

## Cane Ridge Revival

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TOSSUPS

1. **Giustina and Zeilinger recently overcame the fair-sampling “loophole” in an experiment demonstrating this result by more efficiently detecting photons. One way to prove this result is to experimentally find situations where  $S$ , the sum of four expected values, is close to 2 times the square root of 2, according to a formula developed by Clauser, Horne, (\*) Shimony, and Holt. The two-channel experiments of Alain Aspect provided evidence supporting this result, by verifying the CH74 inequality and demonstrating that entanglement is consistent with it. This theorem answered the question posed in the paper “Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?” by basically resolving the EPR paradox. For 10 points, name this theorem, which states that no local hidden variables can adequately account for the results of quantum mechanics.**

ANSWER: Bell's theorem/inequalities

2. **While drunk on cognac, one character in this novel imagines piercing the protagonist and a handyman who joins the Navy on a bayonet. The protagonist of this novel is exhorted to remember an imaginary Eastertide trip to a bakery in Millau by a dying Frenchman who thinks he’s in Paris. In this novel, a millionaire who sells Amos chocolate bars to soldiers eventually marries the protagonist’s freckled cousin, whose twin brothers Pierrot and Jackson go missing after their production of the protagonist’s play (\*) *The Trials of Arabella* is canceled. The protagonist of this novel spies on a character who later fights at Dunkirk having sex in the library after reading his sexually charged letter to her sister, causing her to send him to prison by accusing him of raping Lola Quincey. For 10 points, name this novel about Robbie and Cecilia being torn apart by the budding novelist Briony Tallis, a work by Ian McEwan.**

ANSWER: Atonement

3. **This composer preceded John Bull and Jan Sweelinck in writing what is thought to be the earliest hexachord fantasia. He employed a “false relation” between an F-sharp in the Superius and an F in the Bassus in the opening phrase of his setting of *Ave Verum Corpus*, which is in G minor and 4/2 time. He included variations on “Sellinger’s Round” and “Carman’s Whistle” in one instrumental collection. The death of Robert Cecil inspired a pair of dances by him titled for the “Earl of (\*) Salisbury”. He and his teacher were granted a 21-year monopoly on printing polyphonic music by Elizabeth I. Ten paired pavaues and galliards appear in a work by him that is, besides the *Fitzwilliam Virginal Book*, the most important collection of keyboard music of the English Renaissance. For 10 points, name this English Catholic composer, who wrote *My Ladye Nevells Booke* and co-wrote the *Cantiones Sacrae* with Thomas Tallis.**

ANSWER: William Byrd

4. **Howard Dully wrote a 2007 memoir about his experience as one of the youngest people to undergo this procedure, and a man who performed it publicly demonstrated a “two-handed” technique. John Fulton's research on the effects of this on chimpanzees inspired its first use with humans. Antônio Egas Moniz won the Nobel Prize for developing this technique, which was premised on a “fixed arrangement of connections” that causes feedback loops. The (\*) transorbital version of this procedure was popularized in the United States by Walter Freeman, who believed it worked by eliminating excessive emotion in the patient. Freeman replaced the fluid and trocar of Ammaro Fiamberti's technique with an icepick or two and performed this procedure on thousands of people including Rosemary Kennedy. For 10 points, name this operation which removes or destroys part of the white matter in the frontal lobe of the brain.**

ANSWER: lobotomy [or leucotomy]

5. An attempt to retake this island led by Cristóbal Arnaldo was defeated at the Battle of Ocho Rios. In 1692, most of a city on this island sank into the sea and the majority of its population was killed following an earthquake. Following the theft of two pigs, a conflict centering on Trelawney Parish broke out on this island. Resistance to colonial rule on this island was led by the Coromantee people and centered on (\*) Cockpit Country. After successful raids on Porto Bello and Cartagena, Henry Morgan was made Lieutenant Governor of this island, which was transferred to England in the 1670 Treaty of Madrid. This nation's first post-independence Prime Minister was Alexander Bustamante, and it was home to the founder of the Black Star Line, which promoted the Back-to-Africa movement. For 10 points, name this island nation home to Port Royal and the black nationalist, Marcus Garvey.

ANSWER: Jamaica

6. This function's roots for a bipartite graph are always real and positive. Two graphs are called cospectral if this entity for one of them is a scalar multiple of this entity for the other. This thing can be found using algorithms named for Danilevsky or Faddeev and Leverrier. When B can be written as P-inverse times A times P, this non-scalar entity is the same for B and A. If this function has no repeated roots, it is equal to the minimal (\*) polynomial, and the entity used to generate it is diagonalizable. A given matrix is invertible if its corresponding one of these functions has a non-zero constant term. Applying this function to the corresponding matrix results in the zero matrix, according to the Cayley-Hamilton theorem. For a given matrix, this function equals the determinant of the matrix minus lambda times the identity matrix. For 10 points, identify this polynomial function of a given matrix, a function whose roots are the eigenvalues.

ANSWER: characteristic polynomial

7. Twelve religious sites of this sect are located where a certain figure appeared as a pillar of light. The poems and lives of sixty-three devotional poets of this sect are collected in the *Tirumulai*. Pilgrims of this sect worship an object formed of ice in the Amarnath caves. Lakulish is credited with founding this sect's Pashupata school, a rival of the tantric Siddhanta tradition developed by the Nayanar poets. A major form of worship in this sect is the application of ash across the forehead. Members of this sect recite the Panchakshara mantra as part of the Sri Rudram hymn. An important figure from this sect is depicted holding (\*) fire in one of his left hands as he performs a cosmic dance. The primary deity of this religion is often depicted living on Mount Kailash and represented with a sacred phallic object, the lingam. For 10 points, name this sect that primarily venerates the an aspect of the Trimurti known as "The Destroyer".

ANSWER: Shaivism [or Shaivas; or Shaivites; or anything having to do with the worship of Shiva]

8. WARNING: DESCRIPTION ACCEPTABLE

The Supreme Court ruled against James Roosevelt, FDR's father, in its first consideration of this policy, which upheld it. Charles Sumner's opposition to this policy was one factor in his support for Horace Greeley in 1872. The author of *Two Years Before the Mast*, Richard Henry Dana Jr, launched a quixotic primary challenge to Congressman Benjamin Butler to oppose this policy, and Butler was the (\*) 1884 Presidential nominee of the party founded to support it. Salmon Chase supported this policy as Treasury Secretary but opposed its constitutionality as Chief Justice, and FDR used the Trading With the Enemy Act of 1917 to implement this policy right after he was inaugurated. Richard Nixon put this policy in effect for good in 1973, the demise of the Bretton Woods system. For 10 points, what is this policy of printing money that is not backed by specie?

ANSWER: greenbackism [accept word forms; accept "paper money," "ending the Gold Standard," and word forms, synonyms, and anything more elaborate. Prompt on "letting the dollar float" or "floating exchange rates" and variants. Do not accept or prompt on "bimetallism" or synonyms, including any mention of "silver."]

9. This is the second title word of a work that represents a certain island with the motif of an ascending octave followed by a descending half-step. This is the first title word of a work in which a mother says that when a leader is weak, “the tea must be strong”, to explain why she poisoned her son; that work features a parody of Gilbert & Sullivan sung by a British Admiral in “Please Hello”. This is the second title word of a work in which a heroine who feels “as (\*) corny as Kansas in August” showers onstage while trying to “wash that man right out of [her] hair”; that character overcomes her “carefully taught” prejudice against Emile de Becque’s half-Polynesian children and is the army nurse Nellie Forbush. For 10 points, name this first title word of a Stephen Sondheim musical about the Westernization of Japan, and the second title word of a Rodgers and Hammerstein musical featuring the song “Some Enchanted Evening”.

ANSWER: Pacific [the two shows are Pacific Overtures and South Pacific; so, be generous, and accept either of these titles]

10. A character with *this name* is called “moral” by the protagonist of the play in which she appears, after she confesses to a waking dream about smoke coming out of her closet. That character with *this name* first talks to her future husband by a park bench, while looking for a stranger who gave her a dog and then walked off. That character with this name makes her husband fire orchestra musicians out of paranoia, is constantly sexually pursued by nameless men, and attempts suicide with a bottle of pills. That fictionalization of the author’s ex-wife (\*) Marilyn Monroe appears in *After the Fall*. Another character with this first name sleeps with Skipper after taunting him for his homoerotic friendship with her husband, an alcoholic ex-football hero with a broken leg, named Brick. That character lies to Big Daddy Pollitt about being pregnant. For 10 points, give this name of the protagonist of *Cat on a Hot Tin Roof*.

ANSWER: Maggie [prompt on “Margaret”, I guess, though no one refers to either character by their first full names at any point in the plays]

11. In the presence of ammonium acetate, this molecule reacts with pentane-2,4-dione to produce a yellow product. This molecule’s airborne concentration is assayed under acidic conditions by a test that produces a red-purple color when this molecule reacts with chromotropic acid. Under basic conditions, this molecule and a trichlorinated derivative are the major catalysts for the reaction of nitrites and secondary amines to form *N*-nitrosamines. (\*) Fish imported from Vietnam often contain illegally high levels of this molecule, which is the major indoor air pollutant found in composite wood. This molecule cross-links a protein to DNA in the first step of ChIP. With urea, this molecule forms a plastic used in now-illegal foam insulation. Silver catalyzes the industrial conversion of methanol to this molecule, which reacts with Grignard reagents to produce primary alcohols. For 10 points, name this common histological fixative, the simplest aldehyde.

ANSWER: formaldehyde [or methanal; accept formalin; accept CH<sub>2</sub>O or equivalents; do not accept methanol]

12. This man called the feature of thought that allows people who know how to say “John loves the girl” to also know how to say “the girl loves John” “systematicity” in a paper written with Zenon Pylyshyn. That paper by him argued that the connectionist approach to mind was unable to explain such properties. A book by this man used the example of optical illusions to argue that because we can know an image is illusory but still be unable to see it any other way, perception and language are (\*) “informationally encapsulated” from the central system of thought. He called the confusion between his preferred philosophy of mind and dualism the “original sin of the Wittgensteinian tradition” and defended the thesis that thought relies on mental representations with a semantic structure. For 10 points, name this author of *The Modularity of Mind* and *The Language of Thought*.

ANSWER: Jerry (Alan) Fodor

13. This author declared “If you can’t be free, be a mystery” in one poem. The Mama of one of this author’s title characters says: “Touch that child / and I’ll cut you down / just like the cedar of Lebanon” in one poem. This author described a music box with a ballerina twirling “in the tips of a carnation” in another poem. This poet described two men “with nothing to boast of / but good looks and a mandolin” in “The Event”. This author was attacked for glib critical judgments and “multicultural inclusiveness” in (\*) “Are These the Poems to Remember?”, a critique of her editing of The Penguin Anthology of 20th Century American Poetry by Helen Vendler. A Pulitzer Prize-winning volume including the section “Canary in Bloom” is named for her maternal grandparents. For 10 points, name this author of *Thomas and Beulah*, the first African-American Poet Laureate of the U.S.

ANSWER: Rita (Frances) Dove

14. This city’s acropolis contained a sacred sector called a *kizzum*. The construction of one palace in this city is detailed in the DSf inscription, while the Shaur palace was constructed here by a son of Parysatis. It’s not Ur, but during one period, the chief authority in this city was known as a *sukkalmah*. This city was ruled by twelve “Simashkeans,” who were preceded by twelve rulers “from Awan.” A polity that called itself Haltamti transferred its capital from Anshan to this city, and this “great holy city” suffered a brutal sack by Ashurbanipal. (\*) Sardis and this city were the termini of the Royal Road. This city is one of two where Darius the Great built a palace, and the events described in the Book of Esther supposedly took place here. For 10 points, name this capital of the Elamite kingdom and winter capital of the Achaemenid Empire.

ANSWER: Susa [or Shushan; or Shushun]

15. In one work by this artist, Gandhi holds a sign saying “vegetarian as well”, and wears a halo with the word “love” written under it. Three black leaves of a plant occupy the bottom of a painting by him that shows a naked man bending over in the shower. In the lower right of one painting by this painter of *Myself and My Heroes*, a blue table-lamp, with a tree-like branched base, sits next to a white telephone. The end of a (\*) diving board projects into the bottom one of painting by him, which shows a large splash in a swimming pool. A shuttered window sits between Celia Birtwell and her husband, who wears a blue sweater and sits with a white cat on his lap, in this painter’s most famous double portrait. For 10 points, name this English painter of *A Bigger Splash* and *Mr. and Mrs. Clark and Percy*, known for homoerotic works about life in Los Angeles.

ANSWER: David Hockney

16. Harrison and Kreps proposed a model of this economic concept as arising from heterogeneous beliefs of optimists and pessimists. One factual implication of their model is that this concept is accompanied by high trading volume, and this concept persists in that model because pessimists face a short-selling constraint. Peter Diamond showed that in a dynamically inefficient overlapping generations context, money or government debt can function as this concept in a way that restores efficiency. Most models of this concept are attempts to formalize a five-stage description of it proposed by (\*) Hyman Minsky. Eugene Fama said “I don’t even know what [this concept] is” and referred to it as a “nefarious term,” while Robert Shiller defined this as a “fad” in his Nobel Prize acceptance speech. For 10 points, give this economic concept that occurs when an asset price is driven higher than its “fundamental value,” and which “pops” when it is reversed.

ANSWER: bubbles [accept asset price bubbles, stock market bubbles, or anything seemingly more specific]

17. A key sequence involved in a “classical” form of this process was discovered in a chimeric gene composed of pyruvate kinase and SV40 large T-antigen. The heterodimeric enzyme MPP cleaves the central molecule in another form of this process, which is accomplished by the action of Hsp70 as a “Brownian ratchet.” The orientation of one form of this process is determined by the “positive inside rule.” Folding by BiP follows a (\*) co-translational form of this process accomplished by the binding of SRP to its receptor to allow interaction with a complex of Sec proteins. One form of this process is mediated by the TOM and TIM complexes, while another relies on glycosylation with mannose 6-phosphate. Günter Blobel won the 1999 Nobel Prize for determining that this process is facilitated by N-terminal signal peptide tags. For 10 points, name this process of localizing proteins to a specific organelle.

ANSWER: protein sorting [accept protein trafficking, targeting, importing, translocation, transfer; uptake, compartmentalization, distribution or reasonable descriptive equivalents; accept protein tagging before mentioned; accept protein localization before “localization”; accept answers referring to localization in any specific organelles; prompt on generic answers about “transport” or “docking” or equivalents; antiprompt on “endomembrane system”; prompt on “secretion” or “vesicular transport” or related answers]

18. One character in this novel has a habit of repeating words, resulting in phrases like “a dog is a dog and a man is a man.” In this novel, a young boy likens a pot stick to the aristocracy because it is used rarely and only in the preparation of the best meal – meat soup. The protagonist of this novel rides across a frozen river in a blizzard while searching for an animal that he thought ran away, but which his wife slaughtered and ate. Upon his return home from that search, the protagonist finds his wife has died in (\*) childbirth. In this novel, a moor that is supposedly haunted by the sorcerer Kolumkilli is renamed Summerhouses by a man who earns his freedom from working on a bailiff’s property called Rauthsmyri. In this novel, the protagonist prizes the sheep bred by Reverend Godmundur over all others, and Rosa dies giving birth to the bastard Asta Sollilja. Bjartur works to become one of the title persons in, for 10 points, what novel by Halldor Laxness

ANSWER: Independent People [accept Sjálfstætt fólk]

19. Charles of Casaulx seized control of Marseilles in the name of this group and beseeched the Grand Duke of Tuscany for a loan to help that city remain independent of this group’s enemies, and Casaulx’s betrayal and assassination were this group’s final defeat. Bernardino de Mendoza orchestrated this group’s successful plan to block the deployment of the Swiss Guards who were intending to conduct a census, but his client who headed this organization was assassinated later the same year after spending the night with his mistress, Charlotte de Sauve, one of (\*) Catherine de Medici’s spies. The Duke of Mayenne thereafter led this group to defeat at the Battle of Ivry, when the tide turned in the War of the Three Henriess in favor of Henry of Navarre. For 10 points, name this group allied to Philip II and formed in the last phase of the French Wars of Religion to support the Dukes of Guise and their religious affiliation.

ANSWER: The Catholic League

20. God summons one of these animals to devour corn after King Solomon prays to feed all the creatures in the world. The hunter Natsilane kills his brother-in-law with one of these animals after growing it from yellow cedar. A poem from the Exeter Book titled for one of these mammals describes an encounter with Fastitocalon, an Aspidochelone that behaves like another creature sometimes described as one of these mammals, the Jasconius encountered by Saint (\*) Brendan. Big Raven eats mushrooms in order to gain enough strength to move one of these animals, which are preyed upon by thunderbirds. To escape Ruatapu, Paikea rides one of them in a Maori myth. Along with seals and walruses, they were born from the chopped fingers of Sedna. For 10 points, name these mammals exemplified by the Leviathan and the swallower of Jonah.

ANSWER: whales [or cetaceans; antiprompt for order on specific members of Cetacea including dolphins; prompt for type of creature on sea monsters or similar answers]

## BONUSES

1. The protagonist of this story visits Old Jebb and Dellie while the latter is bed-ridden with “woman mizry”. For 10 points each:

[10] Name this short story, which describes a tramp doing work on Seth’s parents’ farm in Tennessee during a cold spell in June.

ANSWER: “**Blackberry Winter**”

[10] “Blackberry Winter” is by this co-founder of the New Criticism movement, who fictionalized Huey Long as Willie Stark in *All the King’s Men*.

ANSWER: Robert Penn **Warren**

[10] Warren defended segregation in the essay “Briar Patch”, included in this 1930 collection by John Crowe Ransom, Allen Tate, and other members of the Southern Agrarian movement centered at Vanderbilt University.

ANSWER: **I’ll Take My Stand**

2. Taddeo Gaddi painted this scene below a Tree of Life for the refectory of Santa Croce. For 10 points each:

[10] Name this scene family painted by Leonardo Da Vinci in which Christ indicates that Judas will betray him.

ANSWER: **Last Supper**

[10] A Last Supper with inlaid marble panels painted in was created by this Florentine painter, who also painted an equestrian statue of Niccolò Da Tolentino, and a notably foreshortened crucifixion for St. Apollonia.

ANSWER: Andrea del **Castagno** [or Andrea **Degil Impiccati**]

[10] Castagno painted a shield showing this figure as a young man, wearing a wind-blown red tunic. Caravaggio painted this figure holding a sword pointed towards his own groin while looking at a dripping and heavily bearded severed head he holds by the hair.

ANSWER: **David**

3. Everyone in quizbowl knows what the Lotka-Volterra equations are, but how deep is your knowledge of ecological field methods? For 10 points each:

[10] Ecologists usually catch wild birds and bats with these large traps containing loose nylon pockets that prevent injury to organisms. While time-consuming to set up, they allow easy observation and banding of common species.

ANSWER: **mist nets** [accept word forms; accept **dho-gazza**; prompt on “nets” or synonyms; prompt on “trammels”]

[10] Mist nets trap organisms for mark-recapture, a technique whose estimates of population size have been applied to written records in this field. SIR models describe population interactions in this field, which is founded on Hill’s criteria of causality.

ANSWER: **epidemiology** [prompt on **medicine** or **medical** science]

[10] The Shannon-Wiener and Simpson indices are used to estimate this trait, whose alpha form refers to the number of species in an area. The loss of this trait, especially in “hotspots,” is the major focus of conservation biology.

ANSWER: **biodiversity** [accept **biological diversity**; accept species, genetic, habitat or ecosystem **diversity**; accept species **richness**]

4. The Hittites may have used this name to refer to the god Inara. For 10 point each:

[10] Name this kind of protector spirit whose name is shared with the gods honored in the Hittite Festival of the Tutelary Deities. They are represented as man-headed winged bulls in Neo-Assyrian art.

ANSWER: **Lamassu** [or **LAMMA**-god or I guess **LAMMA** just to be fancy]

[10] Two answers required. One of these two groups consisted of ancestral spirits honored by the Romans, while the other group was a set of domestic tutelary spirits who were the focus of namesake Roman household shrines.

ANSWER: **Lares** and **Penates**

[10] This class of Hindu, Buddhist, and Jain tutelary deities are responsible for protecting what is in the earth and tree roots. They are often found flanking images of Tirthankaras in Jain temples.

ANSWER: **Yakshas**

5. A crucial event in this state's history was the Treaty of Labiau, which granted it autonomy in exchange for support for Charles X Gustav Vasa of Sweden in the Second Northern War. For 10 points each:

[10] Name this state, which also consisted of the Duchy of Cleves thanks to the War of Jülich Succession. That war gave Cleves to Elector John Sigismund.

ANSWER: **Prussia-Brandenburg**

[10] John Sigismund's grandson was this Calvinist under whom Prussia rose to power. He fought in the Swedish interest during the Second Northern War and welcomed prosperous Wallonian Huguenots with the Edict of Potsdam in 1685.

ANSWER: **Frederick William I**, the **Great Elector** [accept **Frederick William I** or **Frederick William the Great Elector**; accept "**Friedrich Wilhelm**" for **Frederick William**]

[10] During the Scanian War, the Great Elector triumphed over Sweden at this 1675 battle. It temporarily gave Pomerania to Prussia, but in the Treaty of Saint-Germain-en-Laye Louis XIV forced Prussia to give it back. In 1871, Prussia would have its revenge.

ANSWER: Battle of **Fehrbellin**

6. This man used Greenlander Norse and Easter Islanders as examples of societies whose collapse was brought on by ecological destruction. For 10 points each:

[10] Name this author of *Collapse* who also claimed ecology and geography were the primary factors for the success of Europe compared to the Americas in *Guns, Germs, and Steel*.

ANSWER: Jared (Mason) **Diamond**

[10] Diamond's emphasis on geography was criticized in *Why Nations Fail*, a book by this man and James Robinson. This man argued political institutions established while a country was a colony were largely responsible for current development in "Colonial Origins of Comparative Development."

ANSWER: (Kamer) Daron **Acemoglu**

[10] To overcome omitted variable bias, Acemoglu used European settler mortality as this type of variable. This variable is correlated only with the independent variable and is the regressor in the first stage of two-stage least-squares regression.

ANSWER: **instrumental** variables (or **IVs**)

7. The speaker must enter "the round / Zion of the water bead / And the synagogue of the ear of corn" in this author's poem "A Refusal to Mourn the Death, by Fire, of a Child in London." For 10 points each:

[10] Name this author who claimed that "seasons must be challenged or they totter" in "I See the Boys of Summer." This author's poem "Do Not Go Gentle into That Good Night" repeats, "rage, rage against the dying of the light."

ANSWER: Dylan Marlais **Thomas**

[10] Thomas's "The Force That Through the Green Fuse Drives the Flower" claims that "the lips of" this entity "leech to the fountain head." The speaker of his poem "Fern Hill" says that this entity "held me green and dying."

ANSWER: **time**

[10] Thomas's poem "And Death Shall Have No Dominion" predicts, "Faith in their hands shall snap in two" and "the evils" of this type of animal "shall run them through."

ANSWER: **unicorn** evils

8. Answer the following about the magnetic vector potential, for 10 points each:

[10] The magnetic vector potential is found in a 4-vector with this other quantity. It is often denoted by  $\phi$ , and for a single point charge  $Q$  is equal to  $kQ$  over  $R$ .

ANSWER: **electric potential** (prompt on **voltage** or **emf** or **electromotive force**)

[10] This condition is satisfied when the divergence of the magnetic vector potential equals negative one over  $c$ -squared times the time derivative of electric potential. It makes Maxwell's equations invariant under boosts.

ANSWER: **Lorenz gauge** condition (accept **Lorentz gauge**; prompt on partial answer)

[10] In the Aharonov-Bohm effect, the magnetic vector potential causes a charged particle's wavefunction to acquire this quantity. In general, it can be imparted to a system by subjecting it to a cyclic adiabatic process.

ANSWER: **geometric phase** or Pancharatnam-**Berry phase** or **Pancharatnam phase** (prompt on **phase** or **phase shift**)

9. The last man to hold this title independently made a politically disadvantageous marriage with Elizabeth Livingstone, the daughter of a courtier who was forced from power shortly thereafter. This man vented his outrage through a treasonable alliance with Edward IV. For 10 points each:

[10] Name this powerful noble title in Late Medieval Scotland, whose seat was on a man-made island in the middle of Loch Finlaggan on Islay (“Eye-la”).

ANSWER: **Lord of the Isles**

[10] The Lords of the Isles were from this clan. The first Prime Minister of Canada post-Confederation and the first Labour Prime Minister of the UK were also presumably descended from this clan and its vassals.

ANSWER: **Donald** or **Domhnall** (accept “**MacDonald**,” etc.)

[10] Edward IV wasted little time in informing this Scottish king about the last Lord of the Isles’s treason when it became convenient, though this king’s pro-English policy was unpopular and he was removed from power for a time. This king is depicted in Hugo van der Goes’ Trinity Altarpiece.

ANSWER: **James III** of Scotland

10. The Talmud prohibits this form of mystical speculation to any accept those wise enough to understand it without explanation. For 10 points each:

[10] Name this form of mystical speculation based in Ezekiel’s vision of the divine chariot, which shares its name with the four worlds of a later system of mystical thought.

ANSWER: **Merkavah** mysticism [or **Merkabah** mysticism]

[10] This later system of mystical thought is based on the Zohar. Its “Lurianic” form introduced the concept of radical “self-withdrawal” on the part of divinity to create the world.

ANSWER: **Kabbalah**

[10] This is the name given to the attributes or emanations through which Ein Sof operates in the world. In Lurianic Kabbalah they are seen as receptacles for the divine emanation which were shattered at creation.

ANSWER: **Sephirot**

11. The anthropologist Ruth Behar’s first book concerns the peasantry in a village in this European country, where a “web of use rights” survived the formal disentanglement that caused recurrent civil strife during the 19th century. For 10 points each:

[10] Name this country, where Julian Pitt-Rivers did fieldwork for *The People of the Sierra*.

ANSWER: **Spain**

[10] Pitt-Rivers argued that this Spanish pastime linked a well-defined, millenia-spanning Mediterranean culture dating back at least to ancient Crete.

ANSWER: **bullfighting**

[10] Julian Pitt-Rivers was the great-grandson of the founder of the Pitt-Rivers Museum in Oxford, which contains an exhibit of these controversial objects. These objects, all of which come from Jivaroan tribes in the western Amazon, were supposed to force a beaten enemy’s spirit into service.

ANSWER: **shrunk heads**

12. This long-lasting event occurred in North America just prior to the Holocene and was contemporaneous with the Pinedale Glaciation, and it is responsible for the creation of Cape Cod and other “outer lands.” For 10 points each:

[10] Name this climatic event, at whose end a series of “dells” or gorges was formed by the catastrophic failure of a natural dam and subsequent instantaneous emptying of a massive lake in its namesake state.

ANSWER: **Wisconsin glaciation** or **Wisconsinan Ice Age** [accept word forms; prompt on partial answer, including “Last Ice Age” or “most recent ice age”]

[10] This ice sheet covered a large chunk of eastern North America during the Wisconsin glaciation. It is responsible for the presence of diamonds in Indiana, and the volcanic tubes where the diamonds originated remain undiscovered deep in the Canadian shield.

ANSWER: **Laurentide** or **Laurentian** ice sheet

[10] This geologic process equilibrates the height of continental crust when the weight it bears changes, such as during glacial retreat. It is the reason for raised beaches on the west coast of Scotland and the imminent demise of the Gulf of Bothnia.

ANSWER: **isostasy** [accept word forms]



13. The so-called “Era of Good Feelings” was really anything but, as natural political disagreement found no organizing principle in the absence of formal parties. For 10 points each:

[10] This Supreme Court case established the battle lines for future conflict over the role of the federal government. It held that Congress had implied powers to regulate interstate commerce that states could not impede, in this case by taxing bank notes.

ANSWER: McCulloch v. Maryland

[10] This man managed to serve as Attorney General for all of Monroe’s two terms, and he split with the Democrats thereafter. He represented the Cherokee in *Worcester v. Georgia*, successfully but to little avail.

ANSWER: William Wirt

[10] This man, Monroe’s Secretary of the Treasury, would have been the consensus Democratic-Republican candidate in 1824, but he had a stroke in 1822 and by the time he’d recovered, the party had effectively splintered.

ANSWER: William (Harris) Crawford

14. His most recent novel is a second-person account of the reader’s rags-to-riches story, and is titled *How to Get Filthy Rich in Rising Asia*. For 10 points each:

[10] Name this Pakistani author who wrote about Changez’s difficulties adjusting to the political realities of post-9/11 America in *The Reluctant Fundamentalist*.

ANSWER: Mohsin Hamid

[10] Pakistan is fictionalized as the country “Q” in this magical realist novel about Omar Khayyam Shakil. It fictionalizes Zulifkar Ali Bhutto as Iskander Harappa.

ANSWER: Shame

[10] *Shame* is by this Indian author of the memoir *Joseph Anton*. Ayatollah Khomeini issued a *fatwa* on this author after the publication of his *The Satanic Verses*.

ANSWER: (Ahmed) Salman Rushdie

15. Our modern visual conception of Don Quixote derives heavily from this artist’s illustration for a French edition of that novel, in the 1860’s. For 10 points each:

[10] Name this French artist, known for his illustrations of Dante’s *Divine Comedy* and Milton’s *Paradise Lost*.

ANSWER: (Paul) Gustave Doré

[10] This English artist did extensive illustrations of Milton’s work, including a version of *Paradise Lost*. He also created illustrations for his own book, *The Marriage of Heaven and Hell*.

ANSWER: William Blake

[10] This artist, the most important Victorian caricaturist, claimed the best drawing he ever did was an unpublished illustration for *Paradise Lost*. He is better remembered for illustrating novels by Dickens, such as *Oliver Twist*.

ANSWER: George Cruikshank

16. John Etchemendy criticized this man’s concept of logical consequence for being over-reliant on the logical connectives of first-order logic. For 10 points each:

[10] Name this Polish logician, who also proved the undefinability of models of arithmetic, a result frequently used in proof of Gödel’s first incompleteness theorem.

ANSWER: Alfred Tarski [or Alfred Teitelbaum]

[10] Tarski developed a rigorous semantic theory of this concept in a 1933 paper on it “in formal languages.” A sentence like “snow is white” possesses this property if and only if snow is white.

ANSWER: truth

[10] Etchemendy draws attention between the similarities of Tarski’s logical consequence and this nineteenth-century mathematician’s concept of deducibility, introduced in a less-famous *Wissenschaftslehre*.

ANSWER: Bernhard (Placidus Johann Nepomuk) Bolzano

17. Smoluchowski's equation for calculating the zeta potential is only valid when this value is much smaller than particle size. For 10 points each:

[10] Name this parameter used to measure the double layer, which is composed of the Stern and Gouy-Chapman layers. This distance is proportional to the square root of temperature over ionic strength.

ANSWER: **Debye length** [accept **screening length**; accept **Debye radius**; accept  **$\kappa^{-1}$**  or **inverse kappa**]

[10] With Hückel, Debye developed an equation for calculating the "coefficients" of this parameter in ionic solutions. This parameter is equal to the concentration under ideal conditions.

ANSWER: thermodynamic **activity** [accept **a**; accept **fugacity** or **f** which is essentially the same thing; accept **gamma** or **phi**]

[10] Warning! Two answers required! Activity coefficients are symbolized by the letter gamma, which is also used to represent the ratio between these two quantities, equal to about five thirds for a monatomic ideal gas. The product of pressure and volume raised to their ratio is constant in an isentropic process.

ANSWER: **isobaric** specific **heat capacity** and **isochoric** specific **heat capacity** [or specific **heat capacity at constant pressure** and **constant volume**; or **C sub p** bar and **C sub v** bar; or **Cp** bar and **Cv** bar; accept any "molar" variations of the acceptable answers; prompt on partial answers like "specific heat," "heat capacity," "heat capacity ratio" or "ratio of specific heats;" prompt on "adiabatic index"]

18. In his soliloquy in Act I, Scene II, this character laments that although birds have less of a soul than he, he has less liberty. For 10 points each:

[10] Name this character who states that "the greatest crime of man is to have been born" while imprisoned by his father Basilio.

ANSWER: **Segismundo**

[10] Segismundo is the rightful heir to the throne of Poland in this play by Pedro Calderón de la Barca. The title of this play appears in Segismundo's monologue in Act II.

ANSWER: **Life is a Dream** or **La vida es sueño**

[10] Spanish Golden Age theatre was often accompanied by these dramatic allegorical plays that are similar to English Morality plays. The one that accompanies *Life is a Dream* features the classical elements, Power, Wisdom, Love, and the Man of Understanding.

ANSWER: **auto sacramental**

19. This period saw the issuance of the land reform law, Decree 900, which threatened the interests of Samuel Zemurray. For 10 points each:

[10] Name this period of liberalization and democracy. This period began when the October Revolutionaries overthrew a dictator who had ruled since 1931.

ANSWER: **Ten Years of Spring** [or **Diez años de primavera**; prompt on "Arbenz' reforms" and similar]

[10] The Ten Years of Spring in this country were brought to an end by operation PBSUCCESS, which resulted in the ouster of its president, Jacobo Arbenz.

ANSWER: Republic of **Guatemala** [or República de **Guatemala**]

[10] The October Revolutionaries overthrew this leader in order to begin the Ten Years of Spring. During the tenure of this admirer of Napoleon, the United Fruit Company became the most important company in Guatemala.

ANSWER: Jorge **Ubico** y Castañeda

20. Though she won second place in the 1908 Prix de Rome for her cantata *La Sirene*, she is not mainly remembered for her own compositions. For 10 points each:

[10] Name this legendary French music teacher. Her students include such diverse figures as Virgil Thomson, Philip Glass, Joe Raposo, and Quincy Jones.

ANSWER: (Juliette) Nadia **Boulanger**

[10] Boulanger taught this Argentinian composer and bandoneon player whose fusion of tango with Baroque counterpoint and jazz harmony was called *nuevo tango*.

ANSWER: Ástor (Pantaleón) **Piazzolla**

[10] Boulanger also taught this legendary Harvard composition professor, whose students included Leonard Bernstein. He wrote the most famous American textbooks on harmony, counterpoint, and orchestration, and his own pieces include *Three New England Sketches* and the ballet *The Incredible Flutist*.

ANSWER: Walter (Hamor) **Piston** (Jr.)