially destroyed by Thomas Reade, who sold a bilingual inscription describing Prince Atban for five pounds. This kingdom created the mausoleum in Dougga (“DOO-guh”) and minted coins with a galloping horse on it. A ruler of this kingdom disregarded Micipsa’s plan for a triumvirate and killed his brothers Adherbal (“ah-der-bal”) and Hiempsal (“hee-emp-sal”). This kingdom was established after (*) Syphax (“SYE-fax”) lost the Battle of Cirta to a man who then married his wife Sophonisba. Sallust chronicled Quintus Metellus’s campaign against a ruler of this kingdom, whose cavalry formed the right flank at the Battle of Zama. Masanissa founded this kingdom, which was ruled by a man captured by Sulla and paraded in Marius’s triumph. For 10 points, name this North African Kingdom ruled by Jugurtha (“yuh-GUR-tuh”).

ANSWER: Kingdom of Numidia

19. N. Katherine Hayles estimated that these beings make up ten percent of the United States in an essay analyzing their “life cycle.” An essay named for these beings charts transitions from the “old hierarchical dominations” like “biology as clinical practice” to the new “informatics of domination” like “biology as inscription.” That essay was published in a collection titled (*) *Simians*, [these beings], and *Women*, and ends “though both are bound in the spiral dance, I would rather be [this being] than a goddess.” That essay centers this being as part of an “ironic political myth faithful to feminism, socialism, and materialism” because it is “in a post-gender world” which is “simultaneously animal and machine.” For 10 points, name this type of being that titles a manifesto by Donna Haraway.

ANSWER: cyborg [or “A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century” or *The Life Cycle of Cyborgs: Writing and the Posthuman*]

20. This adjective partly titles a piece whose finale opens with the soloist playing a quadruple stop of G3, E-flat 4, B-flat 4, and G5, accompanied only by harp. This adjective nicknames an orchestral work whose first movement uses a rising E-A-B-C motive in the opening of its slow introduction and its sonata-allegro. An E-flat-minor Introduction marked *Grave* (“GRAH-vay”) and a finale marked *Allegro guerriero* appear in a piece for violin and orchestra partly titled for this adjective, by Max (*) Bruch (“brook”). This adjective nicknames a symphony that uses a country’s namesake “snap” rhythms in its second movement and comes one before its composer’s “*Italian*” *Symphony*. For 10 points, give this nickname for Felix Mendelssohn’s third symphony, which was inspired by the same country as his *Hebrides Overture*.

ANSWER: Scottish [or schottischer; accept Scottish *Fantasy*; accept *Fantasie für die Violine mit Orchester und Harfe unter freier Benutzung schottischer Volksmelodien*; accept Scottish *Symphony*; accept Schottische *Sinfonie*]

Round 15 – Bonuses

1. A 2018 book by a thinker whose family is from this country argues that “mistaken identities” lead to political violence but should not be discarded as they connect people to broader social movements. For 10 points each:

[10h] Name this birthplace of Anton Wilhelm Amo, who spent most of his career as a professor in Germany. A different thinker related his father’s political career in this country in the book *In My Father’s House*.

ANSWER: **Ghana**

[10m] *In My Father’s House* was written by this Ghanaian (“gah-NAY-ian”)-British philosopher, an N·Y·U professor who discusses Amo in *The Lies that Bind*. This thinker also wrote *Education for Global Citizenship and Cosmopolitanism*.

ANSWER: Kwame (“KWAH-may”) Anthony **Appiah**

[10e] In 1738, Amo published a treatise taking this epistemological position that derives knowledge from the senses, also advocated by Amo’s contemporary David Hume. It is frequently contrasted with rationalism.

ANSWER: **empiricism** [accept word forms like **empirical**]

2. The speaker of this poem states “It avails not, time nor place- distance avails not, / I am with you” asking “What is the count of the scores or hundreds of years between us?” For 10 points each:

[10m] Name this poem in which a man sees “the Twelfth-month sea-gulls” during his commute.

ANSWER: “**Crossing Brooklyn Ferry**”

[10e] “Crossing Brooklyn Ferry” appeared towards the end of later editions of this Walt Whitman collection, which began as just twelve poems in 1855.

ANSWER: **Leaves of Grass**

[10h] Whitman’s prose collection *Specimen Days* lends its title to a novel by this author, in which Lucas recites passages from *Leaves of Grass* after his brother is killed in an accident at an ironworks. In another novel by him, a character struggles to bake the perfect birthday cake for her husband, Dan.

ANSWER: Michael **Cunningham**

3. Some of these materials, such as many polymer solutions, exhibit the Weissenberg effect, in which they climb up the outside of a rotating rod. For 10 points each:

[10m] Name this most general class of materials whose viscosity depends nontrivially on their strain rate.

ANSWER: **non-Newtonian** fluids

[10e] These partial differential equations co-named for a Frenchman and an Irishman can be adapted to describe non-Newtonian fluids. The existence and smoothness of solutions to these equations is a Millennium Prize problem.

ANSWER: **Navier-Stokes** equations [or **NS** equations]

[10h] A simple application of the non-Newtonian Navier-Stokes equations is used to solve for this kind of flow of a power-law fluid, in which fluid flows through a pipe with stationary sides under a pressure gradient.

ANSWER: (Hagen-)**Poiseuille** (“pwah-ZUY”) flow

4. This object was designed by George Stanley, who taught at the Royal Military College. For 10 points each:
[10m] Name or describe this object, which, after two years of bitter debate, was officially inaugurated in 1965 and replaced an older object known as the “Red Ensign.”

ANSWER: **Canadian** national **flag** [accept anything indicating the **flag** of **Canada**; accept **Maple Leaf Flag**]

[10h] Opposition to the new flag was led by John Diefenbaker, who had just been ousted as prime minister in 1963, largely due to indecision over accepting these controversial American objects made by Boeing.

ANSWER: (Boeing) CIM-10 **Bomarc** missiles [or Boeing **Michigan Aeronautical Research Center** missiles; prompt on **missiles**; prompt on **weapons**; prompt on nuclear **weapons**]

[10e] This Canadian Prime Minister urged the removal of symbols like the Union Jack, which could anger Quebecois separatists. This Liberal Prime Minister won the Nobel Peace Prize during the Suez Crisis.

ANSWER: Lester **Pearson**

5. The endowment effect and status quo biases are often considered byproducts of this other bias. For 10 points each:

[10h] Name this bias. Shimon Benartzi and Richard Thaler (“THAY-lur”) suggested that a “myopic” (“my-OH-pic”) variety of this bias among managers explains the equity premium puzzle.

ANSWER: **loss aversion** [accept **loss-averse behavior**; accept **myopic loss aversion**; prompt on **loss avoidance**; reject “risk aversion”]

[10m] Loss aversion is one of the key assumptions of this theory developed by Daniel Kahneman (“KAH-nuh-mahn”) and Amos Tversky, which explains how agents “edit” and “evaluate” choices under uncertainty.

ANSWER: **prospect** theory

[10e] In prospect theory, an agent’s value function generally has this property when facing a loss, so they tend to accept greater risk. Functions whose second derivatives are positive have this property.

ANSWER: **convex** [or **convexity**; accept **concave up**; reject “concave” or “concave down”]

6. The Myal (“mye-YALL”) claimed that practitioners of this tradition could steal people’s shadows. For 10 points each:

[10h] Name this spiritual tradition derived from the Akan religion of Ghana. Queen Nanny used the powers of this tradition to supposedly catch bullets during the first Maroon War.

ANSWER: **Obeah** (“OH-beh-ah”) [or **Obayi**]

[10e] After Tacky’s War, this British colony banned Obeah, which is often called this island’s form of Voodoo. Haile Selassie (“HIGH-lee suh-LAH-see”) visited this island in 1966 in an event celebrated as Grounation (“grou-nation”) Day by Rastafarians.

ANSWER: **Jamaica**

[10m] Obeah has influences from the traditional religion of this ethnic group, which reveres *Arusi* spirits and the supreme deity Chukwu.

ANSWER: **Igbo** [or **Ibo**]

7. This adjective titles a self-portrait by Oskar Kokoschka in which the artist stands with his arms defiantly crossed, while a stag can be seen in the right background. For 10 points each:

[10h] Name this adjective. A word form of this adjective titles an 1892 tract on aesthetics by Max Nordau, which denounces the works of Henrik Ibsen and Leo Tolstoy, among others.

ANSWER: **degenerate** [or **Degeneration**; or **Entartete**; accept *Self-Portrait as a **Degenerate** Artist*]

[10e] In Nazi Germany, the label of “Degenerate Art” was applied to several modern art movements, including this experimental style pioneered by Pablo Picasso and Georges Braque (“zhorz brock”).

ANSWER: **Cubism**

[10m] One of the artists featured most prominently in the “Degenerate Art” exhibition was this painter from Die Brucke, the artist of *Self-Portrait as a Soldier* and *Potsdamer Platz*.

ANSWER: Ernst Ludwig **Kirchner** (“keer-shner”)

8. This novel explains that the mask-collecting priest Father Huismans (“HOYSS-mahns”) saw himself as part of a “great historical process” and would consider his own death “unimportant.” For 10 points each:

[10m] Name this novel that explores rapid change in post-colonial Africa through the experience of Salim, an Indian Muslim shopkeeper.

ANSWER: ***A Bend in the River***

[10e] *A Bend in the River* is by this Trinidadian author of *A House for Mr Biswas*.

ANSWER: V. S. **Naipaul** (“NYE-paul”) [or Sir Vidiadhar Surajprasad **Naipaul**]

[10h] The opening line of *A Bend in the River*, which declares that [emphasize] this thing “is what it is” and that it does not accommodate “men who are nothing,” titles Patrick French’s biography of Naipaul.

ANSWER: the **world** [accept *The **World** Is What It Is*]

9. A count of this region created the Order of the Collar, whose mysterious latin motto of *FERT* (“fair”) has been interpreted as “he bore” or a reference to one of its rulers’ participation in a conquest of Rhodes. For 10 points each:

[10h] Name this region. Conrad the Salic made Humbert the Whitehanded the first count of this region after he crushed an uprising in Saint-Jean-de-Maurienne (“sen-zahn-duh-mor-YEN”).

ANSWER: **Savoy** [accept County of **Savoy**]

[10e] Amadeus VIII (“the eighth”) conquered this city, which became the Savoyard capital. Amadeus’s son, Louis, was gifted the ostensible burial shroud of Jesus, which is named for this city.

ANSWER: **Turin** [or **Torino**; accept Shroud of **Turin**]

[10m] Savoyard influence in England began after this English king married Eleanor of Provence, who brought many relatives with her. This son of King John confirmed the Magna Carta and was the target of the Second Barons’ War.

ANSWER: **Henry III** (“the third”) of England [or **Henry of Winchester**; prompt on **Henry**]

10. The namesake and originator of these constructs used them to show that the Ent-scheidungs-problem is undecidable. For 10 points each:

[10e] Name these constructs used to simulate computation. They are named for a British computer scientist and mathematician also known for his contributions to code-breaking.

ANSWER: **Turing** machines

[10m] A Turing machine with multiple tapes can be simulated by a single-tape Turing machine with this kind of slowdown. This is the time complexity of bubble sort, and for running two nested for loops.

ANSWER: **quadratic** [or big O of ***n*-squared**]

[10h] The existence of undecidable languages can be shown using this technique to show the set of all Turing machines cannot be put in correspondence with the set of all languages.

ANSWER: Cantor **diagonalization** [or word forms such as **diagonalizing**]

11. The namesake subduction zone of this group of islands generates its volcanic arc, which includes the picturesque Mount Scenery and peaks on Saint Kitts and Nevis (“NEE-viss”). For 10 points each:

[10e] Name this group of highly volcanic Caribbean islands. They are contrasted with a “greater” counterpart that includes Cuba and Hispaniola.

ANSWER: **Lesser Antilles** (“ann-TILL-ees”) [anti-prompt on **Leeward** Islands or **Windward** Islands with “what larger group of islands are those part of?”]

[10m] The Lesser Antilles volcanic arc includes this Martinican (“martin-EEK-un”) volcano, whose 1932 eruption killed more than 30,000 people on the surrounding island.

ANSWER: Mount **Pelée** (“puh-LAY”) [or Mont **Pelée**]

[10h] Several volcanoes in the Lesser Antilles - including one on St. Vincent, one on Guadeloupe (“gwod-LOOP”), and some hills on Montserrat - share this name, which refers to their use as mines for a certain element.

ANSWER: **Soufrière** (“soof-ree-YAIR”) [accept **Soufrière** Hills or La Grande **Soufrière**] (The word *soufre* is French for ‘sulfur.’)

12. Name some things about FESTAC, the then-largest pan-African gathering for an arts and culture festival. For 10 points each:

[10m] FESTAC’s emblem was an ivory mask last worn by Ovon ramwen, a leader of this kingdom overthrown by the British in 1897. The Edo people founded this Kingdom ruled by *obas*.

ANSWER: Kingdom of **Benin** [or **Benin** Empire]

[10h] This leader resigned as co-patron of FESTAC after a dispute with Olesgun Oba sanjo over North Africans’ inclusion in the festivities. This man led the creation of a short-lived federation with Modibo Keita.

ANSWER: Léopold Sédar **Senghor** (“LAY-oh-pold SAY-dar SENG-ghor”)

[10e] FESTAC took place in this country, ruled at the time by Oba sanjo. Under Yakubu Gowon, Biafra tried to break away from this country.

ANSWER: Federal Republic of **Nigeria**

13. This composer's 1610 *Vespro della Beata Vergine* marks the importation of his *seconda pratica* (“say-KAWN-duh PRAH-tee-kuh”) style into sacred music. For 10 points each:

[10e] Name this Italian Baroque composer, whose opera *L'Orfeo* is the earliest that has remained part of the standard repertoire.

ANSWER: Claudio **Monteverdi** [or Claudio Giovanni Antonio **Monteverdi**]

[10m] Although some of the pieces in the *Vespro della Beata Vergine* call for elaborate instrumental ensembles, some use this kind of accompaniment, which consists of a bassline and chord progression, usually indicated with figures.

ANSWER: basso **continuo**

[10h] The historically-informed vocal group the Monteverdi Choir was formed by this conductor for a 1964 performance of *Vespro della Beata Vergine*. He also founded the English Baroque Soloists and the Orchestre Révolutionnaire et Romantique.

ANSWER: Sir John Eliot **Gardiner**

14. This novel's plot is set in motion when a carriage accident causes one character to sprain his ankle and convalesce with the Heywoods. For 10 points each:

[10h] Name this novel in which Thomas Parker has grand plans to turn a quiet fishing village into a major seaside resort.

ANSWER: Sanditon (“SAND-uh-ton”)

[10e] *Sanditon* is by this author. John Willoughby aids Marianne Dashwood after she sprains her ankle in this author's novel *Sense and Sensibility*.

ANSWER: Jane Austen

[10m] In a different novel, the protagonist first meets this man after he has sprained his ankle from his horse slipping on ice. This man's first wife is the protagonist of *Wide Sargasso Sea*, and inspired the title of Sandra Gilbert and Susan Gubar's *The Madwoman in the Attic*.

ANSWER: Edward Fairfax Rochester [accept either name]

15. Growing culture in test tubes is a tricky business. For 10 points each:

[10e] The test tube usually contains media in a solid form, because it has been mixed with this jelly-like combination of poly-saccharides (“poly-SACK-uh-rydes”) derived from algae.

ANSWER: agar (“AY-gar”)

[10m] In proper a-septic technique, after opening the test tube with one hand, the open test tube is waved over one of these instruments. Then, the bacteria is added to the tube.

ANSWER: Bunsen burner [accept just flame]

[10h] To increase the surface area for streaking, this kind of culture is used. In this kind of culture, the agar is allowed to set while the tube is placed on an incline.

ANSWER: slant culture [or slope culture]

16. Cow skin is stretched over part of this plant to make a Malian instrument called a *kora*. For 10 points each:

[10h] Name this plant that is also traditionally used to make the central components of the Hausa *goje* (“go-jay”) fiddle and the Chinese *húlúsi* flute.

ANSWER: calabash [or bottle gourd; or white-flowered gourd; or long melon; or birdhouse gourd; or New Guinea bean; or Tasmania bean; or opo squash; prompt on gourd; prompt on melon; prompt on squash]

[10e] The calabash is used to make resonators in Hindustani classical instruments, such as this one, which usually consists of six or seven played strings and around a dozen sympathetic strings. Ravi Shankar helped to popularize this instrument in the West.

ANSWER: sitar

[10m] An alternate name for the calabash appears in the title of this African-American song about the Underground Railroad that tells escaped slaves that “[t]he old man is awaiting for to carry you to freedom” if you do the title action.

ANSWER: “Follow the Drinking Gourd” [or “Follow the Drinkin’ Gourd”]

17. This figure was conceived when his mother gazed upon a falling star, and remained in her womb for 62 years until she leaned against a plum tree. For 10 points each:

[10h] Name this figure who, in one story, rides a water buffalo across the desert and is stopped by a border guard, who asks him to record all of his wisdom before leaving his country forever.

ANSWER: **Laozi** (“lao-tsoh”) [or **Lao Tzu** or **Lao Tze** or **Master Lao**; prompt on **Old Master** or **Lao**]

[10e] In that tale, Laozi compiles this philosophical text in two days and hands it to the guard before departing.

ANSWER: ***Dào dé jīng*** (“dao-duh-jeeng”) [or ***Tao Te Ching***]

[10m] In other stories, Laozi is taught the wisdom of the *Dào dé jīng* by this goddess. Zhuangzi (“jwang-tsoh”) praised this goddess, whose palace on Mount Kunlun houses the Peaches of Immortality.

ANSWER: **Queen Mother** of the **West** [or **Xi Wangmu**, or **Seiōbo**, or **Seowangmo**, or **Tây Vương Mẫu**; accept **Wusheng Laomu** or **Wujimu**; accept **Yaochi Jinmu** or **Golden Mother** of the **Jade Pond**; prompt on **Queen Mother**]

18. This process gives rise to the P- and R-branches of fine structure in a high-resolution infrared spectrum. For 10 points each:

[10m] Name this process studied by molecular microwave spectroscopy. In a “rigid” model of this process, energy levels are separated by a constant B , times the quantum number J , times J -plus-one.

ANSWER: molecular **rotation**

[10h] In practice, the line spacing in di-atomic rotational spectra decreases as J increases. That is primarily due to this phenomenon, where a namesake force increases the molecule’s moment of inertia, as the co-valent bond is not infinitely stiff.

ANSWER: **centrifugal distortion** [prompt on partial answer]

[10e] Another advanced correction to the rigid rotor accounts for a coupling between rotation and vibration named for this effect. This fictitious force named for a Frenchman acts on moving objects in a rotating reference frame.

ANSWER: **Coriolis** effect [accept **Coriolis** coupling]

19. In this play’s fifth act, a room full of characters are thunderstruck when a Postmaster reads aloud a letter that brutally mocks all of them. For 10 points each:

[10m] Name this comedy whose protagonist, a naïve, fairly stupid clerk, takes advantage of a provincial town along with his servant Osip after losing all of his money playing cards.

ANSWER: *The **Inspector General*** [or *The **Government Inspector***; or **Revizór**]

[10e] *The Inspector General* was written by this Ukrainian-Russian author of “The Overcoat” and *Dead Souls*.

ANSWER: Nikolai **Gogol**

[10h] This Russian directed a landmark 1926 production of *The Inspector General* where actors emerged from 11 coffin-like doors during a nightmarish bribe scene. He broke from his mentor Stanislavsky (“STAN·iz·slavsky”) to emphasize posture and movement, leading him to develop a school of actor training called Bio-mechanics.

ANSWER: Vsevolod **Meyerhold** [or Vsevolod Emilyevich **Meyerhold**; or Karl Kasimir Theodor **Meyerhold**]

20. Benson J. Lossing popularized the legend that a non-existent member of this family named Phoebe was romantically involved with Thomas Hickey, who tried to get her to poison George Washington's peas. For 10 points each:

[10h] Name this family. George Washington's farewell address to his generals occurred at a tavern named for this family, which housed the Departments of Foreign Affairs and Finance created by the Articles of Confederation.

ANSWER: **Fraunces** [or **Fraunces** Tavern or Phoebe **Fraunces** or Samuel **Fraunces**]

[10e] Legendarily, Samuel Fraunces told Jane Tuers that this American general committed treason by spying on behalf of the British.

ANSWER: Benedict **Arnold**

[10m] A list of Black Loyalists was compiled by a general with this last name at Fraunces Tavern. Later, an ultra conservative, anti-communist "society" named for a man with this last name was founded by Robert Welch.

ANSWER: **Birch** [or Samuel **Birch** or John **Birch** or the John **Birch** Society]