1. A novel by this author includes a comical scene in which the protagonist fails to have sex in a photography studio, which is promptly struck by a falling bomb, revealing a sign reading "finished in five minutes." The protagonist of a novel by this author discovers a briefcase full of stolen stamps in the rubble of a bombing that kills his Nazi girlfriend and sells it to build his own hotel in a quarry. In a novel by this author, a beer-loving man fills his home with intellectual books stolen from his job operating a hydraulic compactor, which he later uses to kill himself. The Emperor (*) of Ethiopia presents a medal to an aspiring waiter who works for Mr. Skrivanek in one of this author's novels, which is partially set at the Golden Prague Hotel. In a novel by this author, dispatcher Hubicka attempts to help the signalman Milos consummate his relationship with Masha, ending with Milos' death after sabotaging one of the title German conveyances carrying ammunition. For 10 points, name this prominent Czech author of *Too Loud a Solitude*, *I Served the King of England,* and *Closely Watched Trains*.
ANSWER: Bohumil **Hrabal**

2. Along with Jesse Collings, this man adopted Eli Hamshire's slogan of "three acres and a cow" as his promise for reformers. Elected mayor of Birmingham after a brilliant career as the head of a screw manufacturing concern, this man was known as a "gas and water Socialist" and his first significant cabinet post was as president of the Board of Trade. Late in life this man championed a tariff union meant to protect his nation from competition with American manufacturers, an issue over which he broke with Arthur Balfour. (*) Along with Lord Hartington, this man was the main leader of the Liberal Unionists, who broke from Gladstone's Liberals over the question of Irish Home Rule. As Colonial Secretary under his rival Lord Salisbury, this man instructed the British colonists not to assist the Jameson Raid, though he later helped persecute the Second Boer War. For 10 points, name this British politician and staunch advocate of imperialism, the father of Austen and Neville.
ANSWER: **J**oseph **Chamberlain**

3. After an argument with the man who held this post in 1997, both Gilbert Kalish and Leon Fleisher resigned, possi. The *Wall Street Journal*'s Greg Sandow wrote a controversial 1998 article accusing the man who held this post of not caring about "sound quality." That led to Andre Previn writing in to rebuke Sandow, who was also accused of being racist for reprinting rumors that this post was only given to its then-holder to increase foreign donations. A man who stepped down from this post in 2002 opted to wear a white turtleneck instead of white tie when performing. In the 1990's, much criticism accompanied the changes that the holder of this position made to the (*) Tanglewood Music Center; that man was the longest to hold this post and hailed from Japan. The man who held this position from 1924 to 1949 commissioned Stravinsky's *Symphony of Psalms* and had earlier commissioned Ravel's arrangement of *Pictures at an Exhibition*. For 10 points, name this position held in the 1990's by Seiji Ozawa and the 1930's by Serge Koussevitzky, the head of a New England orchestra based at Symphony Hall.
ANSWER: the music **director** of the **Boston Symphony** Orchestra [that's the official title, but also accept "principal **conductor** of the **Boston Symphony** Orchestra"; accept "BSO" in place of "Boston Symphony"; do not accept "director of the Boston Pops"]

4. A dimer of this molecule present in lone star tick bites leads to a peculiar allergy to red meat. One enzyme that hydrolyzes this molecule is only active at pH 6 and can be used as a marker for senescence. Brand and Perrimon developed a method that uses the upstream activation sequence controlling this compound's metabolism for targeted gene expression in Drosophila. A defect in the metabolism of this compound caused by mutations in the GALT gene can lead to (*) cataracts in infants. An enzyme that removes this molecule from

Gb3 is deficient in Fabry's disease. A blue color is produced when this molecule is cleaved from an indole chromophore in blue-white screens. This molecule is found on the ends of the O and B antigens, while its N-acetyl derivative is on the A. This molecule is cleaved from its C-4 epimer, glucose, by beta-gal. For 10 points, name this monosaccharide found with glucose in lactose.
ANSWER: **Galactose**

5. The presence of the seal of the Carrara family on some buildings in this painting indicates that the domed building may be Padua's Carmine rather than the Dome of the Rock as often supposed. When this painting was exhibited in the Palazzo Manfrin in the 19th century, it was mistakenly labeled as the artist's "family," to the point that a sculpture of the artist was made based on one of the characters in it. Though it is not a portrait, this painting was commissioned by Gabriele Vendramin, who was later painted with his family by a former assistant of this painting's artist. Salvatore Settis argues that it depicts a recently exiled (*) Adam and Eve with the infant Cain in his book on "interpreting the hidden subject" of this painting, which claims that the deserted city represents paradise. X-rays reveal that a nude woman bathing originally occupied the place where a clothed man leans on a stick. On the right, a woman in an awkward seating position suckles a baby, while in the background a single lightning bolt cuts through the sky. For 10 points, name this Giorgione painting depicting a coming storm.
ANSWER: The ***Tempest*** [or La ***Tempesta***]

6. This adjective describes a class of functorial field theories in which the correlation functions are metric-independent. Those theories are broadly divided into "Witten-type" and "Schwarz-type", and an example of the latter is the theory of Chern and Simons. A type of computing described by this adjective braids and fuses certain non-abelian quasiparticles; the Fibonacci model exemplifies that type of computing. One class of quantum error-correcting codes described by this adjective permits the characterization of stabilizer violations as anyons; Kitaev's toric code is one example. This adjective describes a property held by systems that are robust against all local perturbations; (*) that property is this kind of "order". This adjective also describes a class of materials that includes bismuth antimonide, which are characterized by symmetry-protected surface states; those are namesake "insulators". For 10 points, give this adjective that also describes spaces with particular configurations of open sets, like Kolmogorov and Hausdorff spaces.
ANSWER: **topological** [or word forms] (the astute reader will notice that this tossup does not commit the Voightian mistake of claiming that "topological" is a single property shared by all the described things)

7. In this area of law, general deference to state law principles in the absence of conflict is required by the *Butner* case. In some instances, the 1129(a)(8) requirement of unanimous approval of all classes can be avoided through the use of a cramdown. Section 365 of the code governing this area of the law provides flexibility in either performing or rejecting executory contracts. In this field, the filing of a voluntary or involuntary petition directly triggers the creation of an instrument called an (*) "automatic stay." This area of law creates a "waterfall," a structure of priorities that begins with domestic support obligations and back wages before reaching unsecured debt holders and equity. For 10 points, name this area of law which applies to liquidations through Chapter 7 of its namesake code and to corporate reorganizations through Chapter 11.
ANSWER: **bankruptcy**

8. After hearing a prophecy of a youth's future success, this man sneers "be we well advised to be afraid of a dream-reader?" According to one account, this man joins Rience after the youth he believes to be his son is placed on a ship by a ruler trying to kill all children born on May Day. In that story, this man's forces are lost after he is distracted by a magician and thus unable to save King Nero, and this leader is ultimately also killed when he is slain by the "Knight of the Strange Beast," King (*) Pellinore. His third son angrily beheads his own mother after catching her in an affair with Lamorak. Some stories state that several of this man's sons are

killed during the rescue of Guinevere by Lancelot, the result of which tears the Round Table apart. This man is married to Igraine's oldest daughter, Morgause, who unbeknownst to this dude, produced Mordred with King Arthur. For 10 points, name this father of Gawain, the king of Orkney and Lothian.
ANSWER: **Lot** [or **Loth**]

9. The Hatch-Ott protocol for this task begins by reacting an acidic mercury solution with stannous chloride and eventually produces a "cold vapor". For some transition metals, including tin and lead, the analyte is mixed with sodium borohydride before being fed into a device that incorporates a heated quartz tube. In another approach to this task, the analyte is ashed in a graphite furnace. That approach, which offers thousandfold better detection limits than its one-part-per-million predecessor, is the (*) "electrothermal" method. In the most primitive technique for performing this task, a nebulized analyte is driven past a series of flow spoilers and heated by a controlled flame. The enthalpy associated with this process is maximal for tungsten. In a Born-Haber cycle, this task is schematically the first performed, followed by ionization. One of these devices was used to inject charged droplets into the apparatus of Millikan's Oil Drop experiment. For 10 points, name this laboratory task, in which an analyte is desolvated, volatilized, and possibly dissociated to prepare it for analysis in an AAS or AES device.
ANSWER: **atomization** [or word forms]

10. A now disabled Twitter account called "HSM Press Office" controversially tweeted that this country was experiencing "largely miniscule…retributive justice." After an electric transformer exploded in this country in 2015, a stampede broke out and several young people jumped from windows. The U.S. State Department and Major Emmanuel Chirchir questioned a NYPD report about events in this country that suggested that fugitives were still on the loose and not dead. The hashtag #147notjustanumber (*) (not-just-a-number) trended as result of events here, which resulted in nightly curfews imposed in Wajir and the Tana River counties. The government of this country put a million dollar bounty on former school teacher and principal Mohamed Kuno. This country's Garissa University College was the site of a targeted attack on Christian students. For 10 points, name this country where Al-Shabaab gunmen killed 147 people in April of 2015.
ANSWER: Republic of **Kenya**

11. One way of computing this quantity in exponential time is to employ a Monte Carlo algorithm developed by John Pollard, known as his namesake "kangaroo" algorithm. An algorithm for computing this quantity that works relatively well for orders that are smooth integers is partially named after Silver and Pohlig. The most powerful algorithm for computing this quantity can do so in sub-exponential time but is complicated by the fact that the selection of the factor base represents a tradeoff; that is the index calculus algorithm. The difficulty of computing this quantity is at the heart of a signature scheme developed by El Gamal. (*) The ability to compute this quantity efficiently would solve the problem of computing g to the power x times y given a group generator g, integers x and y, and the values of g to the x and g to the y, known as the Diffie-Hellman problem. In general, computing this quantity means that given a group element g and an element a of the cyclic subgroup generated by g, one must find an integer x such that g to the x equals a. For 10 points, identify this so-far-intractable problem, the finite analogue to the continuous function that is the inverse of exponentiation.
ANSWER: **discrete log**arithm

12. The speaker of this poem asks "for what wears out the life of mortal men?" and answers that "repeated shocks" "exhaust the energy of strongest souls" and "numb the elastic powers." This poem contrasts the "days when wits were fresh and clear / and life ran gaily as the sparkling Thames" with the "strange disease of modern life," before warning "fly hence, our contact fear!" In its opening stanzas, its speaker urges a nearby shepherd to "no longer leave thy wistful flock unfed" and "Come… and again begin the quest!" The title character of this poem is compared to a (*) "Tyrian trader, from the sea" and is spotted in locations like

"some lone homestead in the Cumner hills." The title character of this poem is described as having "forsook his friends" and "roam'd the world with that wild brotherhood" by the speaker, who reads about him in "Glanvil's book" while lying on the grass. For 10 points, name this poem about an itinerant student from Oxford, written by Matthew Arnold.
ANSWER: "The **Scholar-Gipsy**"

13. This man is credited with setting up a distribution network that moved food provided by the governor Abu Ubaidah to a hundred thousand famine victims. This man made his military officers swear oaths against riding Turkic horses, and he set an example for public access to leadership by living in a mud hut without doors. This man's name is attached to a probably fake document which banned the use of the Nakos but provided limited formal protection to (*) Christians in an unspecified Middle Eastern city. Mosaics depicting this man's conquest of Persia adorn the Dome of the Rock, which is sometimes known as his mosque. This man issued the fatal decree "make me a windmill" to a man who had complained about his tax rate, leading to his assassination by Piruz Nahavandi, a Persian-born slave. For 10 points, name this second Rashidun caliph, who was succeeded by Uthman.
ANSWER: **Umar** ibn al-Khattab

14. This person was said to be "born out of the 30 percent dissatisfied" with the world at the time. When he was six years old, this man noticed magnetic power while playing with two pieces of steel, after which he told his uncle "I know that which you do not know." This man, who outlined some of his methods in a "Book of Tricknology", told his workers to prick the brains of children with a sharp needle in order to destabilize the population. A king once exiled this man and his 59,999 followers to an island in the (*) Aegean Sea. This man was mocked as a child for his enormous head. While on Patmos, he attempted to kill darker skinned babies in order to cultivate the growth of a "brown germ" among the race. This man's evil work was fully explained in the chapter "The Making of Devil" written by Elijah Muhammad. For 10 points, name this black scientist who created the "white devil" race according to the Nation of Islam.
ANSWER: Dr. **Yakub** [prompt on **Jacob**]

15. One of the best accounts of this event comes from the letters of the English merchant George Gascoigne, who observed it occurring from his trading house. Prior to this event, Frederic Perrenot, Lord of Champagney, replaced an untrustworthy German garrison with another, and attempted to construct barricades between their position and a nearby citadel. A losing commander at this event. Otto Oberstein, drowned in the Scheldt while retreating from it, and the five thousand troops under the Marquis de Havre (*) mostly failed to offer any resistance. This event was the direct impetus that led to the meeting at which the Pacification of Ghent was signed. Arising from a mutiny over back wages owed to troops by Philip II, this event was carried out by soldiers under Sancho d'Avila and was prominently featured in the Black Legend. For 10 points, identify this event known as the "Spanish Fury," which occurred in November of 1576 and involved the looting of a prominent Flemish city.
ANSWER: Sack of **Antwerp** [accept "**Spanish Fury**" before mention]

16. A story by this author ends with its narrator being unable to sleep soundly because of a "hysterical laugh" forever ringing in his ears. In that story by this author, the protagonist exits a lifeboat during a storm off Cape Hatteras to retrieve the title object before tying himself to it and throwing himself to his death. One of this author's title characters listens to the story of Ethelred killing a dragon from Sir Launcelot Canning's book *The Mad Tryst* while becoming increasingly disturbed by a series of noises. This author wrote a story about a (*) crate owned by the insane artist Cornelius Wyatt, as well as a story in which the state of the title character's mind is reflected by the poem "The Haunted Palace." One of this author's stories begins during "a dull, dark, and soundless day during the beginning of the year," in which the narrator visits a location that later slides into

a tarn. That story's title character becomes convinced that he has buried his sister Madeleine alive. For 10 points, name this American author of "The Oblong Box" and "The Fall of the House of Usher."
ANSWER: Edgar Allan **Poe**

17. **In an early scene in this movie, a female character is shocked to find a one-eyed bridge keeper offering her a "cure" made of human blood. In another scene, a man takes out his frustrations by struggling to push over a solitary birch tree. In an infamous explicit sequence from this movie, a character drops a rock in horror, unable to throw it at two villains, while a youth also watches in horror and later vomits. A subplot in this film involves the pregnant servant Ingeri, who prays for Odin to come to her aid. Two characters in this film are shocked when a (*)** guest offers to sell them some overly familiar torn clothing. The title of this movie refers to something created at the site where Karin's body is lying after she is found by a character played by Max von Sydow, who brutally murders three goat herders staying at his house. The inspiration for *The Last House on the Left*, for 10 points, name this 1960 Ingmar Bergman film about a father's revenge for his daughter's rape and murder.
ANSWER: The ***Virgin Spring*** [or ***Jungfrukallan**]

18. **After the death of his mother Mary, this man was raised by his aunt, Elizabeth Seton, the first American saint. Dr. Charles Guillou testified against this man, causing him to earn a public reprimand for his vicious punishments. After his nephew was killed on Malolo Island, he ordered the death of nearly 80 Fijians in revenge. Called "notorious" by the Bermuda press, this man was put on trial after publicly bashing Gideon Welles for calling him "too old." The existence of Antarctica was confirmed by this man's namesake (*)** expedition, which lasted from 1838 to 1842 and captured a huge number of animal and plant specimens which became some of the first scientific holdings of the Smithsonian. While captaining the *San Jacinto*, this man ordered the arrest of James Murray Mason and John Slidell, which started a diplomatic crisis with the British. For 10 points, name this Union naval officer who ordered the capture of the *Trent* during the Civil War.
ANSWER: Charles **Wilkes**

19. **Andy Clark's 1997 paper, "The Dynamical Challenge," contains a section about "unpacking" these concepts, which Clark classifies into "weak" and "strong" types using the example of two "maze-runners." A paper by Stephen Stich which argued that the "philosophical game of definition and counter-example makes little sense" asked, in its title, "What is a Theory of" these concepts. Together with Ted Warfield, Stich has also edited a collection of essays titled after these concepts, whose contributors include Ned Block and Peter Godfrey-Smith. Robert Cummins wrote a book about "Meaning and" these concepts, while connectionists like Rumelhart (*)** have argued that these concepts are identical with synaptic weights. A "theory of mind" that takes these concepts as central analogizes mental processes to computational processes, and argues that cognition is the consequence of syntactic operations applied to them; the foremost proponent of this view about these things is Jerry Fodor, who has developed that thesis into his "language of thought." For 10 points, identify these concepts which are cognitive elements that model some aspect of the external world.
ANSWER: mental **representation**s

20. **In this play, an upset ambassador remarks how he sought out a king in vain because he was off taking a shit in the Golden Hills for eight months. The protagonist of this play sets up a trading post outside his house, where he packs the sycophant Nicarchus away in hay and trades him to a Boeotian for some eels. The protagonist of this play lives next door to the playwright Euripides, from whom he borrows a beggar's costume to give an impassioned speech, causing the title characters to erupt into violence that is eventually stopped by the general Lamachus. After a nonsense-speaking herald with a giant eye (*)** appears on the Pnyx and openly insults the Athenians, the protagonist is accosted by several unhelpful Thracians who steal his bag of garlic. Its protagonist holds a basket of coal hostage to defend himself from the war-loving title characters, who attempt to stone him to death for securing peace with Sparta through the machinations of the immortal Amphitheus.

For 10 points, name this Aristophanes play about the war-weary Dikaiopolis, named for the unruly inhabitants of the largest deme of Athens.
ANSWER: The _**Acharnians**_

Extra

After this event, a monarch noted that one general "had no more part" in its finish than a dog named Thomas. In the course of this event, a man mythically watched a city burn while taking shelter under a massive oak in the Mari forests. During this event, the eventual loser started his own "War College" and named Zarubin Chalka a _faux_ Minister of War. A man executed after this event previously fought at the siege of Bender, where he claimed his godfather, Peter, gave him a special sword. During it, Peter Panin inflicted vicious reprisals on the enemy after the capture of Penza, while Johann Michelson eventually recaptured Kazan. The leader of this event was imprisoned in a metal cage by Alexander Suvorov and posed as the late Emperor Peter III. For 10 points, name this 1770's rebellion of Cossacks against Catherine the Great.
ANSWER: **Pugachev's** Rebellion [prompt on **Cossack** Rebellion]

This thinker wrote that Herbert Spencer was not well suited to observe mankind because he was "deficient in…sympathetic qualities." He developed one theory by looking at how his child used the word "I," which unlike the word "apple," becomes "different for every user of the word." This man's thesis was a study of transportation routes and how cities ended up on the confluence of such routes. It is often theorized that this man suffered from crippling neuroses thanks to obtaining his PhD at same university where his famous father, Thomas, worked as the dean of the law school. In his 1902 book _Human Nature and the Social Order_, this sociologist theorized an idea that a person bases his self-concepts on how others judge or perceive that person. This thinker is best known for proposing the theory of the "looking glass self." For 10 points, name this sociologist and son of the namesake of a law school located in western Michigan.
ANSWER: Charles **Cooley**

At one point in this text, the author is run over by a Great Dane, grievously injuring him but causing him "to feel a wonderful calm" that he has never felt before. The author of this text complains that the present generation "dishonoured and profaned" his earlier _Profession of Faith of the Savoyard Vicar_. This text begins with the observation that "the most sociable and loving of human beings has…been banished to the rest of society," with the author concluding "so here I am, all alone on this earth" In the ninth and final completed section, the author describes traveling to the Military Academy while thinking of Monsieur d'Alembert's text. The writer of this text calls it an "appendix" to his _Confessions_ and a "shapeless account" of his thoughts. For 10 points, name this unfinished Jean-Jacques Rousseau book divided into ten sections describing his lonely strolls.
ANSWER: _**Reveries of a Solitary Walker**_ [or _**Reveries of the Solitary Walker**_; or _Les **Reveries du promeneur solitaire**_]

1. In the section "Terrorists," sixth-graders chalk this phrase on the clothes of first-graders before being called into the principal's office. For 10 points each:
[10] Name this four-word phrase which titles a novel published in 1967. Throughout the novel, it it used as an adjective phrase describing the wheelchair-bound Shorty, as well as the name of a hotel, a disguise worn by Jack the Ripper, a character, and a pastoral ideal.
ANSWER: *__Trout Fishing in America__*
[10] This American author of *The Hawkline Monster* and *In Watermelon Sugar* became a countercultural icon after writing *Trout Fishing in America*.
ANSWER: Richard **Brautigan**
[10] Brautigan dedicated *Trout Fishing in America* to this poet of *After Lorca*. One of the founders of San Francisco's 6 Gallery, he led a workshop called "Poetry as Magic," and compared poets to radios receiving transmissions in his 1965 Vancouver lectures.
ANSWER: Jack **Spicer**

2. A common inducible transcription system uses this antibiotic as the activator, and the Tn10 transposon confers resistance to it. For 10 points each:
[10] Name this antibiotic which binds to the 30S component of the ribosome. Other antibiotics in this one's namesake family include terramycin, minocycline, and doxycycline.
ANSWER: **tetracycline**
[10] A condition named for this man, in which the proximal renal tubules are disrupted, occurs if one ingests expired tetracycline. An anemia named for this man is a genetic disorder common in Ashkenazi jews which can result in bone marrow failure.
ANSWER: Guido **Fanconi**
[10] Fanconi anemia often results in this form of leukemia by age 40, and its megakaryobastic form is very common in older adults with Down Syndrome. Auer rods are found in its M3 subtype.
ANSWER: **Acute Myeloid Leukemia** [or **Acute Myelogenous Leukemia** or **AML**]

3. According to Janak's theorem, the derivative of the total electronic energy of a Kohn-Sham orbital with respect to these quantities give the corresponding orbital energies. For 10 points each:
[10] Name these quantities, which must lie between zero and one in the Kohn-Sham formalism.
ANSWER: **occupation** numbers
[10] Janak's theorem is effectively a continuous analogue of this other theorem, named for a Nobel laureate in economics, which equates the first ionization energy of a system to the negative of the energy of its HOMO.
ANSWER: **Koopmans**'s theorem [do not accept "Koopman", I guess]
[10] Koopman's theorem can often be erroneous due to the presence of electron correlation. Multi-electron effects can make solving this equation difficult, but for the hydrogen-like atom its solutions have four quantum numbers.
ANSWER: **Schrodinger**'s equation

4. This poem was influenced by an earlier work by Nicander of Colophon and includes an epilogue in which its author claims, "the best part of me will be born, immortal, beyond the distant stars." For 10 points each:
[10] Name this 15-book Latin poem that opens with a description of the creation of the world and includes the mythological stories of figures like Pygmalion and Alcyone.
ANSWER: *__Metamorphoses__*

[10] This over 70,000-line manuscript in Old French contains ethical commentary as well as an entire verse adaptation of the *Metamorphoses*. William Caxton published a literal prose version of this manuscript in England in 1480.
ANSWER: *Ovide Moralisé* [or *Moralized Ovid*]
[10] The *Moralized Ovid* influenced the retelling of the Tereus story in Book Three of this Middle English poem. This poem's eighth and final book is an exemplum against incest that relates the story of Apollonius of Tyre.
ANSWER: *Confessio Amantis* [or The *Lover's Confession*]

5. Amin Maalouf wrote a 1986 novel about this man, showing his travels to Granada, Fez, Cairo, and Rome. For 10 points each:
[10] Name this Moor who wrote a book whose title translates to *Description of Africa*. He was baptized, freed from slavery, and took the name of a pope that he presented his book to.
ANSWER: Joannes **Leo Africanus** [or al-Hasan ibn Muhammad al-Wazzan **al-Fasi**]
[10] Leo Africanus wrote about this city in Mali, which was the scholarly center of Africa. It was home to the Sankore Madrasah, a university.
ANSWER: **Timbuktu**
[10] This Moroccan general under Ahmad I al-Mansur successfully defeated the Songhai at the Battle of Tondibi and sacked Gao and Timbuktu. He famously burned the salt mines of Taghaza.
ANSWER: **Judar** Pasha

6. The name of this group was coined by Barbara Smith. For 10 points each:
[10] Name this black feminist lesbian group formed in 1974 in Boston. It took its name as a way of honoring an action carried out by Harriet Tubman.
ANSWER: **Combahee River** Collective
[10] This Caribbean-American writer is possibly the most famous member of the Combahee River Collective. She wrote the essay "The Master's Tools Will Never Dismantle the Master's House" and the book *The Cancer Journals*.
ANSWER: Audre **Lorde**
[10] The Collective linked their contemporary feminism to the work of older women like this African-American abolitionist who gave the "Ain't I a Woman?" speech in 1851.
ANSWER: Sojourner **Truth** [or Isabella "Bell" **Baumfree**]

7. This ruler was called "Kopronymous," or "dung-named," for supposedly having defecated in the baptismal font, though it's more likely that his name was a clerical slur originating from his support for iconoclasm. For 10 points each:
[10] Identify this Byzantine emperor who finally got the church to approve those iconoclastic policies at the Council of Hieria, and who waged nine campaigns against the Bulgars, winning at Marcellae and Anchialus.
ANSWER: **Constantine V**
[10] Constantive V was a member of this dynasty, founded by his father, Leo III, and taking its name from a region of south-central Anatolia.
ANSWER: **Isaurian** or **Syrian** dynasty
[10] During Constantine's rule, this polity, which had previously revolted over his father's imposition of iconoclasm, was lost to the Empire when the Lombard king Aistulf captured its capital and killed its last ruler, Eutychius.
ANSWER: **Exarchate of Ravenna**

8. This condition is equivalent to setting the covariant derivative of the four-potential to zero. For 10 points each:
[10] Identify this gauge condition that is very useful in working with time-dependent electromagnetic fields.
ANSWER: **Lorenz** gauge or condition

[10] When viewed as the exterior derivative of the four-potential, the electromagnetic field is this type of mathematical object with a particular degree. Some of these objects can be contracted to yield a scalar, though the electromagnetic field cannot be, since either its covariant or contravariant degree vanishes.
ANSWER: rank-**2 tensor** [or **bivector**; or **2-vector**; prompt on "tensor"; do not prompt on "vector"]
[10] An alternative to the Lorenz gauge is the Coulomb gauge, useful in quantum electrodynamic, which sets this operation of the vector potential equal to zero. This operation applied to the magnetic field is zero, meaning that there are no magnetic monopoles in classical electrodynamics.
ANSWER: **div**ergence

9. In many traditions, a father whispers this mantra into the ear of his son at his coming-of-age ceremony. For 10 points each:
[10] Name this 24-syllable Rigvedic mantra that may be understood to invoke the Vedic solar deva Savitr. The Harivamsa Purana claims that the mantra's namesake was the progenitor of the Vedas.
ANSWER: **Gayatri** mantra
[10] A law code named for this first man in Hinduism prescribes that the Gayatri mantra be uttered every dawn and dusk. That law code also states the penalty for killing a kshatriya is one-fourth the penalty for killing a brahmin.
ANSWER: **Manu** smrti [or Laws of **Manu**]
[10] The Gayatri mantra contains this performative utterance, which is sometimes also construed as the name of a wife of Agni. In modern Hindu rituals involving a ceremonial fire, most mantras recited by elderly priests are concluded with this utterance.
ANSWER: **swah**a [or **svah**a; or **sowaka**; or really anything that sounds more or less like any of those]

10. The first performance of this work was accompanied by the raising of a poster of Che Guevara and the Red Flag. For 10 points each:
[10] Name this Hans Werner Henze oratorio, a requiem for Che, which shares its title with a painting.
ANSWER: Das **Floss der Medusa** [or The **Raft of the Medusa**]
[10] Henze dedicated his work *Kammermusik 1958* to this composer. This man was the personal and professional partner for many years of the tenor Peter Pears.
ANSWER: Benjamin **Britten**
[10] Henze's symphony of this number was written while he was in Cuba and includes quotations from a Vietnamese Liberation Front song. Tchaikovsky's symphony of this number is called "Pathetique."
ANSWER: **sixth**

11. While in Ephesus, this character has a vision of "the two great deniers," Cain and Judas Iscariot. For 10 points each:
[10] Name this character, who consults the mystic Maximus in an 1873 play whose second part features him finally take the throne only to be overthrown and killed soon after.
ANSWER: **Julian** the Apostate
[10] Julian is the main character in this play by Henrik Ibsen about the final non-Christian ruler of the Roman Empire.
ANSWER: *Emperor and Galilean* [or *Kejser og Galilaeer*]
[10] Christians in Rome were also the subject of this Henryk Sienkiewicz novel set during "the time of Nero."
ANSWER: *Quo Vadis*: A Narrative of the Time of Nero

12. Laffont and Tirole developed a three-tier model of this type of government failure. For 10 points each:
[10] Name this type of corruption that occurs when an agency which was formed to act in the public interest becomes dominated by the industry it ostensibly oversees. Avoiding this problem is one of the motivations for the Coase Theorem.

ANSWER: regulatory **capture**

[10] This member of the Chicago school of economics developed the theory of regulatory capture in his paper "The Theory of Economic Regulation." He explained price dispersion in partial equilibrium using search costs in his 1961 article "The Economics of Information."

ANSWER: George **Stigler**

[10] This father of the Chicago school taught Stigler and Milton Friedman. He names a paradox about traffic congestion along with Pigou and Downs, and wrote the study *Risk, Uncertainty and Profit*.

ANSWER: Frank **Knight**

13. Genre paintings by this artist include one of two women at a window, in which one of the women hides her mouth beneath her shawl as if to conceal her snickering. For 10 points each:

[10] Name this painter who died after falling from scaffolding while working on his *Mystic Marriage of St. Catherine* for a Capuchin church. He also painted two beggar boys eating grapes and a melon.

ANSWER: Bartolomé Esteban **Murillo**

[10] Murillo hailed from, and spent most of his career in, this Andalusian city, painting many pictures of its poor. Murillo also painted this city's St Isidore reading from a book, and Diego Velázquez painted a water carrier from here.

ANSWER: **Seville** [or **Sevilla**]

[10] Critics use this term for the soft tones and colors of Murillo's religious paintings, such as his *Immaculate Conception*, which features putti blending into the background like haze.

ANSWER: **estilo vaporoso** [or **vaporous style**]

14. This poem's title character acquires the jongleur Naddo after the death of Eglamor. For 10 points each:

[10] Name this narrative poem in six books about a troubadour from Mantua, set during the conflict between the Guelphs and Ghibellines.

ANSWER: *Sordello*

[10] *Sordello* was written by this British poet of "A Toccata of Galuppi's" and *The Ring and the Book*.

ANSWER: Robert **Browning**

[10] The second of these poems begins "Hang it all, Robert Browning, there can be but one Sordello." Critics are still divided about the addressee of a passage in the 81st one that repeats the command "pull down thy vanity."

ANSWER: Ezra Pound's *Cantos*

15. This problem was attacked by Jaakko Hintikka in his major work on epistemic logic, *Knowledge and Belief*, and has its origins in its namesake's essay, "A Reply to My Critics." For 10 points each:

[10] Name this basically unsolved philosophical paradox which basically asserts that sentences like "It's raining, but I don't believe that it is raining" is not a contradiction, is true, but is fundamentally absurd.

ANSWER: **Moore's** paradox

[10] This philosopher, perhaps snidely, said that paradox was G.E. Moore's most important philosophical contribution. He was the author of *Philosophical Investigations*.

ANSWER: Ludwig **Wittgenstein**

[10] I prefer this other Moore contribution to philosophy from *Principia Ethica*, which uses the namesake queries to argue that no moral property is identical to a natural property. An example of the queries is "I know X is pleasurable, but is it good?"

ANSWER: **Open question** argument

16. During this battle, Daniel McCook was killed as he shouted "Surrender, you traitors!" at the Dead Angle. For 10 points each:

[10] Name this tactical loss for the Union, the largest frontal assault by William Sherman against Confederates during the Atlanta Campaign.
ANSWER: Battle of **Kennesaw Mountain**
[10] Union officers at Kennesaw Mountain included George Thomas, who became known as the "Rock" of this 1863 battle in Georgia for holding firm against Braxton Bragg.
ANSWER: Battle of **Chickamauga**
[10] This Union officer became the second-highest ranking officer killed in the war when he was slain at the Battle of Atlanta. In 1864, he assumed command of the Army of the Tennessee after Sherman was promoted to lead Union forces in the Western theater.
ANSWER: James Birdseye **McPherson**

17. Some of these photographs were taken at the beach house of Robert Longo, while many of them were shot outside at different locations in New York City. For 10 points each:
[10] Name this group of 69 black and white photographs which depict their artist in various wigs, costumes and locations inspired by cliches from B-movies.
ANSWER: *Untitled Film Stills, 1977-1980*
[10] This American photographer often portrayed herself in conceptual self-portraits in series like *Untitled Film Stills*, *Centerfolds*, and *Sex*.
ANSWER: Cynthia "Cindy" **Sherman**
[10] Cindy Sherman is sometimes considered a member of the "Pictures Generation" along with this fellow artist, who photographed reproductions of images from *Let Us Now Praise Famous Men* in her landmark series *After Walker Evans*.
ANSWER: Sherrie **Levine**

18. Recent computational work by Eric Wolf and Brian Toon has suggested that a resolution to this paradox lies in the presence of very large amounts of carbon dioxide in the atmosphere. For 10 points each:
[10] Name this paradox in astronomical history that notes that early in the Earth's history, the solar output was, based on all evidence, apparently insufficient to maintain a liquid ocean.
ANSWER: **faint young Sun** paradox
[10] This paradox was first explicated by George Mullen and this astronomer, the host of *Cosmos: A Personal Voyage* and compiler of the Voyager Golden Record.
ANSWER: Carl **Sagan**
[10] Sagan and Mullen's original attempt to explain the faint young Sun paradox involved a two-layer model of the atmosphere with an added amount of this compound acting as a greenhouse gas. That solution doesn't work because at the required conditions, the Sun's UV radiation would have photodissociated this molecule completely.
ANSWER: **ammonia** or **NH3**

19. This man was killed when he gave his weapon to his killer to check if it really was bronze. For 10 points each:
[10] Name this son of Hephaestus, a one-eyed brute who robbed people and bashed them with his club.
ANSWER: **Periphetes** [or **Corynetes**]
[10] Periphetes was killed by this hero, who took out other bandits like Procrustes and Sinis on his journey to Athens.
ANSWER: **Theseus**
[10] After Theseus killed Sinis, he made love with the bandit's daughter, Perigune, to produce this son, his first male heir. This man later became the ancestor of the Ioxids.
ANSWER: **Melanippus**

20. This battle saw the death of a dog named "Boye" whose alleged demonic origins were actually a piece of Royalist propaganda invented by John Cleveland. For 10 points each:
[10] Identify this battle at which John Byron left a secure defensive position on the right flank to attack Oliver Cromwell and was repulsed, while the Royalist left flank, commanded by George Goring, was routed by Thomas Fairfax. It took place near York on July 2, 1644.
ANSWER: Battle of **Marston Moor**
[10] This Cavalier commanded the Royalist forces at Marston Moor and was the owner of the aforementioned Boye. After being exiled by Parliament in 1646, he had a notable career as a pirate and after the Restoration served as the first governor of the Hudson's Bay Company.
ANSWER: Prince **Rupert** of the Rhine [or of the Palatinate]
[10] Rupert's piracy was ended by his defeat at Cartagena by naval forces commanded by this man, the primary admiral under Cromwell's Commonwealth. This commander went 3 for 4 against the Dutch admiral Maarten Tromp during the Anglo-Dutch Wars and later destroyed the Barbary pirates at Porto Farina.
ANSWER: Robert **Blake**

21. The play *The Anorak* by Adam Kelly deals with events in this city. For 10 points each:
[10] Name this city in which fourteen women were killed at a university in 1989 by Marc Lepine, a man who claimed to be "fighting feminism."
ANSWER: **Montreal**
[10] This Canadian Prime Minister attended the joint funeral for nine of the women killed in the massacre. This man met with Ronald Reagan at the infamous "Shamrock Summit."
ANSWER: (Martin) Brian **Mulroney**
[10] In 2006, Kimveer Gill killed one person during a shooting spree at this Montreal college. After the shooting, Jan Wong pondered if Gill felt alienated due to Quebec's racial purity, while others blamed the band Megadeath.
ANSWER: **Dawson** College

22. Answer some questions about 3D printing, for 10 points each.
[10] In this rapid-prototyping technique, a UV laser triggers photopolymerization in successive masks of a liquid resin, thereby creating a three-dimensional object. A recent paper of Tumbleston *et al.* reports on a related technique in which the printing process is continuous, called CLIP.
ANSWER: **stereolithography** [or word forms; or **SLA**]
[10] In another technique, a laser is used to selectively perform this process on a powdered metal, thereby compacting it without fully melting it. This is a major part of a powder-metallurgical technique, in which it follows "pressing".
ANSWER: (selective laser) **sinter**ing [or word forms; accept **SLS**]
[10] One major obstacle to printing biological tissue is that this material, which occupies the space between cells, is poorly understood. Collagens and proteoglycans are two major components of this material.
ANSWER: extracellular **matrix** [or **ECM**]