Tossups

1. A modification of this technique is based on the activation of Ras ("rahs") when hSos ("h-sauce") is localized to the cell membrane. Three-amino-one-two-four-triazole, or 3-AT, can be used to evaluate expression of the HIS3 ("hiss-three") reporter in this method. The transcription factor used in this technique is also used with its upstream activation sequence to induce targeted gene expression in *Drosophila*. A form of this technique applicable in mammals involves the phosphorylation of g·p·130 by T·Y·K·2 and is known as the Kinase Substrate Sensor, or KISS. It can be extended to integral membrane proteins by using "Cub" and "Nub" protein domains in the split-ubiquitin system. It involves expression of a reporter gene when the activation domain and DNA-binding domain of transcription factor Gal4 ("gal" "four") are brought together by bait and prey proteins. For 10 points, name this technique that involves using *S. cerevisiae* to identify protein-protein interactions.
ANSWER: **yeast 2-hybrid assay** [or **Y2H**]

2. This group's last great fortress was taken with bullhide-covered *sabat* tunnels by a commander who built statues of their teenage heroes, Jaimal and Patta. This group enforced unilineal inheritance, with female infanticide often performed by smearing opium onto the mother's nipples; its women also committed mass suicide in the *jauhar* ritual after defeat. After losing to Muhammad Ghori at the Battle of Tarain, these people consolidated their holdings behind fortress cities like Chitor and Ajmer. Communities of these people were broadly divided into the "Sun People," "Moon People," and "Fire People." Some historians believe that their dominant Gurjara clan migrated from Central Asia in the 7th century after the White Huns. Under Rana Sanga, they lost the Battle of Khanwa to Babur, whose grandson Akbar built Fatehpur Sikri to celebrate their conquest. For 10 points, name this loose constellation of Hindu warrior clans that controlled much of modern-day northern India, and whose territories are now called Rajasthan.
ANSWER: **Rajput**s

3. A technique in this field starts with the introduction of the unnatural amino acid A·H·A into a protein. SPANC ("spank") reactions, where 1,3 nitrones and DIBO combine to generate *N*-alkyl·ated isox·azo·lines, is a popular approach in this field. A strain-promoted version of a reaction in this paradigm was first developed as a faster alternative to the Staudinger ligation. The anti-Markovnikov thiol·ene and thiol·yne reactions have experienced a recent revival for their applicability this field. Carolyn Bertozzi pioneered the use of cyclo·octyne in the "copper-free" segment of this field. Bio·orthogonal reactions utilize techniques from this paradigm within living systems. This paradigm is exemplified by the copper-one-catalyzed three-plus-two cyclo·addition between an alkyne and an azide; that reaction is named for Rolf Huisgen (HOY-jen). For 10 points, name this chemical paradigm that emphasizes modular units and bio·mimetic reactions and is championed by K. Barry Sharpless.
ANSWER: **click** chemistry [or **bio-orthogonal** chemistry]

4. A hawthorn branch from this town that unusually flowers in the winter as well as the spring is a traditional gift to the monarch. Iron oxide deposits under this town give the water of one of its wells a reddish hue, leading to legends about the healing properties of the well. It contains the ruins of the Benedictine Abbey of St. Mary, which according to legend became the first Christian church in England when it was founded by Joseph of Arimathea, who brought the Holy Grail to this town. In 1191, monks digging here discovered the supposed graves of Arthur and Guinevere. Only the tower of St. Michael's Church remains atop the terraced conical "tor" that towers over this town. This town neighbors the town of Pilton, where a "Pyramid Stage" is annually built for a major musical festival. For 10 points, name this town in Somerset, England that is sometimes identified as the mythical Avalon.
ANSWER: **Glastonbury**

5. A taxi driver learns about a treacherous act he committed during this historical event in the last past life narrative of Susan Barker's *The Incarnations*. During this event, a girl kicks the pregnant Nini in the stomach until she gives birth; after this event, that girl cannot speak during her public execution because her vocal cords are cut in the novel *The Vagrants*. In reaction to this event, the muckraking series "People or Monsters?" was published, and the literary journal *Today* was founded to champion writings of the "Misty Poets." The short story "The Class Monitor" pioneered a genre of literature defined by reflections on this historical event, called "scar literature." During this event, *The Legend of the Red Lantern* was popularized as one of "Eight Model Plays," and the author of the play *Hai Rui* ("high" rway) *Dismissed From Office* was censored. For 10 points, name this period of political upheaval in China in which Red Guards sought to restore Maoist ideology.
ANSWER: the Great Proletarian **Cultural Revolution**

6. This philosopher called for a "vocabulary of attention" in "Against Dryness," citing Simone Weil, whose concept of *decreation* this philosopher translated as "unselfing." In the first English monograph on Sartre, this philosopher rejected the idea of morality as "shopping" in favor of a Platonic concept of "vision." This philosopher's major work begins with the essay "The Idea of Perfection," which contains a thought experiment in which a mother-in-law M comes to a new moral understanding of her daughter-in-law D. This author's *Metaphysics as a Guide to Morals* expands on themes she introduced in *The Sovereignty of Good*. She was the subject of an "Elegy" by her husband John Bayley, who was hurt by her long-term affair with the author of *Natural Goodness*, Philippa Foot. For 10 points, name this English philosopher who also wrote such novels as *A Severed Head* and *The Sea, The Sea*.
ANSWER: Iris **Murdoch** [accept Jean Iris **Murdoch**]

7. Minor details of this artwork include a half-submerged horse with flippers crawling onto the shore and the head of an elephant coming out of the ground. In this work, two rams' heads decorate the ends of a boat that is supported by angry-looking fish. At the base of this work, reclining male nudes in flowing red robes represent the times of the day, and four men shown from the waist up with puffed cheeks represent the winds. In this sculpture, green enamel is used to color the earth, which holds up a temple on which a naked woman is reclining. In 2003, Robert Mang stole this sculpture, which is a rare piece of metalworking by its artist that hasn't since been melted down or lost. In this 26-centimeter high sculpture completed at Fontainebleau, blue enamel is used to represent the sea where Neptune holds up a trident opposite Ceres. For 10 points, name this precious piece of gold tableware designed for Francis I by Benvenuto Cellini.
ANSWER: *The **Saltcellar** of Francis I* [or the ***Saliera***]

8. Jan Tarnowski (yahn tar-NOV-ski) adapted these military items for use with Polish *hussars* to obliterate 10,000 Moldavians at the Battle of Obertyn. These items were close cousins of the *gulyay gorod* used by Ivan the Terrible to conquer the Khanate of Kazan. A tactic when soldiers were out of gunpowder was to use these items to crush enemies beneath an avalanche of stones. Their use by the Ottoman Empire dates from the Battle of Varna, where Julian Cesarini's argument to employ them overcame sounder advice from John Hunyadi. A fake retreat that enticed the "Orphans" to abandon these objects led to the killing of Prokop the Great by Catholic forces at the Battle of Lipany. Most useful on long, level terrain, they were hooked together with chains and manned by handgun-wielding peasants, who fired on the feudal cavalry of Emperor Sigismund. These weapons were arranged in squares to form mobile fortresses called *tabor* that won the battle of Kutna Hora for Jan Zizka (YAHN ZHIZH-kuh). For 10 points, name these devices used by the Hussites, mobile vehicles which American pioneers "circled" in case of attack.
ANSWER: war **wagon**s [or **tabor**; or **wagenburg**; or **laager**]

9. Lionel Trilling contrasted the liberal reception of this author with that of Henry James in his polemical essay "Reality in America." Stuart Sherman emphasized this writer's ethnic heritage in essays attacking his fiction as "barbaric" and exemplifying a kind of "animalism." This novelist is depicted as a boy "staring at the door of the crawfish's burrow" and as a man who "watched for men and women hiding in burrows of fate amid great cities" in a portrait of him as "the Poet" by his friend Edgar Lee Masters, who included it in the *Spoon River Anthology*. His early works were championed by his friend and sometimes editor H. L. Mencken, though they quarreled over his novel about the painter Eugene Witla, *The "Genius"*. Sinclair Lewis said that "the first fresh air since Mark Twain and Whitman" was brought to America by this man's novel depicting the downfall of George Hurstwood. For 10 points, name this pioneer of American naturalism who wrote *Sister Carrie*.
ANSWER: Theodore **Dreiser** [or Theodore Herman Albert **Dreiser**]

10. This material makes up the undulating walls of the Atlantida Church and the other churches designed by Uruguayan architect Eladio Dieste. When Rotterdam's "bouwcentrum" (rhymes with "now sent rum") was torn down, a wall of this material was left standing to preserve Henry Moore's *Wall Relief No. 1*. It was used by Roche and Dinkeloo to clad the four cylindrical towers of the Knights of Columbus headquarters. Louis Kahn famously told his students to talk to this material, which he used for the facades of his Richards Laboratory, Indian Institute of Management, and Phillips Exeter Library. It was a favorite of Alvar Aalto, who used it as the primary material for his Muuratsalo Experimental House and his Saynatsalo Town Hall. A thin, long, form of this material named after the Romans was used by Frank Lloyd Wright in the Robie House. For 10 points, name this material used in the facade of the Wainwright Building, which is traditionally made by heating a block of clay in a kiln.
ANSWER: red **brick** [prompt on "masonry"]

11. A monograph on this subject argues that it relies on five "sociological presuppositions," such as "man's aim in life is happiness,"and five "myths," such as that of "the Youth;" that book distinguishes its "agitative" from its "integrative" form, which is made necessary by technology. Harold Lasswell argued that action phrases and imperatives were grammatically characteristic of this practice, which he subjected to extensive content analysis. "Flak" and "ownership" are two of five filters in a model named for this practice by Herman and Chomsky. This non-advertising practice is said to be inherently undemocratic in a book by Jacques Ellul, who disputed Edward Bernays' conclusion that this political practice, on which Bernays literally wrote the book in 1928, was necessary for democracy. Free "People's Receivers" and the "Big Lie" were techniques used as part of this practice in Nazi Germany. For 10 points, name this practice, mastered by Joseph Goebbels, of manipulating the public for political ends.
ANSWER: **propaganda** [prompt on other answers, such as media manipulation or manufacturing consent, but the word **propaganda** is needed; do not accept or prompt on "advertising"]

12. A form of this property manifests as the destruction of anti-nodal coherence peaks in the local density of states spectra of under-doped cuprate superconductors. Whether a certain quantity measuring this property obeys a conservation law differentiates Class A and Class B Hohenberg-Halperin models. Levin and Wen proposed string-net condensation as the generating mechanism for a form of this property associated with gapless boundary excitations that are robust against any local perturbations. The degenerate ground states observed in the fractional quantum Hall effect possess that "topological" form of this property. The free energy is expanded in a power series as a function of a parameter named for this property in Lev Landau's theory of continuous phase transitions. For 10 points, name this property characterized by a correlation length that may be short-range or long-range.
ANSWER: **order** [accept word forms; or charge **order**; or topological **order**; or **order** parameter; or short-range **order**; or long-range **order**; prompt on correlation or entanglement]

13. In this novel, a professor tells his students to "let your thought be the wall," then "let your thought be *that* that thought the wall." Near the end of this novel, the protagonist writes in his journal that algebra "deadens pain" and reflects on illness, concluding that "those who are well, and have to stand by and do nothing, also need help, perhaps even more than the sick." In accordance with his father's wishes, this novel's protagonist goes to Tennstedt to prepare for a job as a tax collector in the Directorate of Salt Mines. This novel's protagonist tells Karoline Just (KAR-oh-LEE-nuh YOOST) the beginning of a story about a young man's obsessive longing for the title object. At Grüningen (GROO-nin-gen), the protagonist of this novel meets his twelve-year-old beloved, the terminally ill Sophie von Kühn. For 10 points, name this novel about the young Fritz von Hardenberg, later known as Novalis, written by Penelope Fitzgerald.
ANSWER: The **Blue Flower**

14. A speech given about this personal attribute cites how "Fuentes and McCafferty" died side by side with "Bowie and Crockett" at the Alamo. This individual attribute led its holder to condemn the statements of James P. Davis and James McManus against Luis Munoz Marin. Inveighing against this personal attribute diminished the public standing of the author of *The Power of Positive Thinking*, Norman Vincent Peale. In 2012, Rick Santorum claimed he wanted to "throw up" after reading a speech about this quality that affirmed Article VI of the Constitution to an audience in Houston. Although this quality's holder hoped that it was "buried" after defeating Hubert Humphrey in the West Virginia primary, this attribute may have lost its holder four states, including Ohio and Florida, to Richard Nixon. For 10 points, name this unique religious denomination held by the 35th President.
ANSWER: the **Catholicism** of John Fitzgerald **Kennedy** [prompt on John F. Kennedy's religion; prompt on Catholicism]

15. This man argued that the distribution of "religious benefits" was a counterweight to political power caused by what he called "hierocracies." He characterized Buddha as an "exemplary prophet," unlike Muhammad, an "ethical prophet." Werner Sombart challenged this man for characterizing Jews as a "pariah-people" whose business was limited to trade. This man's theory of stratification considers market position, "social honor," and political power as crystallized in the title entities of his text "Class, Status, Parties." This man argued that politicians must balance their "ethic of moral conviction" with the everyday "ethic of responsibility." He identified "charismatic," "legal," and "traditional" methods for state legitimation in a lecture that defines the state as an entity that has a monopoly on legitimate violence. For 10 points, name this author of *Economy and Society*, "Politics as a Vocation," and *The Protestant Ethic and the Spirit of Capitalism*.
ANSWER: Max **Weber** [or Karl Emil Maximilian **Weber**]

16. An essay titled "New Notes on [*this* author]" ridicules "riddle-less sphinxes" that yawn "empty words" whenever they see a book "more amusing than the *Iliad*." A poem about this writer includes a line that T. S. Eliot translated as "To purify the dialect of the tribe" in "Little Gidding." That poem about this writer describes him "such as into himself eternity finally changes him." A work by this author displays two identical triangular "symbolic circuits," whose occupants play at "politics of the ostrich," according to a lecture interpreting its "repetition automatism." Jacques Derrida's "The Purveyor of Truth" attacked Jacques Lacan for abusing psychoanalysis in a seminar on this author, whose "Tomb" is the subject of a poem by Stephane Mallarmé. From 1847 to his death, Charles Baudelaire made a living translating and popularizing the works of this author, inspired by such stories as "The Man of the Crowd." For 10 points, name this oft-translated American author of poems such as "The Raven."
ANSWER: Edgar Allan **Poe**

17. In 1788, rumors of the theft of these objects in New York provoked a mob that knocked out John Jay with an errant brick. John Rolph used whiskey barrels on Lake Ontario to smuggle these objects, which were often sold at the Fortune of War Public House. Two illegal traders in these goods were exposed thanks to the case of 'Daft Jamie,' a disabled boy on the streets of Edinburgh. In 1831, Thomas Williams, John Bishop, and James May sought to make a profit by producing these objects, becoming nicknamed the "London Burkers" after two Scottish vendors of these commodities, Burke and Hare. In *A Tale of Two Cities*, the "resurrectionist" Jerry Cruncher is a vendor of these objects, which were often in scarce supply to hospitals. For 10 points, name these objects analyzed by Andreas Vesalius, William Harvey, and beginning medical students.
ANSWER: **cadaver**s [or **corpse**s; or **dead people**]

18. This man was the subject of two biographies by R.W. Southern, whose *The Making of the Middle Ages* argues that he was the origin of a genre of "ardent and effusive self-disclosure." At the Council of Bari, this man compared the relationship of the Father to the Son to that of man to himself through memory, an argument he published in *On the Procession of the Holy Spirit*. In a philosophical dialogue against an opponent named Boso, this man argues that the crucifixion was necessary not as a "ransom," but as "satisfaction" for an affront to God. This author of *Cur Deus Homo* used the motto "faith seeking understanding" and famously wrote, "I believe so that I may understand." This one-time Abbot of Bec invoked the "fool of the Psalms" in an argument that Gaunilo (gow-NIL-oh) responded to by postulating an imaginary island. In his *Proslogion*, this scholar began an argument with the claim that one can imagine the existence of the greatest possible conceivable being. For 10 points, name this Archbishop of Canterbury who formulated the ontological argument for the existence of God.
ANSWER: St. **Anselm** of Canterbury

19. In the fourth and final movement of an F minor piece composed for this ensemble, a fugue climaxes on an unresolved C major chord followed by a bar of silence, then a return of the piece's opening theme. A set of 16 pieces composed for this ensemble was published with easy and hard versions arranged for solo performance. A set of six pieces for this ensemble ends with a tribute to *España*, an orchestral rhapsody by the composer's friend Emmanuel Chabrier. Sixteen waltzes make up Brahms's Opus 39 for this ensemble, for which Schubert wrote a Fantasia in F Minor. *Tendresse* is the penultimate piece in a suite for this ensemble that includes *Mi-a-ou* ("meow", but stretched out) and was named for the daughter of the composer's mistress. A set of eight pieces originally composed for this ensemble is bookended by C major and G minor furiants. This is the ensemble for which Gabriel Faure's *Dolly Suite* and Antonin Dvorak's *Slavonic Dances* were written. For 10 points, name this ensemble, in which two pianists play the same piano.
ANSWER: piano **four hand**s [or a **quatre mains**; or a **quattro mani**; or zu **vier Händen**; or **vierhändig**; prompt on piano duet; prompt on two pianists; prompt on duet; do not accept "two pianos"]

20. Anthony Hoare distinguished between "angelic" and "demonic" forms of programs with this property, depending on the program's likelihood to terminate. Solving the "canonicity problem" for a mathematical model that has this property is PSPACE-complete, whereas solving the "canonicity problem" for a model without this property is in NL. A finite model possessing and named for this property can be obtained by either the Glushkov or the Thompson constructions. A model of size n having this property may be replaced by an equivalent one lacking this property but having size as large as two to the n via the Rabin-Scott powerset algorithm. Adding this property to certain constructs does not increase the amount of languages they accept if the problem requires a polynomial amount of space to solve, according to Savitch's theorem. Epsilon transitions and multiple start states can be used to specify the finite state machines that possess this property. The satisfiability problem and the zero-one integer programming problems are verifiable in polynomial time on Turing machines that have this property. For 10 points, name this property that puts the "N" in the NP complexity class.
ANSWER: **nondeterministic** [or word forms, such as **nondeterminism**]

TB. This technology was the driving force behind Operation Wilfred, a plan to cut off Nazi Germany from Narvik iron ore. The "Crab," "Scorpion," and "Toad" were devices often fitted with long chains that were designed to counter this technology. Charles Goodeve countered this technology by inducing an "N-pole up" field around his ships in a technique known as "degaussing." Bernard Montgomery opened the Second Battle of El Alamein with Operation Lightfoot, a plan to counter this technology, which historians have proven was responsible for the *Britannic* incident of 1916. A variant of this device was nicknamed the "Bouncing Betty." One of these devices, rather than a protege of Marcel Marceau, was responsible for the death of Lord Herbert Kitchener. For 10 points, name these self-contained explosives used to destroy ships and personnel during World War II.
ANSWER: land**mine**s [or sea **mines**]

1. This poet compared himself to a "stricken deer" in the third book of his six-book poem *The Task*, which inspired Coleridge's "Frost at Midnight." For 10 points each:
[10] Name this mentally ill English poet of the 18th century, one of the foremost pre-Romantic poets. This Christian evangelist also collaborated with John Newton on the *Olney Hymns*, one of which begins "God moves in a mysterious way."
ANSWER: William **Cowper** ("cooper")
[10] One of Cowper's last poems was titled for this type of person, compared to whom the speaker claims to be "whelm'd in deeper gulfs." Other examples include Alexander Selkirk, who spent four years as this type of person, and the literary character he inspired, Robinson Crusoe.
ANSWER: **castaway** [or **maroon**; or obvious equivalents such as "**person stranded on an island**"]
[10] Cowper's poem beginning, "Hatred and vengeance, my eternal portion," commonly known as "Lines Composed During a Period of Insanity," is written in this verse form, consisting of three hendecasyllables followed by a five-syllable adonic colon.
ANSWER: **sapphic**s [or **sapphic** stanzas]

2. Much of the dialogue of Nelson Pereira dos Santos' film *How Tasty Was My Little Frenchman* is spoken in this language. For 10 points each:
[10] Name this language spoken by the indigenous inhabitants of Brazil's east coast. Along with Guarani, it lends its name to the dominant family of indigenous South American languages.
ANSWER: **Tupi**an
[10] The Tupi language is the origin of the name of this Brazilian martial art which originated in Africa and includes elements of dancing.
ANSWER: **capoeira** (cap-oh-EER-ah)
[10] This city, which was founded by the Tupi chief Arariboia, takes its name from the Tupi for "hidden water." It sits just across the Guanabara Bay from Rio de Janeiro and was capital of the state of Rio de Janeiro until 1975.
ANSWER: **Niteroi** (NEE-teh-roy)

3. The Thomsen parameters are used to characterize this quantity in the presence of seismic an·iso·tropy. For 10 points each:
[10] Name this quantity that increases sharply at the point where olivine transforms into the polymorph wadsley·ite. This quantity is greater for P-waves than for S-waves.
ANSWER: seismic wave **velocity** [or seismic wave **speed**]
[10] This equation gives the dependence of seismic wave velocity on the density of the Earth as a function of depth under the assumptions of homogeneity, spherical symmetry, hydrostatic equilibrium, and adiabatic compression.
ANSWER: **Adams-Williamson** equation
[10] The transformation of perovskite into post-perovskite is responsible for the negative seismic wave velocity gradients observed in this region, which extends from about 2,700 to 2,900 kilometers below the Earth's surface.
ANSWER: **D-double-prime** layer or region [prompt on core-mantle boundary or CMB; do not accept "Gutenberg discontinuity"]

4. This "Father of the FDA" was vehemently opposed to caffeine consumption and sued Coca-Cola for false advertising because it did not, in fact, contain cocaine. For 10 points each:
[10] Name this chemist who set out to prove the wicked effects of preservatives by feeding his "poison squad" in the Department of Agriculture basement meals laced with borax, sulfuric acid, saltpeter, and formaldehyde.
ANSWER: Harvey **Wiley**
[10] Wiley's experiments, along with Upton Sinclair's *The Jungle*, helped lead to the passage of this 1906 consumer protection law.
ANSWER: Pure **Food and Drug** Act [do not accept "FDA"]
[10] In 1898, General Nelson Miles used this vituperative two-word phrase to refer to the dysentery-inducing foods supplied by the Chicago meatpacking industry to soldiers in the Spanish-American War.
ANSWER: "**embalmed beef**"

5. The Schellhas-Zimmermann-Taube classification assigns these people's deities letters like I or L. For 10 points each:
[10] Name these people whose pantheon includes the Tonsured Maize God and two monkeys who patronize the arts.
ANSWER: **Maya**ns
[10] This is the phenomenon governed by the gods A and A-prime who appear in Mayan codices. They correspond to the two foremost Lords of Xibalba in the *Popol Vuh*, whose names indicate that they rule over this phenomenon.
ANSWER: **death** [or **came** (cah-may)] [the lords are One Death and Seven Death]
[10] Because God A and God A-prime are often depicted as anthropomorphic jaguars, they exemplify this class of shapeshifters. In Mesoamerican folklore, this term refers to a person who can turn into an animal at night, either in spirit or in body.
ANSWER: **nagual** (nah-wall) [or **way**ob]

6. Controversially consecrated by the Vatican, this site was built to honor the "Glorious Crusade," and political events at this site are prohibited by the Historical Memory Law. For 10 points each:
[10] Name this gargantuan underground basilica, topped by a 500-foot stone cross, hewn out of a quarry by forced labor from prisoners of war in a European nation.
ANSWER: the **Valley of the Fallen**
[10] The Valley of the Fallen was built by the government of this Spanish fascist who ruled the country for nearly 40 years in the 20th century.
ANSWER: Francisco **Franco** Bahamonde
[10] The Atocha massacre two years after Franco's death was perpetrated by Italian fascists affiliated with this anti-communist "stay-behind" operation, whose existence was only revealed by Giulio Andreotti in 1990.
ANSWER: Operation **Gladio**

7. In this novel, Inspector Escherich sticks 44 red pins into a map of his city to mark the buildings where the "Postcard Phantom" has left anti-fascist messages. For 10 points each:
[10] Name this novel, based on Gestapo files, about the Nazi-resisting working class couple Otto and Anna Quangel. This novel was published by a man named Rudolf Ditzen under a pen name taken from the Grimms' fairy tales.
ANSWER: *Every Man Dies Alone* [or *Alone in Berlin*; or *Jeder Stirbt für Sich Allein*; by Hans Fallada]
[10] In this novel by Milan Kundera, Ludvik Jahn is expelled from the Communist Party for writing "Optimism is the opium of the people!" on a postcard.
ANSWER: *The **Joke*** [or *Žert*]
[10] In *The Joke*, Ludvik's postcard message asserts that "Optimism is the opium of the people! A healthy atmosphere stinks!", followed by this three-word optative sentence.
ANSWER: "**Long live Trotsky!**"

8. The antibiotic tunica·my·cin can prevent one form of this process, in which a molecule is transferred from do·lich·ol onto an as·para·gine residue. For 10 points each:
[10] Name this process in which molecules like fucose or mannose are attached to a protein. The differential occurrence of this process on red blood cell surface antigens distinguishes the A, B and O blood types.
ANSWER: **glycosylation**
[10] Tunicamycin can be used to artificially induce this process in the endoplasmic reticulum. In this process, the dimerization and transphosphorylation of Ire1 (i-r-e-"one") triggers activation of an alternative form of the transcription factor Hac1 ("hack one") during ER stress.
ANSWER: **unfolded protein response** [or **UPR**]
[10] Ire1 regulates differential expression of Hac1 by performing this process on the Hac1 mRNA. Ribonucleoprotein complexes known as snRNPs ("snurps") typically catalyze this process on newly-translated mRNA.
ANSWER: **splicing**

9. In one of the rare human incidents in this film, two women listen to "Strawberry Fields Forever." For 10 points each:
[10] Name this experimental film set in a single room and characterized by a continuous, though not unbroken, 45-minute zoom that brings the camera ever closer to a picture of the ocean on the wall.
ANSWER: ***Wavelength***
[10] *Wavelength* was directed by Michael Snow, an experimental filmmaker from this country, which is also the birthplace of David Cronenberg and James Cameron.
ANSWER: **Canada**
[10] This contemporary American director flirted with experimental techniques in his early narrative features *Gummo* and *Julien Donkey-Boy*. His most recent film includes a scene in which James Franco repeatedly exclaims, "Look at my shit!" while showing off his collection of shorts, perfumes, and deadly weapons.
ANSWER: Harmony **Korine**

10. Enemark-Feltham notation can be used to describe the number of d-electrons in complexes containing this ligand, and several of them are bound to an iron-sulfur cluster in Roussin's red and black salts. For 10 points each:
[10] Name this ligand. Because this ligand can bind metal centers with either a bent or linear geometry, the number of electrons it contributes to that complex can differ, leading to its designation as the smallest "non-innocent ligand." You may give either the molecule or its name as a ligand.
ANSWER: **nitric oxide** [or **NO**; or **nitroso**; or **nitrosyl**]
[10] This technique can be used to distinguish linear and bent NO ligands according to their different vibrational frequencies. Carbonyls produce a strong signal at 1700 inverse centimeters in this technique.
ANSWER: **infrared spectroscopy** [or **IR**]
[10] In this phenomenon, which commonly occurs in metal carbonyl and nitrosyl complexes, the d electrons of a metal move to the pi-star orbital of the ligand to weaken the ligand's internal bonds.
ANSWER: pi **backbonding** [or **backdonation**]

11. This man's seemingly malicious actions have a rational purpose, as when he damages a boat to prevent it from falling into the hands of an evil king. For 10 points each:
[10] Name this man whose travels with Musa are found in the Cave Sura of the Qu'ran.
ANSWER: al-**Khadir**
[10] Depictions of al-Khadir usually have him wearing this color because of the origins of his name. This traditional color of Islam is found, with white, on the flags of Pakistan and Saudi Arabia.
ANSWER: **green**
[10] The south-east corner of this mosque is topped by the Green Dome. This massive mosque in Medina is second in importance only to the Masjid al-Haram in Mecca.
ANSWER: Al-Masjid an-**Nabawi** [or the **Prophet**'s Mosque]

12. After conducting intensive interviews with fifty couples, this sociologist found that female breadwinners still had to perform the majority of housework, constituting a "second shift." For 10 points each:
[10] Name this Berkeley sociologist whose study of flight attendants in *The Managed Heart* gave rise to her concept of "emotional labor."
ANSWER: Arlie Russell **Hochschild**
[10] Hochschild co-edited *Global Woman: Nannies, Maids and Sex Workers in the New Economy* with this social critic, who worked a series of minimum wage jobs for three months to produce her book *Nickel and Dimed*.
ANSWER: Barbara **Ehrenreich**
[10] In *The Managed Heart,* Hochschild coined this term for norms dictating what emotions workers were expected to present in given circumstances. Hochschild later applied this concept to explain the alienation felt by Tea Party voters in *Strangers in Their Own Land*.
ANSWER: "**feeling rules**"

13. In 1058, this official submitted the Ten Thousand Word Memorial to Emperor Rensong, which foreshadowed the policies he later implemented under the "New Laws." For 10 points each:
[10] Name this awesome 11th-century minister whose policies, including monetary expansion, progressive taxation, and old-age pensions, were ultimately scrapped by the conservative faction under his rival Sima Guang (SIH-mah GWAHNG).
ANSWER: **Wang Anshi** (WAHNG ahn-SHEE) [prompt on partial answers]
[10] Wang Anshi implemented his reforms under the aegis of the Northern court of this Chinese dynasty, which was supplanted by the Mongol Yuan Dynasty in the 13th century.
ANSWER: **Song** Dynasty
[10] Wang Anshi's innovations included this system of local policing, in which units of fifty to a hundred households decided on rules to maintain order. This system lasted in different forms through the Ming, Qing, and Nationalist governments.
ANSWER: **baojia** ("bough"-jyah) system

14. This man's homosexuality may have been the motivation for his murder by Francesco Arcangeli, who stabbed him in his hotel bed in Trieste for medals awarded by Maria Theresa. For 10 points each:
[10] Name this 18th-century "father of modern archaeology" whose influential studies of classical Greek sculpture were published in his *History of the Art of Antiquity*.
ANSWER: Johann Joachim **Winckelmann** (YO-hahn YO-ah-keem VIN-kell-mahn)
[10] In *Thoughts on the Imitation of Greek Works in Painting and Sculpture*, Winckelmann coined this influential five-word phrase identifying two striking characteristics of the expressions of classical Greek sculptures.
ANSWER: "**noble simplicity and quiet grandeur**" [or "**edle Einfalt und stille Größe**" (AID-leh INE-fahlt unt SHTILL-eh GRER-suh)]
[10] Winckelmann's theories were critiqued in *Laocoon* (lay-AH-koh-on), a critical work by this German playwright of *Nathan the Wise*.
ANSWER: Gotthold (Ephraim) **Lessing**

15. This poem includes a conceit comparing William Cullen Bryant to an iceberg and calls Oliver Wendell Holmes "a Leyden-jar always full-charged." For 10 points each:
[10] Name this long poem consisting of satirical portraits of the major American writers of the author's time. It famously describes Edgar Allan Poe as being "three fifths of him genius and two fifths sheer fudge."
ANSWER: A *Fable for Critics*
[10] *A Fable for Critics* savages this woman, a prominent Transcendentalist and the first editor of *The Dial*, as Miranda, who lectures her victims "with an I-turn-the-crank-of-the-Universe air." Lowell segues from her portrait into a disquisition on bores.
ANSWER: Margaret **Fuller** [or Sarah Margaret **Fuller** Ossoli; or Sarah Margaret Fuller **Ossoli**]
[10] The penultimate portrait in *A Fable for Critics* describes this poet "striving Parnassus to climb with a whole bale of *isms* tied together with rhyme," noting that he will never succeed "till he learns the distinction 'twixt singing and preaching."
ANSWER: James Russell **Lowell** [or the author **himself**]

16. Answer the following about the economy of ancient Athens, for 10 points each.
[10] In the 5th century B.C., the Athenian economy grew partly thanks to the discovery of a mine at Laurium for this substance. In the colonial Spanish empire, many indigenous slaves died mining this substance at Potosi.
ANSWER: **silver**
[10] A major economic reform by Solon called the *Seisachtheia* (seys-ack-THAY-uh), or "shaking off of burdens," abolished the *hektemoroi* ("heck"-tem-oh-roy) class defined by this subjugated status.
ANSWER: **debt slavery** [or **debt bondage**; prompt on slavery or serfdom]
[10] This British classicist argued that economic transactions in ancient Greece were heavily "embedded" within ancient ideas of status in his Polanyian study of the subject, *The Ancient Economy*.
ANSWER: Moses I. **Finley** [or Moses Isaac **Finkelstein**]

17. Years after being cursed by a sage to completely forget his wife, this king first sees his son by her wrestling with a lion cub. For 10 points each:
[10] Name this king who marries a woman raised in a forest hermitage, who then tragically loses this king's signet ring in a river, though it is later discovered by a fisherman in the belly of a fish.
ANSWER: **Dushyanta** [or **Dushanta**]
[10] Dushyanta appears in *The Recognition of Shakuntala* by Kalidasa, a poet and playwright who wrote in this classical language.
ANSWER: **Sanskrit**
[10] Most secular Sanskrit poetry is described by this blanket term that encompasses all genres of imaginative literature. When prefixed with "laghu," it denotes a variety of lyric genres, and when prefixed by "maha," it denotes epics like Kalidasa's *Kumarasambhava* (koo-MAR-uh-som-BAH-vuh).
ANSWER: **kavya** [accept laghu **kavya** or maha**kavya**]

18. Optical solitons form when self-phase modulation due to this effect exactly balances dispersion. For 10 points each:
[10] Name this effect that is typically only significant in media with inversion symmetry because it is a function of the third-order electric susceptibility.
ANSWER: **Kerr** effect [or DC **Kerr** effect; or AC **Kerr** effect; do not accept "magneto-optic Kerr effect"]
[10] In the Kerr effect, this quantity varies with the magnitude squared of the applied electric field. This quantity is the square root of the dielectric constant.
ANSWER: **index of refraction** [or **refractive index**; prompt on n]
[10] In optical fibers, the Kerr effect is responsible for this nonlinear phenomenon, in which signals at two or three unique frequencies interact to create new signals at each combination of sums and differences of those frequencies.
ANSWER: **four-wave mixing**

19. This philosopher's paper "Freedom and Resentment" argues for a form of compatibilism by drawing a distinction between "objective attitudes" and "reactive attitudes." For 10 points each:
[10] Name this ordinary-language philosopher who rehabilitated metaphysical inquiry as "descriptive metaphysics" in his major work, *Individuals*.
ANSWER: P.F. **Strawson** [or Peter Frederick **Strawson**]
[10] Strawson's paper "On Referring" argues that the sentence "The present king of France is bald" is neither true nor false, in opposition to this earlier philosopher's contention in his paper "On Denoting."
ANSWER: Bertrand (Arthur William) **Russell**
[10] In chapter 2 of *Individuals*, Strawson argues that all schemes of thought require objects by imagining a creature experiencing a world whose fundamental units are not bodies, but *these* types of entities.
ANSWER: **sound**s [or equivalents like **auditory experience**s]

20. This composer succeeded his godfather Georg Philipp Telemann as Kapellmeister at Hamburg. For 10 points each:
[10] Name this author of an *Essay on the True Art of Playing Keyboard Instruments*. His most popular piece is a Solfeggio in C minor often referred to as the *Solfeggietto*.
ANSWER: **C. P. E. Bach** [or **C**arl **P**hilipp **E**manuel **Bach**; or **K. P. E. Bach**; or **K**arl **P**hilipp **E**manuel **Bach**; or **Emanuel Bach**; prompt on Bach]
[10] C. P. E. Bach played keyboard in the orchestra of this king and flutist, for whom his father wrote *The Musical Offering*.
ANSWER: **Frederick the Great** [or **Frederick II**; prompt on Frederick]
[10] This eldest son of J. S. Bach and Maria Barbara Bach was known primarily as an organist, serving at the Sophienkirche (zoh-FEE-en-KEER-shuh) in Dresden and the Liebfrauenkirche (LEEB -frow-en-KEER-shuh) in Halle. Early versions of many of J. S. Bach's preludes and inventions are found in his *Klavierbüchlein* (klah-VEER-boosh-"line") for this son.
ANSWER: **W. F. Bach** [or **W**ilhelm **F**riedemann Bach; do not accept "W. F. E. Bach"]