

Cane Ridge Revival

Head-Edited by John Lawrence

Co-Edited by Seth Teitler, Matt Menard, Marshall Steinbaum, and Gautam Kandlikar

Written by the University of Chicago and Dartmouth

March 2014

Packet 6

TOSSUPS

1. **A covariant bound on this quantity proposed by Raphael Bousso is defined in terms of this quantity's value on light-like hypersurfaces chosen so that the generating null geodesics have non-positive expansion. One argument against white holes' existence in our universe is the significantly lower value for this quantity they have than their black counterparts. The maximum value for this quantity in a region of radius R is equal to $2\pi R$ times Boltzmann's constant times energy enclosed divided by \hbar times c, according to a bound put forth by Jacob (*) Bekenstein. The equality case in the Bekenstein bound is achieved by black holes, for which this quantity is proportional to area, as suggested by the observation that event horizons generally only grow in size. For 10 points, identify this quantity whose non-decrease is the subject of the second law of thermodynamics.**

ANSWER: entropy

2. **In a work titled for this animal, one character dreams of laying her living-companion in a coffin and covering her with this animal's fur. That work titled for this animal ends with one character chopping down a tree so that it crushes his beloved's best friend. In another work, one character cites stories of Andromache and Saint Kenelm as evidence for why he should heed a dream about this animal, while arguing with (*) Pertelote. The soldier Henry kills Banford to win the hand of Nellie March in a D.H. Lawrence novella titled for this animal. One of these is goaded into taunting his pursuers, thus opening his mouth and allowing his captive to fly into a tree. Goethe's character of Reineke was inspired by the fabled trickster Reynard, who is one of these. For 10 points, name this animal that captures Chauncleer in the "Nun's Priest Tale" from the *Canterbury Tales*.**

ANSWER: foxes

3. **This composer wrote a "*Giga burlesca*" finale for a piece commissioned for the 40th anniversary of the Cleveland Orchestra, his *Partita for Orchestra*. A bitter romantic breakup with a baroness inspired the "*Presto, con malizia*" tempo indication for the scherzo of this composer's *Symphony No. 1 in B-flat minor*. After Lionel Tertis declined to premiere one of his concertos, Paul Hindemith agreed to play the solo part. This composer of a (*) viola concerto dedicated "To Christabel" wrote a series of pieces meant to accompany recitations of Edith Sitwell's poetry. He wrote his *Crown Imperial March* for the coronation of George V. He employed chorus, solo baritone, orchestra, and two offstage brass bands for an oratorio drawing on the Book of Daniel, which features the title figure reading "the writing on the wall". For 10 points, name this 20th-century English composer of *Faade* and *Belshazzar's Feast*.**

ANSWER: William (Turner) Walton

4. **This country's capital is the operating base of Khaled Mashal, the head of the Hamas Political Bureau, as well as the Egyptian cleric Yusuf al-Qaradawi. In 2013, the Afghan Taliban opened a political office in this country's capital, and it also mediated in a 2008 agreement which resulted in Michel Suleiman becoming President of Lebanon. The Syrian National Coalition was organized at a conference held in this country's capital, and this country is also behind the Syrian Muslim Brotherhood. Jacques Anouma and Issa Hayatou may have been bribed by officials from this country. In 2013, this country's ruler abdicated in favor of his son; they are members of the (*) Al Thani family. This country will donate portions of several stadiums that it is constructing to third world countries. For 10 points, identify this country, which will host the 2022 World Cup and has its capital at Doha.**

ANSWER: Qatar

5. WARNING: TWO ANSWERS REQUIRED

In response to Sir John Winthrop's proposal to grant land to one of these nations, citizens of the other created the Republic of Aras on that land. Tensions between these two nations sparked a massacre that prompted the Black January crackdown, as well as the earlier Shusha massacre. A Revolutionary Federation from one of these countries struggled with the other's Musavat Party during the March Days. The OSCE Minsk Group was created to resolve a conflict between these countries that featured Operations Ring and Goranboy and saw (*) CIS forces carry out the Khojaly massacre. The Mardakert skirmishes were a violation of the Bishkek protocol between these nations, which was signed by their representatives, Afiyaddin Jalilov and Babken Ararktsian, in 1994. For 10 points, name these two countries that have feuded over the exclaves of Nakhchivan and Nagorno-Karabakh.

ANSWER: Republic of Armenia and Republic of Azerbaijan [accept Havastani Hanrapetut'yun for Armenia; accept Azərbaycan Respublikası for Azerbaijan]

6. Vinogradov's theorem established a very large lower bound on a statement about an operation involving these objects, which Harald Helfgott recently claimed to have reduced drastically. Euler proved that the sum of reciprocals of them less than n grows roughly as the log of log of n . Legendre's conjecture asserts that one of these objects always exists in a certain range. If for all numbers a less than n , a to the power of n minus one equals 1 modulo n , then n is either a (*) Carmichael number or a number with this property, as a result of Fermat's Little Theorem. A function counting these numbers grows as x over natural log of x , according to a result due in part to Hadamard. Ben Green and Terence Tao proved that there are arbitrarily long arithmetic sequences in which each term has this property. For 10 points, identify these numbers which have precisely two divisors: one and themselves.

ANSWER: prime numbers [or primality]

7. The Sarajevo one of these texts is Spanish in origin and the Golden example of this book may be the oldest illustrated example. A disputation in this text concerns whether the "all" in the phrase "all the days of your life" extends its coverage to nighttime or to the days of the Messiah, beyond the present-world. Though it is not from Genesis, a portion of this text requires reciting how Laban the Aramean tried to destroy "my father". A passage in this text ends with God smiting the Angel of (*) Death and begins with a goat being bought for two zuzim. This text provides instructions for the *korech*, or the making of the Hillel Sandwich. This text includes the Ma Nishtana, or Four Questions, the first of which asks: "Why is this night different from all other nights?", and typically includes illustrations of the the Exodus from Egypt. For 10 points, name this text that establishes the procedures of the Passover Seder.

ANSWER: Haggadah

8. Douglas Irwin argued that this legislation's targeting of the domestic tin plate industry, which was written to expire after seven years if it did not succeed, did accelerate its growth by a decade. Irwin also calculated that this legislation would have increased federal government revenue and hence the problematic surplus, validating the arguments Democrats made against it, except for the fact that it put sugar on the (*) duty-free list. This legislation's namesake proposed it as Chairman of the Ways and Means Committee after he lost the speakership election to Thomas Reed, and he was thereafter known as the "Napoleon of Protection." This legislation eventually cost the Republicans Congress and the Presidency and it was replaced by the Wilson-Gorman Tariff. For 10 points, name this 1890 legislation sponsored by an Ohioan who was elected President in 1896.

ANSWER: McKinley Tariff [accept Tariff Act of 1890 before 1890 is mentioned]

9. Leonard Warren died while performing for this institution. This institution commissioned a work fusing the plots of *A Midsummer Night's Dream* and *The Tempest* by Jeremy Sams, titled *The Enchanted Island*. Erich Leinsdorf was the director of German repertory for this institution throughout the late 1930's and early 40's, during which time this institution generated acclaim with a series of performances pairing Lauritz Melchior and Kirsten (*) Flagstad. In 2012, this institution caused controversy by using a 45-ton machine made of 24 swiveling aluminum beams, designed by Robert Lepage, in one production. Rudolf Bing served as general manager of this institution, a role now filled by Peter Gelb. Fabio Luisi was appointed principal conductor of this institution in 2011, whose music director since 1976 is James Levine. For 10 points, name this opera company that is based in a namesake opera house in Lincoln Center.

ANSWER: Metropolitan Opera [or Metropolitan Opera Association]

10. One of this author's characters saves a horse-riding woman of legendary beauty from a fire in Glastonbury that burns off her hair shortly before he enlists. That character's puppy-killing son flees to Albany after rigging a horse race so his sister Thelma's landlord Mr. Bourke loses. In another novel by this author, the protagonist meets a grocer who masturbates in public shortly after the mysterious death in a shack of his prostitute lover Nance. In that novel by him, the protagonist moves in with the crazy (*) cat lady he depicts in *Pythonesse at Tripod*, who happens to be his humpbacked adopted sister Rhoda Courtney. The end of that novel by him focuses on the relationship between the teenage pianist Kathy Volkov and the painter Hurtle Duffield. Laura Trevelyan accompanies the title German explorer in another novel by him. For 10 points, name this author of *The Tree of Man*, *The Vivisector*, and *Voss*, an Australian Nobelist.

ANSWER: Patrick Victor Martindale White

11. This reaction is catalyzed by many enzymes with a seven-strand twisted beta-sheet binding motif. Enzymes that catalyze this reaction are released by beta elimination after their conserved cysteine residues are deprotonated to form nucleophilic thiolates that attack in a conjugate addition. Azacitidine can reverse this reaction, which was the first known to proceed via base flipping. MTHFR catalyzes a reaction of this type that uses a folate derivative as a co-substrate to convert homocysteine to methionine as part of the (*) "one-carbon" cycle. Many enzymes that catalyze this reaction attack at the C6 position in order to activate the C5 carbon of pyrimidine derivatives and employ the donor S-adenosylmethionine. Molecules that have undergone this reaction are not converted to uracil in bisulfite sequencing. For 10 points, name this reaction that occurs at CpG sites and entails the transfer of a CH₃ group.

ANSWER: transmethylation [or DNA methylation; or adding a methyl group; prompt on "alkylation"; antiprompt for the overall reaction on conjugate "addition" or beta "elimination" before mentioned]

12. Book 4 of this work contains a list of definitions and is one of the books W.D. Ross claimed was inserted in by later editors. Genus, matter, universal, and essence are proposed as definitions of substance in Book 7, the last chapter of which declares a "new beginning" in examining its question. That chapter explains that a house is different from bricks and stones due to a cause, which the author equates with form; this illustrates its author's concept of (*) hylomorphism. A famously unclear passage appearing in chapters 7 through 10 of Book 12 of this work describes the active intellect, and a later chapter of that book introduces the "unmoved mover." This work's author called its subject matter "first philosophy," and its present name comes from its location in the standard curriculum developed by his students. For 10 points, name this book by Aristotle that studies "being qua being" and came after *Physics*.

ANSWER: Metaphysics [or τὰ μετὰ τὰ φυσικά]

13. In one of this author's plays, one character says that he doesn't fear the man another woman claims to be dating, because the woman described the date as a "man" and not as a "guy". That play by this author features a character who claims to be married to Barbara Mandrell in his mind. A character in another of his plays tells a story about two men who simultaneously run out of gas during a car chase, and continue the chase on horseback. In a scene from that play by him, (*) Austin polishes stolen toasters, while Lee smashes a typewriter with one of the golf clubs he was given by the producer Saul, for whom he is writing a screenplay. This author of *Fool for Love* wrote a play that ends with Tilden digging up the corpse of the child he conceived in an incestuous relationship with his mother Halie. For 10 points, name this American dramatist who wrote *True West* and *Buried Child*.

ANSWER: Sam(uel) Shepard (Rogers III)

14. WARNING: DESCRIPTION ACCEPTABLE

In response to this event, one man gave a speech in Helsinki questioning the "Washington Consensus," which may have led to his dismissal as chief economist of an organization led by James Wolfensohn. This event prompted the suspension of trading in the shares of Finance One and the liquidation of Peregrine Investments. This event caused only a brief setback during the late Ramos administration, and due to the ineffectiveness of his response to it, Joseph Djwandono was fired. Partly due to this event, B. J. Habibie rose to power in one country and major reforms were implemented in another under (*) "DJnomics," This event forced a restructuring of the *chaebol*, and it began because of the inability of one central bank to maintain the exchange rate of the *baht*. The fallout from this event prompted the collapse of the Suharto government. For 10 points, name this 1990s financial crisis that devastated the economies of South Korea, Thailand, and several other countries.

ANSWER: Asian financial crisis [or 1997 financial crisis; or anything roughly equivalent; accept equivalents like the Tom Yum Crisis; prompt for year on IMF Crisis since that's what it's called in Korea]

15. This artist painted an abstracted version of a giant red foot on a thin black leg in his *Agony*. In one painting by this artist, a red-and-blue crescent with its tips connected by a line sits to the right of a black stocking-shaped blob that descends from the top center of the canvas. Another work by him features multiple green almond shapes, including one nested in an orange oval. This artist painted a large patch of orange beneath the right lapel of his jacket in a work showing him and a woman who sits in front of a large brown rectangle and wears a green (*) headscarf; that is his *The Artist and His Mother*. A serpentine stroke of blue is next to disembodied claws and below a blob with two red-tipped feathers and one blue-tipped feather in one work by this painter of *Garden in Sochi* and *One Year the Milkweed*. For 10 points, name this painter of *The Liver is The Cock's Comb*, an Armenian-born Abstract Expressionist.

ANSWER: Arshile Gorky [or Vosdanigh Manough Adoian]

16. A 1985 paper by George Akerlof and Janet Yellen shows that second-order deviations from this property can have first-order effects on welfare. *Economy and Society* describes two types of social action with this property, one instrumental and one value-focused. Formally, a preference relation has this property if it is transitive and complete, and the Allais Paradox pertains to the absence of this property in experimental settings. A seminal 1961 paper argues that expectations of price movements are predictions under the relevant economic theory, and hence those expectations possess this property. Subsequent models that employ this approach to expectation formation were popularized by (*) Robert Lucas and imply a vertical Phillips Curve. Weber defined a society of legal authority as one where these kinds of rules predominates, and he compared this property to an iron cage. For 10 points, name this assumption about individuals' behavior made by most economic models.

ANSWER: rationality [accept word forms]

17. Fewer tiger salamanders exhibit this behavior in ponds that are infected by *Clostridium*. In *Bacillus subtilis*, Sdp and Skf induce this behavior to delay sporulation. One form of this behavior is a maladaptive side effect of selection for female aggression, according to the aggressive spillover hypothesis. Phenotype matching allows spadefoot toad tadpoles to exhibit selectivity in this behavior, which is induced by feeding on fairy shrimp. In poultry, methionine deficiencies exacerbate this behavior, which can be controlled by (*) beak trimming. Sows engage in a form of this behavior known as savaging. This major means of transmission for the prion disease kuru is practiced after mating by female mantises and black widows. For 10 points, name this behavior exemplified by a komodo dragon eating another komodo dragon.

ANSWER: cannibalism [or intraspecific predation; accept descriptive equivalents like eating members of the same species; prompt on “feeding” or “carnivory” or “predation” or other similar answers; prompt on “siblicide” or “infanticide” or other answers about killing members of the same species; prompt on answers about aggression or attacking members of the same species]

18. Reading a newspaper makes this novel’s protagonist imagine the Arena Chapel and the aeronaut Gianozzo. In his pocket, the protagonist of this novel finds a poem he wrote contrasting “life’s fevered surge” with beings who “know not day nor night nor time’s dividing.” This novel’s protagonist hallucinates that a schoolmate tells him to shoot a chauffeur, leading him to rescue the stenographer Dora from a wrecked car. While drinking coffee with a professor who denounced a (*) publicist with the protagonist’s surname as a traitor, that protagonist of this novel insults the professor’s wife’s picture of Goethe. In this novel, a woman who reminds the protagonist of his childhood sweetheart Rosa Kreisler is “in hell” according to the sign on a mirror-filled building containing rooms like “How One Kills for Love.” For 10 points, name this work that climaxes when Hermine is stabbed in the Magic Theatre by the madman Harry Haller, a novel by Hermann Hesse.

ANSWER: *Der Steppenwolf*

19. The Raffelstettin Tolls note a trade in slaves and wax carried out by merchants from this polity. A treaty between this polity and one of its Christian neighbors includes provisions for extradition and describes what is to be done if sailors from one party become shipwrecked in the other. One law code from this polity allows women to inherit the property of knights, and prescribes fines to be paid in *grivnas* for riding another person's horse without permission or ripping out a man's beard. One ruler of this polity sought to move his capital to the Danube for trade purposes and launched a war that included the Battle of Silistra. The Hypatian and Laurentian codices contain a work of history compiled in this country's Monastery of the Caves by the monk Nestor, the (*) *Primary Chronicle*. One ruler of this polity cited the prohibition on alcohol when he rejected Islam and converted to Orthodox Christianity. For 10 points, identify this polity, whose rulers included Sviatoslav I and Vladimir the Great, both members of the house of Rurik.

ANSWER: Grand Principality of Kyiv [or Kyivan Rus', or Kiev]

20. This figure gives a speech in which he notes his opponent’s fear of going off to war and cites his father’s participation in the quest for the Golden Fleece, as well as his grandfather’s position as a judge of the dead. On another occasion this man despairingly prays to Zeus that he “Kill us all in the light of day” following the death of one of his comrades, then helps guard the men carrying that comrade’s stripped corpse out of battle. He chooses to leave his tents, ignoring the advice of Calchas, resulting in an episode during which his son Eurysaces is hidden from him by (*) Tecmessa. Nightfall cuts off this man’s duel with one enemy, to whom he gives a girdle and who gives him the sword he later uses to kill himself. He joins Phoenix and Odysseus on an embassy to Achilles, and his downfall comes after he loses the competition for the armor of Achilles. For ten points, name this hero of the Trojan War, a very strong son of Telamon.

ANSWER: Ajax the Great or Telamonian or son of Telamon or of Salamis [do NOT accept or prompt on Ajax the Lesser or Locrian or son of Oileus or of Locris]

BONUSES

1. This character gives another character Communist pamphlets to read after driving him to eat authentic African-American food at Ernie's. For 10 points each:

[10] Identify this man who introduces his girlfriend's murderer to the lawyer Boris Max.

ANSWER: **Jan Erlone** [accept either]

[10] Jan Erlone is the first suspect in this woman's murder. This character is smothered in her drunken sleep by Bigger Thomas, who then dumps her body in a furnace.

ANSWER: **Mary Dalton** [accept either]

[10] Jan, Mary, and Bigger all appear in this Richard Wright novel, set in Chicago.

ANSWER: **Native Son**

2. This artist's insignia was a winged black snake holding a ruby ring in its mouth. For 10 points each:

[10] Name this Wittenberg-based painter, who depicted the title figures standing in front of a stag and covering their genitals with apple branches in his version of *Adam and Eve*.

ANSWER: Lucas **Cranach the Elder**

[10] Cranach was a contemporary of this other German artist, with whom he now shares a feast day. This man included a magic square in his *Melancholia I*.

ANSWER: Albrecht **Dürer**

[10] A skull lies on the window-sill at the left of this Dürer engraving, which features a sleeping lion and dog in the foreground and the title figure seated in the background.

ANSWER: St. **Jerome in His Study** [or *Der heilige Hieronymus im Gehäus*]

3. Receptor editing can prevent apoptosis of self-reactive examples of these cells, which proliferate in the germinal center of the medulla in lymph nodes. For 10 points each:

[10] Name these cells that class switch, differentiate into plasma cells or undergo affinity maturation following ligand binding to their surface protein CD40. These cells produce antibodies to mediate humoral immunity.

ANSWER: **B** cells [or **B** lymphocytes; prompt on "lymphocytes"; prompt on "agranulocytes"; prompt on "leukocytes" or "white blood cells" or "blood cells"; prompt on professional "antigen-presenting cells" or "APCs"]

[10] During B cell maturation, allelic exclusion allows expression of only one of the light chains symbolized by these two Greek letters. One represents a population's finite rate of increase while the other appears in the name of a transcription factor regulated by the IKK subunit NEMO. Name either.

ANSWER: **lambda** or **kappa**

[10] Warning! Two answers required! To be considered fully mature, a B cell must express these two cell-surface antibodies. One is basically never secreted in serum while the other is a pentamer that dominates the response to thymus-independent antigens.

ANSWER: Ig**D** and Ig**M** [or immunoglobulin **D** and immunoglobulin **M**]

4. This site is the location of an alleged landscape zodiac called the "Temple of the Stars." For 10 points each:

[10] Name this location where Joseph of Arimathea grows a thorn tree by sticking his staff in the ground and creates a spring of blood by burying the Holy Grail.

ANSWER: **Glastonbury Tor**

[10] Glastonbury is a possible location of this "isle of apples" where Excalibur was forged according to Geoffrey of Monmouth. After Arthur is fatally injured in the Battle of Camlann, he goes here to be healed.

ANSWER: **Avalon**

[10] Arthur searches for a cauldron that cowards can't use while leading an expedition to this other supernatural realm in a Welsh poem about its "spoils." The hag Mallt-y-Nos rides with the honking hounds of this otherworld.

ANSWER: **Annwn** [or **Annwfn**]

5. The first of these councils excommunicated Frederick II, and the second attempted to heal the Great Schism. For 10 points each:

[10] Name these two 13th-century church councils held in the same location.

ANSWER: Councils of **Lyon**

[10] The conciliatory Byzantine policy at the Second Council of Lyon was spearheaded by Michael VIII, the founder of this dynasty.

ANSWER: **Palaiologus** [accept variations like “**Paleologue**”]

[10] Michael VIII wanted to secure papal support against this man, who had succeeded his brother Louis IX in command of French crusaders in Sicily, where his power was suddenly overturned by Michael's manipulations in the Sicilian Vespers.

ANSWER: **Charles** of **Anjou** [or **Charles I** of Naples]

6. A firm from this country recently leased 5% of the land of Ukraine. For 10 points each:

[10] Identify this country, which has also made major investments in Tanzania and the Democratic Republic of Congo. These deals have generally taken the form of infrastructure investments in exchange for access to minerals.

ANSWER: People's Republic of **China**

[10] Much of China's energy comes from investments in Central Asia, where its presence is boosted by the existence of this organization. Established in its namesake city, it seeks to eventually establish a free trade zone.

ANSWER: **Shanghai Cooperation Organization** [or **SCO**; prompt on “Shanghai Five”]

[10] China has also made significant investments in this country, where its state-owned Metallurgical Group operates the Mes Aynak copper mine in its Logar Province. Other mines in this country include the Balkhab mine in the Sar-e-Pol Province.

ANSWER: **Afghanistan**

7. This character realizes that the man who raped her when she was a child, whose identity she had repressed, is actually her friend and relative, Capodistria. For 10 points each:

[10] Name this character, whose husband Nessim refers to her as a “Jewish fox”. Her previous husband, Jacob Arnauti, wrote a novel about his relationship with her.

ANSWER: **Justine**

[10] Justine appears in and titles the first of four novels by Lawrence Durrell that form a quartet named for this Egyptian city.

ANSWER: **Alexandria**

[10] This contemporary of Lawrence Durrell wrote a 12-volume sequence of novels, chronicling English cultural life in the 20th century, which featured the characters of Nicholas Jenkins and Kenneth Widmerpool.

ANSWER: Anthony (Dymoke) **Powell**

8. Identify the following about point charges, for 10 points each:

[10] What law states that the electrostatic force one charged particle exerts on another equals the product of their charges times k over the square of the distance between them?

ANSWER: **Coulomb's** Law

[10] This theorem states that no finite collection of point charges can exist in stable equilibrium if the electromagnetic interaction is the only force acting on them.

ANSWER: **Earnshaw's** Theorem

[10] One way to solve electrostatics problems involving grounded, conducting surfaces is this technique, which considers imaginary point charges placed symmetrically beyond those surfaces.

ANSWER: method of **images** or **image charges**

9. Blame for this event is variously laid on insufficient stimulus, monetary contraction, or the passage of disastrous interventions like the Hawley-Smoot Tariff. For 10 points each:

[10] Name this economic contraction, which brought about the rise of the Social Credit movement in Canada.

ANSWER: **Great Depression**

[10] The League of Nations labeled this nation as the one hit hardest by the Great Depression due to a collapse in the world price of copper, a commodity that is mined by this nation's state-owned company Codelco.

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

[10] As Japan's Finance Minister, this man instituted a dramatically expansionist monetary and fiscal policy in response to the Depression. He was assassinated after attempting to curtail military spending in 1936.

ANSWER: Viscount **Takahashi** Korekiyo

10. The first letter of this name advocates testing spirits and warns against antichrists, while the third denounces Diotrephes for spreading false charges against the church. For 10 points each:

[10] Give this shared name of three epistles written by the "beloved disciple." Another biblical book with this name opens by identifying Jesus with Logos and was written much later than the synoptic gospels.

ANSWER: **John** [accept any answer with **John**]

[10] 2 John is addressed to this figure, whose children the author "[loves] in the truth... because of the truth that abides in us and will be with us forever." This figure is usually interpreted as a metaphor for a congregation.

ANSWER: the **elect lady** [accept **Kyria**; accept the **chosen lady**; accept the **dear lady**; accept answers that refer to a lady who is chosen in some way; prompt on the "lady"]

[10] In John 10:11-19, Jesus refers to himself as this figure, because He [knows] [His] own and [His] own know [Him]." Depictions of Jesus as this figure dominated art in early Christian Art, including in the catacombs

ANSWER: **Good Shepherd** [prompt on partial answer]

11. The eccentric music theorist Anton Reicha wrote 36 of these compositions, including ones in which the answers were in odd non-dominant keys. For 10 points each:

[10] Name these compositions built on contrapuntal imitations of a subject. J.S. Bach paired them with preludes in his *Well-Tempered Clavier*.

ANSWER: **fugues** [or **fuga**]

[10] This is the term for when the time interval between subject entries is shortened. This most often causes entries of the fugue subject in different voices to overlap, so that the subject creates counterpoint with itself.

ANSWER: **stretto**

[10] This is the term for when a fugue subject is played backwards. A canon in which the dux ["dooks"] is imitated by a comes ["KOH-mess"] moving in this fashion is called a "crab canon".

ANSWER: **retrograde** motion

12. Supernova 1987A occurred on the edge of this star-forming region, which includes the most active starburst zone in the Local Group. For 10 points each:

[10] Name this region at whose center lies the 450,000-solar-mass super-star cluster R136, with 39 O3-type stars, including the most massive and luminous star ever identified.

ANSWER: **Tarantula** Nebula or **30 Doradus**

[10] The Tarantula Nebula is part of this object, a neighbor galaxy to the Milky Way. Both it and its smaller companion have bars, suggesting that their spiral arms may have been ripped away by the Milky Way.

ANSWER: **Large Magellanic Cloud** [or **LMC**]

[10] No compact remnant has been detected from the core of 1987A; one theory posits that the resulting neutron star has further collapsed into this hypothetical type of exotic star, in which neutrons in the innermost layers have broken down.

ANSWER: **quark** stars or **strange** stars

13. In the resolution to this event, the Confederacy was implicitly recognized by a foreign power that refused to extradite Bennett Young on the ground he was acting under military orders, but some of the money he had stolen was returned. For 10 points each:

[10] Name this event, in which Young led a small cavalry troop to infiltrate a northern town and rob its banks.

ANSWER: St. Alban's Raid

[10] The St. Alban's Raid occurred in this state, which had earlier forbidden its militia to interfere with a Canadian invasion during the War of 1812. Between 1777 and 1791, it was a de facto independent republic.

ANSWER: Vermont

[10] The Canadians further revealed their perfidy by protecting this man, who fled there after his co-conspirators assassinated Lincoln. This man later served in the Papal military before his extradition to the US, but he was released after a mistrial where he successfully misled some jurors into believing he had no knowledge of the plot to murder.

ANSWER: John Surratt, Jr.

14. Hannah Gonen is married to the title geologist in his novel *My Michael*. For 10 points each:

[10] Name this author of *Perfect Peace*, who wrote an epistolary novel about Ilana Brandstatter's correspondence with her husband and ex-husband in *Black Box*.

ANSWER: Amos Oz [or Amos Klausner]

[10] Amos Oz is an author from this country. Shmuel Yosef Agnon resided here when he died, and one of its major literary prizes is named for Chaim Nahman Bialik.

ANSWER: State of Israel

[10] The works of this modern Israeli poet, known for his use of colloquial Hebrew, are collected in such anthologies as *Even a Fist Was Once an Open Palm with Fingers* and *Open Closed Open*.

ANSWER: Yehuda Amichai [or Ludwig Pfeuffer]

15. Taiwan Taoyuan International Airport was modeled on this building, which also used to use mobile lounges to transport its users. For 10 points each:

[10] Name this building, which is entirely open inside because of its notable catenary curve roof. That roof is supported by walls that lean outward and which have columns that go through the roof.

ANSWER: Washington Dulles International Airport, Main Terminal

[10] This other airport terminal by Eero Saarinen has a wing-shaped roof divided into four curved shells and glass walls that come to two opposing points. Like Dulles, it has an open interior, but with a central balcony within the terminal.

ANSWER: Trans World Airlines Flight Center [prompt on "John F. Kennedy International Airport", or on "JFK Terminal 5"]

[10] Saarinen also used a thin-shell section of a sphere to roof his Kresge Auditorium for this college campus. He also designed a cylindrical chapel with undulating brick walls of this campus.

ANSWER: Massachusetts Institute of Technology

16. This book draws a distinction between "liberty of spontaneity" and "liberty of indifference." For 10 points each:

[10] Name this work, which argues that confusion between those two liberties is responsible for incompatibilist theories of free will. Its author complained it "fell dead-born from the press" and many of his later books were revisions of parts of it.

ANSWER: *A Treatise of Human Nature*

[10] *A Treatise of Human Nature* was written by this Scottish philosopher. His *Enquiry Concerning Human Understanding* included an attack on supernatural beliefs in the section "Of Miracles."

ANSWER: David Hume

[10] Hume used this principle to explain how ideas interact in the *Treatise*. Contiguity, resemblance, and causation are the three types of this larger principle, which Hume compared to gravitational attraction in human affairs.

ANSWER: principle of association [or principle of connection or association of ideas]

17. The decrease in the chemical potential of an ideal solvent that undergoes mixing is driven by an increase in the number of these configurations, which sum to W . For 10 points each:

[10] Name these possible configurations of a system, which can also be used to find an atom's term symbol and thus its transitions on a Tanabe-Sugano diagram. Systems with only one have zero entropy.

ANSWER: **microstates** [accept quantum **states**]

[10] Microstates are used to find spin multiplicity, which governs a selection rule causing low-intensity color in complexes of this geometry. Complexes of this geometry have no lone pairs and six ligands.

ANSWER: **octahedral** geometry [accept **Oh** or **O sub h**]

[10] Octahedral complexes may exhibit this phenomenon, a pressure- and temperature-sensitive equilibrium between two electron configurations that are typically predicted using ΔO and the spectrochemical series.

ANSWER: **spin crossover** [accept **spin transition**; accept **spin equilibrium**; accept **SCO**; accept descriptive answers like **switching between spin states**]

18. The title figure "contemptuously looked away" from the beauty of the earth but feels "a thrill of feeling long forgot" when he sees the daughter of Gudal dance. For 10 points:

[10] Name this poem in which the title figure falls in love with Tamara, kills her lover, and ultimately kills her with his kiss.

ANSWER: "**Demon**"

[10] "Demon" was written by this Russian poet who also wrote a superfluous man novel about Pechorin, *A Hero of Our Time*.

ANSWER: Mikhail Yuryevich **Lermontov**

[10] Lermontov also wrote this poem that compares Pushkin with Christ and blames the people of Russia for his demise, claiming that "they removed his wreath, and set upon his head/A crown of thorns entwined in laurel."

ANSWER: "**Death of the Poet**" [or "**Smert' Pojeta**"]

19. These peoples' Warrant Chiefs were introduced during colonial rule as *eze*, or kings. For 10 points each:

[10] Name this large, predominantly Christian ethnic group, whose desire to protect their privileges under colonial rule was the ultimate cause of a conflict that began with the murders of Abubakar Balewa and Ahmadu Bello.

ANSWER: **Igbo** or **Ibo**

[10] Igbo culture is strongly rooted in the traditions of this kingdom, named after a subgroup of Igbo. Its first ruler was Eri and its final demise came in 1911, when British troops dissolved the ikenga cult.

ANSWER: Kingdom of **Nri**

[10] This modern country is home to most Igbo people, including the late Chinua Achebe.

ANSWER: **Nigeria**

20. Frederic Bartlett had English students retell a Native Canadian story repeatedly to show how this process was shaped by cultural biases. For 10 points each:

[10] Name this process which Endel Tulving divided into semantic, for facts, and episodic, for personal life events. The "Lost in the Mall" study showed how false versions of this process could be created.

ANSWER: **memory** [or word forms]

[10] The "Lost in the Mall" study was conducted by this psychologist. This woman used that study as evidence for skepticism about the otherwise reasonable stories of satanic ritual abuses in daycares.

ANSWER: Elizabeth (F.) **Loftus**

[10] A commonly used method for implanting false memories is this "paradigm" of having subjects read lists of words that are all associated with an unlisted word. It is named for the man who first used it in 1959 and the two psychologists who revived the practice in the 1990s.

ANSWER: **Deese-Roediger-McDermott** paradigm [or **DRM** paradigm]