

Cane Ridge Revival

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Packet 2

TOSSUPS

1. In one story by this author, a splinter that broke off of a ladle used to smack a workman creates a flaw in an object that cracks at the story's end. In one of his stories, a character who considers it dangerous to sit near a fireplace in a thunderstorm is given the joking nickname "Jupiter Tonans". The story of Hunilla, a widow who was stranded on Norfolk Island for years, appears alongside an account of giant tortoises exploring the deck of ship in a series of philosophical sketches he wrote about the (*) Galapagos Islands. In one story by him, a servant draws blood while shaving his master, the title Spaniard. In that story by him, Amasa Delano discovers that Babo led a slave-rebellion against the title captain of the *San Dominick*. For 10 points, name this American author who included "The Bell-Tower", "The Lightning-Rod Man", "The Encantadas", and "Benito Cereno" in his *Piazza Tales*.

ANSWER: Herman Melville

2. At the left of this painting, three sticks lean against each other in pyramid fashion next to an open barrel whose bottom half is buried in the ground. Flanking the center-most people in this painting are a standing man in a red coat with a top hat, and a woman in red, who sits in the grass, leaning to the left. An anchor with two red flags hanging from it lies in the center of this painting. The largest human figure in this painting is a self-portrait of the artist as an old man with his back to the viewer, wearing a fur coat and holding a (*) walking stick. To the right of all the people in this painting lies an overturned rowboat. Two children play with a Swedish flag at the center of this painting, in which the five ships at sea at different distances from the shore correspond to the different ages of the five people portrayed. For 10 points, name this allegorical painting by Caspar David Friedrich.

ANSWER: *The Stages of Life* [or *Die Lebensstufen*]

3. The zinc transporter ZnT-8 allows paracrine signaling by these cells, whose maturation depends on the activation of MafA by PDX-1. James Neel proposed that a quick response from these cells once provided a selective advantage to hunter-gatherers, but is now maladaptive, in his "thrifty genotype" hypothesis, which has been tested in longitudinal studies of Pima Indians. The EPAC2 pathway causes these cells to close their potassium channels after their energy balance is detected by SUR1. GPR40 binds free fatty acids in these cells, which are stimulated by (*) incretins. They're not in the hypothalamus or liver, but these cells employ glucokinase as a key sensor. They secrete C-peptide and amylin along with their major product after glucose enters their GLUT2 channels. For 10 points, name these cells that make up the majority of the islets of Langerhans in the pancreas and primarily secrete insulin.

ANSWER: beta cells [prompt on "pancreatic cells" or "islets of Langerhans" before mentioned]

4. To save him from being sacrificed to Moloch, Hezekiah's mother smears him with the blood of these creatures. Benvenuto Cellini allegedly saw one of these creatures, after which his father punched him in the ear to make him remember it. Some Jewish sources posit that myrtlewood is required for their creation, while Aristotle believed they were born from chalcites and had wings. These creatures can poison apple trees by climbing them. Their silk, hair or wool can be spun into garments that protect the wearer from certain types of damage. According to Paracelsus, these creatures are the counterparts of sylphs, undines and gnomes. These creatures are most commonly sighted when (*) rotting wood is burned, causing them to scamper through the flames. For 10 points, name these fire elementals, a legendary type of amphibian.

ANSWER: salamanders [accept Caudata or Urodela from people who think that fire salamanders have a phylogenetic relationship to real salamanders; prompt on amphibians; do not accept newts or efts]

5. Sir Robert Holmes' largely ineffectual raid on a Smyrna convoy was a prelude to one of these campaigns. The Mechelen Incident delayed a different instance of this action by several months, and that campaign was betrayed by Colonel Hans Oster. Following its defeat in one of these campaigns in the winter of 1795, Prussia signed the Treaty of Basel, taking itself out of the First Coalition. The Treaty of (*) Dover set the stage for one of these campaigns, and Alexander Farnese led a protracted instance of this in the early 1580s. Cornelius Tromp was empowered by one of these campaigns, in which the DeWitt brothers were deposed and lynched during the Disaster Year, and the Sack of Antwerp was the result of another; both led to eventual victories for the House of Orange. For 10 points, what is this military action undertaken multiple times by Hapsburg forces during the Eighty Years War and by the Nazis in 1940?

ANSWER: Invasions of the Netherlands [accept loose synonyms for both "invasion" and "Netherlands," including "making war on the Dutch" and variants. Synonyms for the Netherlands include "Low Countries," "Holland," and even "Belgium" since some of the clues date to before Belgian independence.]

6. Faye Crosby's study of Boston women found a discrepancy between people's belief about this activity in their personal lives and at a national level, the "personal/group discrepancy." A 1972 paper by Dennis Aigner and Glenn Cain builds on work by Kenneth Arrow and Edmund Phelps to create a statistical model of this activity, which treats it as a signal extraction problem. Gary Becker's dissertation used a (*) taste-based model of it that predicted a competitive market would make this activity unprofitable. In a 1954 book, Gordon Allport claimed it was a result of thinking categorically and placed a society where it occurred at the third highest level on his prejudice scale. Bertrand and Mullainathan documented this activity by sending fake resumes that were identical except for the name and comparing the callback rates, and "Gentlemen's Agreements" are typically employed to engage in this. For 10 points, name this activity that refers to disparate treatment on the basis of race, religion, or gender.

ANSWER: discrimination [Accept "prejudice" before it's mentioned, though that's not really an activity]

7. One character of this novel spends time reading *The God of the Labyrinth* and writes, "Wise is the man who contents himself with the spectacle of the world" in the margins of his papers. The protagonist of this work touches the hands of a woman with broken fingers whose father occasionally accompanies her for the treatment of her arm in order to visit his mistress. In addition to his poetic idealized encounter with Marcenda, the protagonist of this work also encounters a chambermaid named (*) Lydia who slips into his bed at night and gets pregnant. In this novel, a ghost that wanders the earth for nine months suddenly appears, befriends the title character, and explains his creation of heteronyms such as Alvaro de Campos and Alberto Caeiro. For 10 points, name this novel that tells of a poet who returns to Lisbon after Fernando Pessoa's death and befriends Pessoa's ghost, a work by Jose Saramago.

ANSWER: *The Year of the Death of Ricardo Reis* [or *O Ano da Morte de Ricardo Reis*]

8. A general relativistic form of this quantity is equal to the Ricci scalar times the square root of the negative determinant of the metric tensor; that quantity's integral is proportional to a different, related quantity named for Einstein and Hilbert. One equation sets the derivative of this quantity with respect to some coordinate equal to the time-derivative of this quantity's partial with respect to the coordinate's (*) time-derivative. That central equation of the calculus of variations is named for Euler and this quantity's namesake. The time-integral of this quantity is the action, which is required to have a stationary value in the formulation of mechanics that shares this quantity's name. The Legendre transform of the Hamiltonian is, for 10 points, what quantity equal to kinetic energy minus potential energy that is named for a French physicist?

ANSWER: Lagrangian

9. Key osteological data on this disease comes from Saint Jørgensen's cemetery in Denmark, where it became epidemic in the thirteenth century. The Kikuchi Keifuen sanatorium was founded for people with this disease, who were forcibly hospitalized around Honmyōji Temple in 1940 as part of the government-sponsored movement to eliminate it from all prefectures. (*) Mary Magdalene was the patron saint of many of this disease's British hospitals, including a chapel at Cambridge that was granted dispensation to hold the Stourbridge fair by King John in 1211. Indian chaulmoogra oil was once used to treat this disease, which in the U.S. only became common in Louisiana. Hagioscopes were windows into churches for people with this disease, which was treated by the Order of Saint Lazarus. For 10 points, name this disease contracted by Father Damien in the Molokai colony.

ANSWER: leprosy [or Hansen's disease; accept elephantiasis graecorum; accept HD; accept the Phoenician disease; accept lepers]

10. According to one interpretation, this figure created a peacock to demonstrate his nature after being born from his father's doubt about the efficacy of offerings. This figure was unconscious for 3,000 years before being spoken to by a demoness whom this figure made into a primal whore by kissing her on the forehead, thus causing women to menstruate. This figure's assault on the sky resulted in the death of a primordial bull from whose remains the world was repopulated. This figure fashioned (*) six evil beings to oppose six divinities that represent good qualities mortals should attempt to gain. After being protected by Sleep for 30 years, Gayomart succumbs to wounds inflicted by this being. This final defeat of this being will come on Frashokereti at the hands of a rival who created the Amesha Spentas, one of which upholds *asha*. For 10 points, name this adversary of Ahura Mazda in Zoroastrianism.

ANSWER: Angra Mainyu [or Ahriman]

11. In one vocal work by this composer, a rage aria for bass suddenly breaks off after three bars of what seemed to be its middle section, as a two-octave descending scale for strings depicts the singer hurling his spear. Dotted-rhythm figures in E-flat major are exchanged between the violin sections to depict the leaping of the title animals in this composer's alto aria, "Their land brought forth frogs". Two obbligato flutes join the violins in imitating birds in a G-major chorus by him called "May no rash intruder", which is also known as the (*) "Nightingale Chorus", and which appears in a work by him whose third act opens with a *sinfonia* called "The Arrival of the Queen of Sheba". This composer, who included a "Dead March" in his oratorio *Saul*, wrote a work that includes a chorus that repeats "and he shall reign for ever and ever". For 10 points, name this composer of the oratorios *Israel in Egypt*, *Solomon*, and *Messiah*.

ANSWER: Georg Frideric Handel

12. Scoreboarding and the Tomasulo algorithm are two methods for improving the effectiveness of this technique by permitting out of order execution. VLIW and superscalar architectures are two other complements to this technique which improve performance without the complexity of especially deep versions of this technique. The use of this technique necessitates branch prediction, and incorrect branch predictions require this technique's namesake structure to be flushed, creating a (*) bubble. Other challenges with this technique are data hazards, such as those caused by a read after a write. Instruction fetch, decode, execute, memory access and register write are the 5 stages of the classic RISC implementation of this technique. For 10 points, name this technique from CPU architecture which increases throughput, but does not decrease latency, by processing many instructions concurrently in the namesake object.

ANSWER: instruction pipelining

13. Woodrow Wilson declared that this man's "singular independence and force of purpose...made the real character of the government... more evident than it ever was before," and Rexford Tugwell praised his "uncompromising honesty." This man angered the Grand Army of the Republic by vetoing pension and relief bills for Union veterans. This president's opposition to spending caused him to set the record for most (*) vetoes in one term. In his first presidential campaign, this man's support for civil service reform earned him the backing of a group of members of his opponent's party known as Mugwumps. In a politically and economically disastrous attempt to save the gold standard in the face of financial panic, this president supported the repeal of the Sherman Silver Purchase Act and hence lost renomination. For 10 points, name this Bourbon Democrat who presided over the Pullman Strike and the Panic of 1893.

ANSWER: (Stephen) Grover Cleveland

14. The protagonist of one novel from this country claims that "entrails" is a synonym for "a woman" during a rooftop game of antonyms that leads him to contemplate *Crime and Punishment*. In that novel from this country, the sexually irresistible protagonist attends secret Communist meetings and paints a Modigliani-inspired self-portrait before being expelled from art school for squandering his uncle's finances on liquor after failing to drown himself. In another novel from here, a professor's girlfriend receives a phone call telling her to get an abortion as part of a (*) future-predicting computer's scheme to help a marine biology lab create Aquans. A flute-playing priest uses his clubfeet to seduce women in a novel from here that ends with a stuttering acolyte burning down the title structure. For 10 points, name this home country of the authors of *No Longer Human*, *Inter Ice Age 4* and *The Temple of the Golden Pavilion*.

ANSWER: Japan [or Nippon-koku; or Nihon-koku; accept Land of the Rising Sun or other nicknames]

15. One leading theorist of this movement broke one historical era's art into the four periods of the archaic, grand, beautiful, and imitative styles. One room in this architectural style contains plasterwork inspired by Sir William Hamilton's art collection. A building in this style stands east of the Humboldt University on the north side of Unter den Linden, and that building is a guardhouse designed for the troops of the crown prince of Prussia. A dressing room in this style was created at (*) Osterley Hall. The Altes Museum in Berlin was designed in this style by Karl Friedrich Schinkel. Kedleston Hall was designed in this style by Robert Adam. This movement's aesthetic theories in Germany were popularized by the art historian Johann Joachim Winckelmann. For 10 points, name this predominantly 18th-century art movement, which sought to revive the values of Ancient Greek and Roman art.

ANSWER: neoclassical architecture [or neoclassicism]

16. John McDowell endorsed this thinker's view that raw experiences are endowed with rational content, allowing a spontaneous mind to still be receptive to empirical facts. A commentary on one of his works rejects most of it, but agrees that any self-conscious being aware of experiences must also be aware of objective realities, rebutting skepticism. In *The Bounds of Sense*, P.F. Strawson contends that (*) "transcendental deduction" is this man's most important contribution. Arthur Schopenhauer included an appendix of this thinker's errors in *The World as Will and Representation*, but also compared reading this man's writings to "a cataract operation on a blind person." This man hoped his own work would serve as a "Copernican Revolution" in philosophy, resolving the errors of rationalism and empiricism through his transcendental idealism. For 10 points, name this author of *Critique of Pure Reason*.

ANSWER: Immanuel Kant

17. This technique is used to prepare REVs from phospholipids in order to generate liposomes. An apparatus used in this technique has three components that are typically optimized at 20, 40 and 60 degrees Celsius. It's not reflux, but in a common introductory organic lab, this technique precedes the addition of hot acetone to trimyristin isolated from nutmeg. A device used in this technique contains a bump guard to which samples are attached before they are lowered using a horizontally sliding knob. That apparatus used in this technique forms a thin (*) film inside a round-bottom flask by spinning it in a hot bath. The change in molar volume of molecules that undergo this process can be approximated as RT over P , simplifying its Clausius-Clapeyron relation. For 10 points, name this technique performed using a Rotovap, which causes liquids to undergo a phase transition.

ANSWER: rotary evaporation [or Rotovapping or equivalents before mentioned; accept vacuum distillation; accept vaporization; accept boiling; prompt on "concentration" or "drying" or descriptive answers like "removing a solvent" by asking, "With what device is that accomplished?"]

18. Though not "positivism", in legal theory this term denotes a belief that decisions should be made via a quasi-scientific application of reason, without considering the social consequences of the decisions produced, and is opposed to legal realism. A writer from a school of this name discussed the process by which an artwork overcomes our automatized sense of knowing an object and restores conscious perception, his concept of "defamiliarization." The (*) Zhdanov decree of 1948 was used to persecute Soviet composers who were accused of this ideological crime. One author from a school of this name discussed the stratification of different registers of language within a novel as "heteroglossia" and wrote *The Dialogic Imagination*. For 10 points, name the non-structuralist Russian literary movement that included Viktor Shklovsky and Mikhail Bakhtin, and which derived meaning from the shape or construction of texts.

ANSWER: formalism [or formalist]

19. Leopoldo O'Donnell became the first Duke of a city in this region after capturing it. The pretender Bou Hamra was based in this region's city of Taza, and a later state in this region had its currency designed by arms smuggler Charles Gardiner. Mohammed ben Abdallah was promised British aid during a siege of a city located in this region in 1774; his defeat resulted in the recognition of that exclave in this region in the Treaty of Aranjuez. The Emirate of (*) Nekor was located in this region. One state in this region was founded by a man who won the Battle of Annual against the forces of General Berenguer during a conflict in this region sometimes named for the exclave of Melilla. That conflict saw Abd el-Krim fail to take a city defended by Francisco Franco. For 10 points, name this mountainous region of Morocco in which a namesake war was prosecuted by Spain in the 1920s.

ANSWER: Rif [prompt on "Maghreb"; prompt on "Morocco" until mentioned]

20. One story written in this language tells of an emperor's son who is disinherited by his squire, who steals a ring that allows the squire to become the next Sultan of Persia. That story comes from a collection in this language that is framed by a lover telling his woes to Genius, so that Venus might cure him of his love. In a poem in this language, a woman explains that she need not replace the Virgin Mary in order to be Queen of Heaven; that poem in this language ends with the narrator (*) awaking in a garden after trying to cross a river in his dream. The title character of another work in this language is nicked on the neck for failing to return the girdle given to him by the wife of a knight he had beheaded a year earlier. John Gower wrote his *Confessio Amantis* in this language, which was also used by the Pearl Poet. For 10 points, name this language used in *Sir Gawain and the Green Knight* and other works of the 14th century.

ANSWER: Middle English [prompt on "English"; do NOT prompt on or accept "Old English"]

BONUSES

1. Blas Cabrera's detector registered the existence of one of these things on Valentine's Day 1982, but no subsequent experiments found them. For 10 points each:

[10] Identify these hypothesized entities, whose existence would mean the B-field does not necessarily have zero divergence.

ANSWER: magnetic monopoles

[10] This physicist's work on magnetic monopoles showed that their existence was not inconsistent with Maxwell's equations, if his namesake string connects two oppositely charged monopoles. He also names a relativistic equation describing spin one-half particles.

ANSWER: Paul Dirac

[10] By considering an electron traveling around in a circle on a Dirac string, Dirac proved that the existence of a magnetic monopole would imply this result, which has been generally accepted since a 1909 experiment.

ANSWER: quantization of electric charge [accept equivalents]

2. At a luncheon with Lord Copper, Mrs. Stitch unknowingly praises the writing style of this novel's protagonist, which is exemplified by the quote, "Feather-footed through the plashy fen passes the questing vole." For 10 points each:

[10] Name this novel set primarily in Ishmaelia. Kätchen leaves for Madagascar with her German sort-of husband at the end of this novel, in which the *Daily Beast* correspondent William Boot is mistaken for the author of *Waste of Time*.

ANSWER: Scoop

[10] *Scoop* was written by this author, who covered the Second Italo-Abyssinian War as a correspondent for the *Daily Mail*. His other novels include the *Sword of Honour* trilogy, *A Handful of Dust*, and *Brideshead Revisited*.

ANSWER: (Arthur) Evelyn (St. John) Waugh

[10] Prunella is the victim of a sensationalized kidnapping from the colony Matodi in a Waugh story about an "incident" in this country. This country is also the setting of his novel *Black Mischief*.

ANSWER: Empire of Azania [accept Sakuyu]

3. This symphony premiered a couple of months before its composer's death, which was possibly due to cholera, or possibly due to suicide. For 10 points each:

[10] Name this final symphony by Peter Ilyich Tchaikovsky, which has a "limping waltz" in 5/4 time as its second movement.

ANSWER: Symphony No. 6 in B minor, Op. 74, "Pathétique" [either the number or the nickname is acceptable]

[10] This Tchaikovsky symphony opens with a "Fate" motif. The main melody of this symphony's third-movement scherzo is played by pizzicato strings.

ANSWER: Symphony No. 4 in F minor, Op. 36

[10] Tchaikovsky's symphonies call for four of these instruments, making them the most numerous non-stringed instruments in his orchestra. A solo by one of these introduces the main melody of the second movement of his Fifth Symphony.

ANSWER: French horn in F

4. Subjects in this experiment have a book of matches and a box of thumbtacks and are asked to fix another object to the wall. For 10 points each:

[10] Name this Karl Duncker experiment used to test for functional fixedness. The trick is to dump the tacks out of the box, tack the box to the wall, and hold the title object in that.

ANSWER: candle experiment

[10] This general principle says that out of all possible perceptual interpretations, people tend to perceive things as ordered and continuous.

ANSWER: pragnanz

[10] Karl Duncker worked with Wolfgang Kohler and Max Wertheimer, founders of this school of psychology that emphasized *pragnanz*. Thinkers in this school believed people perceived the world as a complete whole that was different than the sum of its parts.

ANSWER: Gestalt

5. The syncretic religion of candomblé was repeatedly banned in this country, in which escaped slaves often took refuge in encampments called quilombos. For 10 points each:

[10] Name this former Portuguese colony that caught up with modernity by abolishing slavery in the Golden Law.

ANSWER: **Brazil**

[10] The largest quilombo was this community in the state of Alagoas. This community was also known as Angola Janga and was led by Ganga Zamba and later by Zumbi, whose head was put on display in Recife.

ANSWER: **Palmares**

[10] This other Brazilian state was the initial destination of most Africans taken to Brazil and remains a hub of Afro-Brazilian culture. This fifth most populous state of Brazil was the location of the only rebellion of predominantly Muslim slaves in 1835.

ANSWER: **Bahia**

6. This geological feature is interbedded with limestone thanks to sea level variation during its deposition during the Devonian. For 10 points each:

[10] Name this geological agglomerate of the northern Appalachian, the lowest and earliest component of the Hamilton Group, known for its felsic minerals. Its natural gas reserves have recently given rise to a fracking boom in Pennsylvania.

ANSWER: **Marcellus** shale or **Marcellus** formation

[10] The Marcellus shale contains this type of fossil, a single enigmatic tooth thought to come from an eel-like creature. Since this fossil changes color under different temperature conditions, it is an important geothermometer used in oil exploration.

ANSWER: **conodonts**

[10] Since conodonts can be used to tell what processes formations have been subjected to during their history, they can be used for this general purpose, as can analysis of radiogenic decay and helium escape from uranium-containing rocks.

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

7. The Deobandi and Bareilwi movements belong to this school. For 10 points each:

[10] Name this oldest and largest school of Sunni jurisprudence, predominant in South and Central Asia, the Balkans, and Turkey. It puts a strong emphasis on reason and is named for the teacher of Abu Yusuf.

ANSWER: **Hanafi** school

[10] Experts in Islamic jurisprudence are known by this term, typically translated as “jurist”. These people rely on the Qur’an, *sunnah*, *ijma*, and *qiyas* to make their decisions.

ANSWER: **faqih** [do NOT accept “fiqh”, which refers to the concept, not the person]

[10] The concept of *velayat-e faqih*, or guardianship of the jurist, is a central concept in this country’s constitution. This country is currently led by the Islamic scholar, Ali Khamenei.

ANSWER: Islamic Republic of **Iran** [or Jomhuri-ye Eslami-ye **Iran**]

8. This man founded the colony of Providence Plantations in 1636. For 10 points each:

[10] Name this proponent of religious tolerance and church-state separation, who was exiled from Salem for opposing the king’s Massachusetts charter.

ANSWER: Roger **Williams**

[10] Williams’ book *A Key into the Language of America* is based on material he gathered doing missionary work with this tribe, who sold him the land for Providence.

ANSWER: **Narragansetts**

[10] Williams’ *Bloody Tenent of Persecution* is an attack on this Boston clergyman and leading theologian, who attempted to impose religious uniformity in Massachusetts Bay. This man supported orthodox Puritanism in the Antinomian Controversy.

ANSWER: John **Cotton**

9. Answer some questions about the genre that was the East Coast's answer to "West Coast Jazz": hard bop. For 10 points each:

[10] This trumpeter recorded the albums *Bags' Groove* and *Walkin'* during his early hard-bop phase. *Kind of Blue* marked his move away from hard bop towards modal jazz.

ANSWER: Miles (Dewey) **Davis III**

[10] This man was one of the two saxophonists on *Kind of Blue*. He recorded the album *Somethin' Else* during the hard bop era, and his namesake quintet sometimes featured his brother Nat on cornet.

ANSWER: (Julian Edwin) "Cannonball" **Adderley**

[10] This hard bop drummer led a group of his namesake Jazz Messengers starting in 1947, including on the three-volume album *A Night at Birdland* and on *Moanin'*.

ANSWER: Arthur "Art" **Blakey** [or Abdullah Ibn **Buhaina**]

10. After a lengthy email exchange, the protagonist of this novel receives an old letter from his ex-girlfriend on the wobbly Millennium Bridge. For 10 points each:

[10] Name this novel in which Tony Webster recollects his youth after being bequeathed the diary of his friend Adrian Finn, who committed suicide while dating Veronica after graduating from Cambridge.

ANSWER: *The **Sense of an Ending***

[10] *The Sense of an Ending* was written by Julian Barnes, who also wrote a novel about Geoffrey Braithwaite's attempt to discover which stuffed parrot inspired this author's "A Simple Heart." He also wrote *Madame Bovary*.

ANSWER: Gustave **Flaubert**

[10] This author identified four types of time in his critical study of *Madame Bovary*, which he retold in a novel about Ricardo and the revolutionary Comrade Arlette. In another novel by him, Saúl joins the Machiguenga tribe.

ANSWER: (Jorge) Mario (Pedro) **Vargas Llosa** [prompt on partial answer]

11. This reaction is usually followed by a reductive workup of DMS. For 10 points each:

[10] Name this reaction that cleaves an alkene to produce two carbonyls. This reaction proceeds by forming a diradical intermediate that reacts in a 1,3 cycloaddition to form a trioxolane.

ANSWER: **ozonolysis**

[10] The first step of ozonolysis forms this cyclic precursor to the Criegee intermediate by adding ozone across a carbon-carbon double bond. Unlike those of the more stable ozonide, all of its oxygen atoms are adjacent on the ring.

ANSWER: **molozonide** [or **1,2,3-trioxolane**]

[10] A modification of ozonolysis with a hydrogen peroxide workup can form this functional group. This functional group reacts with an alcohol to produce an ester under acidic conditions.

ANSWER: **carboxylic acids** [accept **carboxylates**; prompt on "acids"]

12. This man outlined his theory of physics in the letter to a non-historian Herodotus. For 10 points each:

[10] Name this philosopher, many of whose works are very literally preserved thanks to Mount Vesuvius's eruption and whose *On Nature* served as the foundation for Lucretius' poem *On the Nature of Things*.

ANSWER: **Epicurus**

[10] Epicurus's physics came from this Greek school of thought that included Leucippus and Democritus. This materialist school claimed all matter was clusters of tiny particles moving through a void.

ANSWER: **atomism**

[10] Unlike Democritus, Lucretius and Epicurus believed atoms possessed weight and could also do this. Atoms' ability to do this explains why bodies larger than single atoms exist and also allows for free will.

ANSWER: **swerve** [accept **clinamen** or **clinamina**]

13. The speaker of this poem declares: “My foothold is tenon’d and mortis’d in granite / I laugh at what you call dissolution / And I know the amplitude of time”. For 10 points each:

[10] Name this long poem, whose speaker declares: “I too am not a bit tamed, I too am untranslatable / I sound my barbaric yawp over the roofs of the world”.

ANSWER: “Song of Myself”

[10] In Whitman’s “Song of Myself”, a child asks “What is *this substance*”? This substance titles a Carl Sandburg poem that begins: “Pile the bodies high at Austerlitz and Waterloo”.

ANSWER: grass

[10] This Berkeley professor and former U.S. Poet Laureate co-wrote a lexicon of Whitman’s diction in “Song of Myself” with Paul Ebenkamp. He is the leading English translator of Czeslaw Milosz’s poetry, and his own poetry is known for its ecological themes.

ANSWER: Robert (L.) Hass

14. A rebellion of these people was defeated by Gaius Suetonius Paulinus. For 10 points each:

[10] Name this tribe whose rebellion was defeated at the Battle of Watling Street. Unlike their neighbors’, coins produced by this tribe have the tribal name inscribed on them.

ANSWER: Iceni [or Ikenoi]

[10] This pro-Roman husband of Boudica and leader of the Iceni named the emperor co-heir to his lands, along with his two daughters. When he died, his will was ignored and his daughters were raped, prompting his wife to rebel.

ANSWER: Prasutagus

[10] Prasutagus submitted to this emperor, who ordered the conquest of Britain in 43 CE. This emperor came to power after the death of his insane nephew Caligula.

ANSWER: Tiberius Claudius Drusus Nero “Caesar Augustus Germanicus”

15. The title figure plays his lyre before Pluto’s throne in a landscape overpopulated with demons and tortured souls in this painter’s *Orpheus in the Underworld*. For 10 points each:

[10] Name this Flemish painter known for his floral still lifes and for painting the landscapes and background objects in paintings like *Allegory of Sight* and *Battle of the Amazons*, while another artist painted the human figures.

ANSWER: Jan Brueghel the Elder [prompt on a partial answer; also prompt on Velvet Brueghel]

[10] Jan Brueghel the Elder collaborated on those paintings with this other Flemish painter of the *Marie de Medici* cycle and a *Raising of the Cross* and a *Descent from the Cross* in the Antwerp Cathedral.

ANSWER: Peter Paul Rubens

[10] Men on horseback aim their spears at one title creature, which is surrounded by dogs, while a man holds a dagger to the other title creature in this painting by Peter Paul Rubens.

ANSWER: *The Hippopotamus and* Crocodile Hunt [or *The Crocodile and* Hippopotamus Hunt]

16. Richard Steckel used currently-measurable data on this variable to argue that American slave children were subjected to a nutritionally deprived diet that produced persistent cognitive deficits. For 10 points each:

[10] Name this variable, which is a plausible explanation for the positive relationship a different study found between getting wounded in the Civil War and post-war earnings. This variable could be a cause of both.

ANSWER: height [accept equivalents: “stature,” etc.]

[10] This right-wing economics blogger and inequality apologist thought he was effectively lampooning the theory of optimal taxation when he facetiously argued for a tax on height since it correlates strongly with income but is essentially inelastic as well as difficult to fraud.

ANSWER: N(icholas) Gregory Mankiw

[10] This pioneering statistician published a point estimate of 0.57 for the effect of parents’ height realizations on their children in the paper that coined the term “regression.”

ANSWER: Francis Galton

17. In this tissue, the activity of an enzyme with a magnesium cofactor is inhibited by caldesmon, whose h-isoform is a useful marker for stromal sarcoma and leiomyosarcoma. For 10 points each:

[10] Name this tissue that can be visualized by staining calponin or transgelin. Dephosphorylation by MLCP does not prevent this tissue from remaining in the “latch state” after phosphorylation by MLCK.

ANSWER: smooth muscle tissue [prompt on involuntary muscle tissue]

[10] Dephosphorylation can cause smooth muscle to enter the latch state during the force-generating cycles named for these connections between actin filaments and globular myosin heads. They generate power strokes.

ANSWER: cross-bridges

[10] Binding during the cross-bridge cycle is driven by the exergonic hydrolysis of this molecule, which is coupled to many cellular reactions. Along with NADH and pyruvate, this molecule is the major product of glycolysis.

ANSWER: ATP [or adenosine-five prime-triphosphate; accept [(2"R",3"S",4"R",5"R")-5-(6-aminopurin-9-yl)-3,4-dihydroxyoxolan-2-yl]methyl(hydroxyphosphonooxyphosphoryl)hydrogen phosphate]

18. This character descends into alcoholism together with her lover, who takes to drink after falling from a rooftop he was repairing. For 10 points each:

[10] Name this character, whose daughter Nana becomes a prostitute in one novel. In another novel, her son Étienne leads a coal-miner’s strike in the town of Maheu.

ANSWER: Gervaise Macquart [prompt on “Macquart”; do NOT prompt on “Rougon-Macquart”]

[10] Gervaise Macquart is a recurring character in the *Rougon-Macquart* series of this French Naturalist author.

ANSWER: Émile (Édouard Charles Antoine) Zola

[10] Zola was a close friend and supporter of this French author of *The Vautard Sisters*, but broke with him after he published his decadent novel about the aesthete Jean Des Essientes: *À rebours*, or *Against the Grain*.

ANSWER: Joris-Karl Huysmans [or Charles-Marie-Georges Huysmans]

19. In 1957, Pope Pius XII issued an encyclical denouncing materialism by celebrating the apparitions that occurred in this town. For 10 points each:

[10] Name this town where Saint Bernadette Soubirous had a series of 1858 visions of the Virgin Mary in the Grotto of Massabielle. In 1905, Pope Pius X formed a medical bureau to verify claims of miraculous healing here.

ANSWER: Lourdes

[10] Saint Bernadette’s visions led her to discover one of these locations inside the grottoes of Lourdes. During the Middle Ages, other healing examples of these locations were sources of prosperity for towns like Bath and Spa.

ANSWER: hot/cold springs [prompt on pools, artesian wells, fountains or other answers related to holy water]

[10] The Romans founded this Catalonian town to exploit its extensive hot springs. The *Liber feudorum maior* was compiled for Alfonso the Chaste by an archivist from this town, which was administered by the Count of Barcelona.

ANSWER: Caldes de Montbui [accept Aquae Calidae; accept Ramon de Caldes]

20. He defeated the Curetes. For 10 points each:

[10] Name this man who killed Thestius’s sons Iphicles and Eurypylus for insulting Iasus’s offspring.

ANSWER: Meleager

[10] Meleager over-eagerly defended Atalanta’s honor following this event, in which a certain beast was slain.

ANSWER: Calydonian Boar Hunt

[10] This king of Calydon, who learned winemaking from Dionysus, failed to propitiate Artemis properly, prompting her to send the Calydonian Boar. Thankfully, his son Meleager was able to clean up his mess.

ANSWER: Oeneus