ACADEMIC COMPETITION FEDERATION

2015 ACF Nationals
Packet 3 by The Editors

Tossups

1. This politician named Bernard Ayandho to be his prime minister, but placed him under house arrest a year later on charges of conspiracy. This person jockeyed for power with the doctor Abel Goumba in a campaign where he advertised his humble origins as a schoolteacher and his time serving as minister in the previous government of Barthelemy Boganda. One of his first acts in power was to disband the monopoly of the "concessionary companies," which allowed for the free mining of diamonds in his nation. After he was restored to power by Operation Barracuda, he was quickly deposed again by the Military Committee of National Recovery under André Kolingba. For 10 points, name this man who had his time in power interrupted by Jean-Bedel Bokassa, after he became the first president of an independent Central African Republic.
ANSWER: David **Dacko**

2. Bloch, Wangsness, and Redfield developed a rigorous quantum mechanical model of this phenomenon. Two different mechanisms causing this phenomenon cancel each other out in a TROSY experiment. This phenomenon causes intensity losses between pulses in an INEPT sequence. This process can be mathematically modeled by the Solomon equations. The constants that define this process can be measured using inversion-recovery or Hahn echo experiments. This process causes a reduction in intensity over time of an FID signal. This process leads to magnetization transfer between two nuclei in the nuclear Overhauser effect. Larmor precession and this process are modeled by the Bloch equations. It's not coupling, but this process comes in spin-lattice and spin-spin forms characterized by exponential decay times labelled T1 and T2. For 10 points, name this process in which spins return to their equilibrium values after undergoing NMR.
ANSWER: spin **relaxation**

3. This man argued that the death of the national landscape led the general public to under-appreciate the creative powers of Louis Sullivan in his book *Genius and the Mobocracy*. This architect used a sky-blue roof, scallop-shaped balconies, and a 172-foot triangular tower of gold in his posthumously-built Marin County Civic Center. Much controversy surrounds this architect's elopement to Florence with Mamah Borthwick Cheney, who later died when Juan Carlton set fire to their residence. A building by this architect features floors that are cantilevered to a "taproot core." That building consists of six "square levels" sandwiched between circular mezzanine levels. Another of this architect's commissions from his late phase features a single, continuous, spiral ramp and was inspired by the design of a snail shell. For 10 points, name this architect who created the S.C. Johnson Research Tower, as well as the Guggenheim Museum in New York City.
ANSWER: Frank Lloyd **Wright** [or Frank Lincoln **Wright**]

4. This book uses the line "Riding three days and nights he came upon the place, but decided it could not be come upon" in its odd poetic epilogue, which is titled "Reflections upon the Path." Its "interchapter" asserts that William Empson and George Wilson Knight are the "best critics of our time" and claims that "every deep reader is an Idiot Questioner." This book's first section discusses a figure that may disguise itself as the Sphinx in its efforts to "block the way," called the Covering Cherub, and it suggests John Milton's Satan is an allegory for the modern poet at his strongest, while Adam represents the constricted "ephebe." It discusses the Lucretius-derived idea of poetic misprision, or misreading, in the section titled "Clinamen," which is one of its six "revisionary ratios." For 10 points, name this work of literary criticism that discusses how poets struggle with their relationships to their precursors, written by Harold Bloom.
ANSWER: The **Anxiety of Influence**

5. In 1963, John Stacey Adams put forth an "equity theory" of this phenomenon, which focuses on creating a balance between inputs and outputs. Philip Zimbardo's book on the "cognitive control" of this factor, discusses consequences of choice and dissonance. A formula that includes valence and instrumentality is known as Victor Vroom's expectancy theory of this trait. Another theory states that "hygiene factors" will not increase this value, but can decrease it if they are absent, unlike "intrinsic factors" - that is Frederick Herzberg's two-factor theory of this trait. Clark Hull posited that it arises in humans as a result of tension or arousal caused by unfulfilled biological needs; that is known as the "drive reduction theory" of this quality. Its "deficiency" or "D" type is said to occur when one must satisfy a need, according to Abraham Maslow's book about it "and personality." For 10 points, name this impetus that pushes a person toward completing a task.
ANSWER: job **motivation** [or job **satisfaction**; or job **performance** until "cognitive control" is read; or "workplace" in place of "job"; prompt on "**behavior**"]

6. This deity, who was worshipped in caves with a sunken floor for offerings, was the god who governed days with the day sign Cuauhtli, or Eagle. A number of skin and eye diseases required propitiating this patron of goldsmiths, who was the subject of a hymn that called him the "Night Drinker." This god was worshipped at the temple of Yopico. Sculptural depictions of this god and his followers contain telltale crisscross lines across the chest and the back of the skull. A festival involving the so-called "gladiator sacrifice" was dedicated to this god, who was also known as Red Tezcatlipoca. This deity was the divine embodiment of life emerging from dead land, and during annual corn planting festivals, priests to this deity would sacrifice victims before donning their skin. For 10 points, name this Aztec fertility god whose name literally means "Our lord the flayed one."
ANSWER: **Xipe Totec** [or **Tlatlauhca**; or **Youalahuan** until "Night Drinker" is read; or **Tlatlauhqui Tezcatlipoca** or **Red Tezcatlipoca** until "Red" is read; do NOT accept or prompt on "Tezcatlipoca"]

7. This man's attempt at securing restitution of the lost property of some hostages led another politician to compare him to Ulysses, who wanted to re-enter the cave of the Cyclops to fetch his belt and cap. He included a diatribe against Timaeus of Tauromenium in a treatise that relies on Timaeus for his account of Sicily. Late in life, he accompanied a general to Spain and witnessed the Numantine War, on which he wrote a now-lost monograph. In Book IV of his surviving work, he describes the structure of the Roman maniples, which is why the Roman army is sometimes named for him. In his early life, this Arcadian citizen of the Achaean League was taken hostage by Rome and made a tutor to Scipio Aemilianus, who he accompanied during the sack of Carthage. Only five out of forty volumes survive of his major work, which describes the Roman Republic as a superpower. For 10 points, name this second century B.C.E. Greek author of the *Histories*.
ANSWER: **Polybius**

8. A value named for this scenario is defined as the sum over all inputs p of "two raised to the negative of the absolute value of the length of p" and is an example of a Martin-Lof random sequence. The proof of the principal theorem resulting from this scenario relies on constructing a model whose two inputs are another model of the same type as well a string, then having that first model output the opposite of the second model; afterwards it is shown that there is a contradiction if both models are the same. A reduction of this scenario is used to prove that computing a non-trivial partial function is impossible, a result known as Rice's theorem. Chaitin's constant gives the probability that a program successfully resolves this scenario. The insolvability of the Post correspondence problem relies on reducing it to this other problem. For 10 points, name this undecidable decision problem which asks if a Turing Machine will stop for a given input.
ANSWER: **halting** problem

9. A character in this play vows to "make my very house reel tonight" in sheer excitement at the news that another character has a letter for him. In another scene, the description of a child running "after a gilded butterfly," continually catching and releasing it and eventually tearing it apart, is provided by Valeria. Gunter Grass depicted a director called "the Chief" leading rehearsals of this play in a play of his own about Bertolt Brecht's version of it. A speech describing "a time when all the body's members rebell'd against the belly" is delivered to forestall a grain riot by Menenius Agrippa in this play. After the schemes of Brutus and Sicinius result in his exile, the protagonist of this play allies himself with the Volscian general Tullus Aufidius, though his devotion to his mother Volumnia eventually thwarts his plans for revenge. For 10 points, name this Shakespeare play titled for the agnomen, or nickname, given to the Roman general Caius Marcius.
ANSWER: The Tragedy of **Coriolanus**

10. Just before the recapitulation of the first movement of a work in this form by this composer, the principal theme in C major gives way to an E major folk dance, then an E minor variation, before returning to the original C major theme. Another of these compositions features a third movement in which the trio is replaced by an "alternativo" consisting almost entirely of E-flat major scales. One of these works by this composer contains a D-minor third movement in the form of a two-part canon called the "Witches' Minuet" and gets its nickname from the opening A-D, E-A sequence in its first movement. The first movement of another of these pieces opens with a theme that comprises the notes G-E-F-D-C, a musical acronym for "Gott Erhalte Franz Den Kaiser," a piece by its composer that it also quotes. Pieces in this genre nicknamed "Fifths" and "Emperor" appear in a collection of them named for their composer's patron Count von Erdödy. The nicknames "Sun" and "Russian" are given to other collections of, for 10 points, what type of chamber piece composed by an Austrian known as their "Father"?
ANSWER: **string quartet**s by Franz Joseph **Haydn** [or the **Erdödy** string **quartets** until "Erdödy" is read and prompt thereafter; prompt on "Haydn **quartet**s"]

11. This operation appears nested within itself n times in the n-th term on the right side of the Baker-Campbell-Hausdorff formula. The Wigner-Weyl transform of this operation into phase space gives an operation named for José Moyal. A term containing a time derivative and a term containing this operation are found in the Lax equation. The expectation value of this operation is squared on the right hand side of the Robertson inequality. A Lie algebra can be defined from any associative algebra by using this operation as the Lie bracket. Computing the expectation value of this operation applied to momentum and the Hamiltonian is done when deriving Newton's second law from quantum mechanics. This operation applied to position and momentum canonically yields i times h-bar according to the uncertainty principle. This operation is analogous to a Poisson bracket on a Hilbert space. For 10 points, name this operation which for A and B is given by AB minus BA.
ANSWER: **commutator**

12. This man, who was originally a deacon in the German town of Wesel, met his death in a hurricane on a merchant ship called the *Flying Stag* off the coast of St. Christopher, while exchanging liquor for tobacco in the West Indies. His frequent quarrels with the clergyman Johan Michaelius, and other misdeeds, caused him to be dismissed from one post in favor of the drunkard Walter von Twiller, who was in turn quickly replaced by Willem Kieft. This man was then financed by Samuel Blommaert to sail aboard the *Kalmar Nyckel*, which he landed at a tributary called the Minquas Kill. At that spot, this former director-general of the New Netherlands set up Fort Christina, which was designed as a base for beaver trading with the Lenape. For 10 points, name this man who started the Swedish colony at Delaware, and allegedly used twenty-four bucks worth of glass beads to buy the island of Manhattan.
ANSWER: Peter **Minuit**

13. One of this man's novels dubs the forces governing an authoritarian state "the logic" and is about a former secret policeman named Antonio Rojas Martens, who is on death row for his involvement in the "Salinas affair." His recurring characters include the philosopher Dr. Oblath, who waits in a publication office with Kurti and Sarah at the beginning of a play discovered by the editor Kingbitter in another of his novels. The author of that play, B., first appeared in a novel by this man in which he constantly recalls the word "no," indicating his refusal to subject a child to the suffering of the world. This author of *Detective Story* drew on his own life for a novel in which Gyuri Koves learns how to survive Zeitz from Bandi Citrom after earlier stops in Buchenwald and Auschwitz. For 10 points, name this author of *Liquidation*, *Kaddish for a Child Not Born*, and *Fatelessness*, a Nobel laureate from Hungary.
ANSWER: Imre **Kertesz** ("ker-tesh") [accept names in either order]

14. This book considers if Aristotle was wrong about motion being divided into natural and force parts in the section "What Were Our Ancestors Talking About?" which examines the impossibility of finding a deterministic answer to the general question "What did they mean?" Another section of this book examines the Copernicus-Bellarmine debates and suggests that Thomas Kuhn's incommensurability thesis makes them incomparable to the Lenin-Kerensky debates. Its second chapter opens with a thought experiment in which a group of bipeds on the other side of the galaxy developed breakthroughs in neurology and biochemistry, and thus conceived of human pain as the stimulation of C-fibers. That section on the Antipodeans appears in a portion of this text about "persons without minds" in an attempt to refute a certain Greek ocular metaphor. The correspondence theory of truth and the view that epistemology reflects reality are rejected in, for 10 points, what pragmatist book by Richard Rorty?
ANSWER: **Philosophy and the Mirror of Nature**

15. One member of this family lost a fortune by investing in the Andros Fibre Company promoted by Ambrose Shea, which failed to cultivate the sisal plant. In a speech supporting that decision, he cited the "undeveloped estates" of the West Indies as a key to his policy of tariff reform. That man of this surname toured the country with fellow party member Charles Dilke supporting the "Unauthorized Program," promising "three acres and a cow" to all farm workers, and co-founded the National Education League. Known for wearing a ribboned monocle, he engineered the "Khaki Election" in which he won re-election of the ill Lord Salisbury, who had appointed him Colonial Secretary in the run-up to the Boer War. That man's son, serving as Foreign Secretary, met with Gustav Stresemann and Aristide Briand to sign the Locarno treaties in 1925. For 10 points, name this family of British politicians including Joseph, his son Austen, and a prime minister who proclaimed "peace in our time" before being succeeded by Winston Churchill.
ANSWER: **Chamberlain** [or Joseph **Chamberlain**; or Neville **Chamberlain**; or Austen **Chamberlain**]

16. The Felsenstein group at UW and the Swofford group at FSU maintain popular software packages used to generate these constructs. Steel and Lake developed a method for creating these constructs which is not affected by unequal rate effects; that method is known as paralinear distances. The accuracy of these constructs can be determined using the permutation tail probability test. These constructs can be combined using methods such as strict consensus and Adams consensus, and they can be constructed using the Wagner and Fitch methods. The organization of points on these constructs is determined by the presence of autapomorphies and synapomorphies, which are determined by the sharing of derived characters. The principle of maximum parsimony is used to create these diagrams. Groups of nodes on these diagrams can be classified as monophyletic or polyphyletic, and they can also be grouped into clades. For 10 points, the evolutionary relationships between organisms are depicted on what type of branching diagram?
ANSWER: **phylogenetic tree**s [or **evolutionary tree**s; or **phylogeny**; prompt on "**cladogram**s", "**tree of life**", "**dendrogram**s", "**phylogram**s", or "**chronogram**s"]

17. A leader of this religious sect became stuck in the ground at a certain spot while walking in a garden, and after a number of blindfolded followers also got stuck there, that spot became known as "the jiba," or the symbolic location where all humans were created. After that incident, a wooden stand with the power to create magical food to allow humans to live 115 years was placed in the sanctuary of this faith. One of its primary scriptures is called the "Tip of the Writing Brush," because it was supposedly created automatically. Its adherents attend the nine Besseki lectures in order to sweep away the eight "Dusts" that are said to plague the mind in this faith. This sect believed that a figure called Oyasama revealed the teachings of "God the Parent," and taught people to live the Joyous Life. For 10 points, name this religion founded by Miki Nakayama, also known as the Foundress, while she was living in Japan around 1840.
ANSWER: **Tenrikyo** [or **Tenri-**ism]

18. In this painting, numerous ships with white masts and curved prows lie on one of its vanishing lines, whose vanishing point lies behind a spire that occludes the sun. In an odd juxtaposition, the illumination of stained-glass windows in the left foreground of this painting indicates that it is set at night, but the right background of this painting clearly features the daytime sun. This painting features an aqueduct above a pair of temples that lie on another of its vanishing lines. The sides of this canvas are bounded by an arch that is decorated with green drapery adorned with a star motif. This painting depicts a cathedral amidst a dark forest, as well as a wispy Egyptian pyramid in the background, and its title figure rests on a marble slab on top of a column as he imagines various styles that inspire him. For 10 points, name this painting which depicts a certain profession's fantasy, a work by Thomas Cole.
ANSWER: The **Architect's Dream**

19. This book's translation by Thomas Underdowne was used as a source by William Shakespeare for his play *Cymbeline*. The main characters of this book meet a witch who wraps a piece of hardened dough in laurels and tosses it into a trench so that she can summon the shade of her dead son. Its ninth book recounts the impressive siege of Syene, in which Hydaspes redirects the waters of a river to nearly drown that city's inhabitants. One of this work's main characters is born with a pale complexion because her mother looked at a painting of Andromeda. That woman is sold into slavery by Thyamis, which sets in motion much of this book's plot on her attempts to reunite with her chaste lover. For 10 points, the travails of Theagenes and Chariclea are described in what third century novel by Heliodorus, which is named for an African country?
ANSWER: **Aethiopica** [or An **Ethiopian Romance**; or The **Ethiopian Story**; or The **Ethiopian History**; or **Theagenes and Chariclea** until it is read]

20. In the introduction to one book, this thinker explained he was motivated to write it after being surprised to discover that *TheSymposium* was a defense of "homosexual love." In that book, this thinker compares eating chocolate ice cream instead of vanilla if the "price of vanilla skyrockets" with the choice to "engage in homosexual or heterosexual acts." He announced that he would range himself "on the side of the Skeptics" in a 1990 book that credited Jeremy Bentham for the "pragmatic concept of law" it advocated. This author of *Sex and Reason* proposed a model of "risky sexual behavior" in an analysis of the AIDS crisis, *Private Choices and Public Health*. This author of the books *The Problems of Jurisprudence* and *Antitrust Law* was appointed in 1981 to the 7th Circuit Court of Appeals. For 10 points, name this leading figure in the law-and-economics movement, who runs a blog with Gary Becker.
ANSWER: Richard Allen **Posner**

21. In the 1920's, this author took a hiatus and produced an incredibly researched 1000-page biography of John Keats. This poet, who used many "unrhymed cadences," penned a series of poems inspired by the Far East termed "Chinoiseries," which can be found in the collection *Pictures from the Floating World*. In a poem from the collection *Men, Women and Ghosts*, this poet observed "I walk down the garden paths and all the daffodils are blowing." That poem includes a scene in which the speaker learns that Lord Hartwell died in action on Thursday and concludes by exclaiming "Christ! What are [the title things] for?" She repeats the lines "false blue, / white, / purple/" to describe the title flowers of her poem "Lilacs." For 10 points, identify this author of *What's O'Clock*, "Patterns"and *A Dome of Many Colored Glass*, who wrote poetry in the Imagist style.
ANSWER: **A**my **Lowell** [prompt on "**Lowell**"]

1. This work updates the seminal treatise of Louis Moreri, whom the author accuses of spreading outmoded ideas. For 10 points each:
[10] Name this compendium, first published in 1697, which attempts to correct previous thinkers' errors on theology, free will, and other topics. A portion of this text named for Georgius Rorarius discusses animal intelligence.
ANSWER: **Historical and Critical Dictionary** [or **Dictionnaire Historique et Critique**]
[10] In his article on Chancellor Michel de l'Hopital, Pierre Bayle lambasted the chancellor for opposing this policy. Another thinker advocated for this policy for everyone but atheists in a work addressed to Philip van Limborch.
ANSWER: **toleration**
[10] The "Rorarius" section of the *Historical and Critical Dictionary* contained many remarks on the problem of evil, which this German philosopher directly addressed with his *Théodicé*.
ANSWER: Gottfried Wilhelm von **Leibniz**

2. Arthur Collins and Byron Harlan made a recording of this song that was #1 for 10 weeks, and the second verse of this song describes a fiddle that screeches like a chicken. For 10 points each:
[10] Name this song that was composed in 1911, which repeatedly asks "Oh ma honey" to "come and hear" the title group.
ANSWER: "**Alexander's Ragtime Band**"
[10] "Alexander's Ragtime Band" was the first major hit for this Russian-American songwriter who also wrote "God Bless America" and "White Christmas."
ANSWER: Irving **Berlin**
[10] This other song by Irving Berlin, which appears in the musical *Annie Get Your Gun*, is sung by Frank, whose scheme to "know many girls" and have "lots of fun" are foiled when he falls in love with Annie.
ANSWER: "**My Defenses are Down**"

3. This novel's author claimed that it was inspired by a desire to answer an overheard shout of "What happening there, Bogart?" remembered from his childhood. For 10 points each:
[10] Name this 1959 novel. Residents of its title place include the tailor Bogart, a carpenter working on a "thing without a name" named Popo, an unemployed insane person named Man-Man, and the gambler Hat.
ANSWER: **Miguel Street**
[10] *Miguel Street* was written by this Indo-Trinidadian author of *A House for Mr. Biswas* and *A Bend in the River*.
ANSWER: V.S. **Naipaul** [or Vidiadhar Surajprasad **Naipaul**]
[10] V.S. Naipaul's clashes with this Afro-Trinidadian Marxist are described in a biography of the latter by Farrukh Dhondy. This man's books included the cricket-centered autobiography *Beyond a Boundary* and a history of the Haitian revolution called *The Black Jacobins*.
ANSWER: C.L.R. **James** [or Cyril Lionel Robert **James**]

4. Answer the following about legal battles over polygamy in the Utah Territory, for 10 points each.
[10] This 1874 statute, named for a Senator from Vermont, redefined the judiciary system in the Utah Territory as being under the federal district courts, which ended the dominance of church officials. It was followed by the Edmunds Act, making polygamy a felony.
ANSWER: **Poland** Act
[10] This secretary for Brigham Young volunteered himself to be the test case for polygamy. His prison sentence was upheld in a namesake 1878 Supreme Court case, in which Morrison Waite wrote that religious duty was not a defense to criminal polygamy.
ANSWER: George **Reynolds** [or **Reynolds** v. United States]
[10] A series of hearings starting in 1903 concerned whether the Senate should seat this Mormon apostle, who co-sponsored a bill in 1930 with Willis Hawley that raised tariff rates to astronomical levels.
ANSWER: Reed **Smoot**

5. One of these drugs is a sulfate-containing glycosaminoglycan which works by activating an enzyme which inhibits factor IXa and factor Xa. For 10 points each:
[10] Name these drugs used to treat DVT and PE. The efficacy of the process these drugs inhibit is measured using the International Normalized Ratio and aPTT.
ANSWER: **anticoagulant**s [or **antithrombic**s; or **blood thinner**s]
[10] In rare cases, the anticoagulant warfarin can induce this condition due to warfarin using up the body's supply of serum protein C, leading to excessive clotting. A cheese-like appearance is characteristic of the "caseous" form of this condition.
ANSWER: **necrosis** [or skin **necrosis**; or caseous **necrosis**]
[10] Warfarin works by inhibiting clotting factors dependent on this compound, which is found in abundance in foods like kale, spinach, and brussels sprouts.
ANSWER: vitamin **K** [or **phylloquinone**; or **phytomenadione**; or **phytonadione**]

6. This term was introduced in Gaston Bachelard's study *The Poetics of Space*, who referred to the "pleasant reveries that are prompted by certain types of space." For 10 points each:
[10] Name this term, popularized in a book by human geographer Yi-Fu Tuan, which is the emotional bond that exists between a person and their space.
ANSWER: **topophilia**
[10] In *Topophilia*, Yi-Fu Tuan cites this man's textbook *Britain and the British Seas* as evidence that many believed the British isles were the center of the world. Another of his articles introduced the "Heartland Theory" of geography.
ANSWER: Halford **Mackinder**
[10] Yi-Fu Tuan's *Topophilia* was also inspired by this other social scientist, who argued that the ecology of a place could be only understood through the study of information systems in *Steps to an Ecology of Mind*.
ANSWER: Gregory **Bateson**

7. In the Bible, Judah forbids his third son from performing this practice with regard to the childless Tamar. For 10 points each:
[10] Known as yibbum in Jewish communities, or widow inheritance, this term refers to the type of marriage which obligates the brother of a deceased man to marry that man's childless widow.
ANSWER: **Levirate** marriage
[10] As an alternative to Levirate marriage, a man could perform halitzah, in which the widow removes this item of clothing from him as part of a mourning ceremony. Jewish law claims that the left one of these should be tied first, since Tefillin is bound on the left hand.
ANSWER: **shoe**s
[10] In southern Slavic territories like Yugoslavia and Bosnia, this term refers to a rural community made up of one large patri-lineal family which works a communal plot of land, similar to the Russian obshchina system. These traditional communities often practiced levirate marriages.
ANSWER: **zadruga**s

8. This man is often credited as the first person to say the word "fuck" on British television; because this man stuttered, *Private Eye* called it the first "thirteen-syllable four-letter word in history." For 10 points each:
[10] Name this influential British drama critic, who detested what he dubbed the middle-class "Loamshire play"; his reviews for *The Observer* during the 1950s championed the Angry Young Men.
ANSWER: Kenneth Peacock **Tynan**
[10] Tynan was especially laudatory of this 1956 John Osborne play, in which Jimmy Porter has an affair with his wife Alison's best friend Helena.
ANSWER: **Look Back in Anger**
[10] Tynan cheered Arnold Wesker for putting a "real, live, English Communist family on to the stage" in *Chicken Soup with Barley*, which is grouped with this dramatic movement named after an image painted by John Bratby.
ANSWER: **kitchen sink** drama [or **kitchen sink** realism; or obvious equivalents that include **kitchen sink**]

9. This phenomenon is often interpreted as evidence that the epoch of reionization was nearing completion at a time when the redshift was equal to about 6. For 10 points each:
[10] Name this effect which was first observed in an optical spectrum as a continuum flux of nearly zero at wavelengths shorter than the Lyman alpha line.
ANSWER: **Gunn-Peterson** effect [or **Gunn-Peterson** trough]
[10] The Gunn-Peterson trough exists in some quasars' optical spectra since neutral hydrogen exists in this collection of baryonic matter that exists between galaxies.
ANSWER: **intergalactic medium** [or **IGM**]
[10] The Gunn-Peterson effect was not confirmed until this astronomical project was carried out, since it catalogued quasars with redshifts greater than 6. It made use of a telescope at the Apache Point Observatory.
ANSWER: **SDSS** [or **Sloan** Digital Sky Survey]

10. Answer the following about the great monarch, William III of the Netherlands, for 10 points each.
[10] William's reign saw a crisis in 1867 when France tried to buy this Grand Duchy, whose central fortress was designed as the "Gibraltar of the North" by Vauban. The Treaty of London maintained the neutrality of this landlocked European nation.
ANSWER: **Luxembourg**
[10] Under William, this great politician reformed the Dutch constitution in 1848 to limit the powers of the monarch, set up direct elections, and establish freedom of religion. He served as the first de facto prime minister before being ousted in 1853 by the April Movement.
ANSWER: Johan Rudolph **Thorbecke**
[10] This daughter of William and his second wife, Princess Emma of Waldeck and Pyrmont, succeeded him and ruled as Queen of the Netherlands from 1890 to 1948, until she was followed by her own daughter, Juliana.
ANSWER: Queen **Wilhelmina** of the Netherlands [or **Wilhelmina** Helena Pauline Maria]

11. A prominent example of this technique is Andrea Mantegna's depiction of many Cupids peeking down the oculus of the Camera degla Sposi. For 10 points each:
[10] Name this illusionistic technique in which the artist paints foreshortened figures to make it appear as if the figures in the painting are correctly proportioned when looking up at them. It literally means "from below, upward."
ANSWER: di **sotto in sù**
[10] This artist, born Antonio Allegri, made use of the *di sotto in sù* technique for his version of the Assumption of the Virgin in Parma Cathedral.
ANSWER: Antonio Allegri da **Correggio**
[10] *Di sotto in sú* inspired this later illusionistic technique, in which the artist painted architectural features at the top of a ceiling to create an illusion. A prominent example of this technique is Pietro da Cortona's frescoes for the Palazzo Barberini.
ANSWER: **quadratura**

12. Answer the following about some really old roads, for 10 points each.
[10] This road, which once passed through the Pontine Marshes where a canal was built, was named for a Roman censor during the Samnite Wars, and connects Brindisi to Rome.
ANSWER: **Appian Way** [or **Via Appia**]
[10] This man extended the Grand Trunk Road to connect his capital of Agra with his hometown of Sasaram, where his mausoleum was constructed in the middle of a lake. He forced the Mughal ruler Humayun out of India in 1540, an exile that lasted fifteen years.
ANSWER: **Sher Shah** Suri [or **Sher Khan**; or **Farid Khan**]
[10] This road that ran from Dover to London and then to St. Albans was established in Roman-era Britain as the Iter-II and Iter-III routes. It took on an Anglo-Saxon name, which usually serves as the namesake of a bloody battle in 60 AD where Suetonius smashed allied tribes under Boudica.
ANSWER: **Watling** Street [or **Watling** Road]

13. The speaker of a poem claims that "none may teach" this thing and notes that "when it comes, the Landscape listens - / Shadows - hold their breath". For 10 points each:
[10] Identify this "certain" thing that appears on "Winter Afternoons", where it "oppresses, like the Heft / Of Cathedral Tunes".
ANSWER: a certain **Slant of light** [prompt on "**light**"; prompt on "**slant**"]
[10] "There's a certain Slant of light" was written by this poet, the author of "I taste a liquor never brewed" and "I heard a Fly buzz - when I died".
ANSWER: Emily **Dickinson**
[10] The speaker notes that "This is the Hour of Lead" in this Dickinson poem, which describes a situation when "the Feet, mechanical, go round", the "stiff Heart questions", and "the Nerves sit ceremonious, like Tombs".
ANSWER: "**After great pain, a formal feeling comes**" [or **341**]

14. For a system of two particles interacting under this type of force, the Laplace-Runge-Lenz vector is conserved. For 10 points each:
[10] Name this type of force present in Kepler problems. The electrostatic force between two point charges and the gravitational force between two point masses are this type of force.
ANSWER: **inverse-square** force law [do NOT read aloud, but prompt on "**central force**"]
[10] All inverse-square forces are by definition this type of force, which only depends on the distance between the two interacting bodies.
ANSWER: **central** force
[10] This theorem states that the only central forces that can produce closed orbits that are not perfectly circular are the inverse-square force and the Hooke's Law harmonic oscillator force.
ANSWER: **Bertrand**'s theorem

15. A legend claims this man had his retainer Katakura Kojuro gouge out his right eye, so that the enemy couldn't take it from him, and therefore he was known as the "one-eyed dragon." For 10 points each:
[10] Name this daimyo who founded the city of Sendai and sent his retainer Hasekura Tsunenaga on a diplomatic mission to the Vatican on the ship the *San Juan Batista*.
ANSWER: Date **Masamune**
[10] Masamune insulted Toyotomi Hideyoshi by delaying in helping him siege this castle, which was the Hojo clan stronghold. Chiba Shigetane surrendered this castle in 1590, putting an end to the Hojo threat.
ANSWER: **Odawara** Castle
[10] This founder of the Tokugawa shogunate, the victor at Sekigahara, restored Date Masamune to his lands. In return, Masamune read him poetry on his deathbed.
ANSWER: Tokugawa **Ieyasu** [or Tokugawa **Iyeyasu**]

16. An author from this country wrote about a man who is unsettled by overhearing a prostitute poop in the story "7 P.M. Wife", and also wrote the novels *How to Forget a Woman* and *I'm a Communist Biddy!* For 10 points each:
[10] Name this home country of Dan Lungu, which is also the birthplace of an author of a prose poem about Oskar Pastior and a novel in which Lola's suicide precedes the narrator's befriending Edgar, Georg, and Kurt.
ANSWER: **Romania**
[10] Those works, given the English titles *The Hunger Angel* and *The Land of Green Plums* respectively, were written by this German-Romanian author of *The Appointment*.
ANSWER: Herta **Müller**
[10] *The Gas Heart* is among the plays by this Romanian Dadaist, who also wrote the epic poem *The Approximate Man* and the manifesto "The First Heavenly Adventure of Mr. Antipyrine". He appears in Tom Stoppard's *Travesties*.
ANSWER: Tristan **Tzara** [or Samuel "Samy" **Rosenstock**]

17. This man was nicknamed Pityocamptes, which translates as "Pine-Bender", since he would often ask people to help him bend pines, and then let go so that they would go flying or be torn in half. For 10 points each:
[10] Name this bandit dispatched by Theseus.
ANSWER: **Sinis**
[10] Sinis was killed by Theseus while the latter was travelling to this city from Troezen to meet his father Aegeus.
ANSWER: **Athens**
[10] After Sinis was killed, this woman, his daughter, hid in a field of rush and wild asparagus and prayed to them for protection. After it was later revealed Theseus meant her no harm, she and her son by Theseus founded the clan of Ioxids, who promise to do no harm to those plants.
ANSWER: **Perigune**

18. Spectra produced by this technique contain a zero-loss peak caused by elastic scattering, a plasmon resonance peak at energies below 100 eV, and a series of ionization edge peaks at higher energies. For 10 points each:
[10] Name this spectroscopic technique which is complementary to EDX spectroscopy. In it, a beam of electrons with known energies is fired through a thin sample and inelastic scattering events are observed.
ANSWER: **EELS** [or **electron energy loss** spectroscopy]
[10] This form of spectroscopy labels peaks with 3-letter tags such as KLL and LLM. In this form of spectroscopy, a vacancy in the core shell of an atom is filled by a second electron from a higher shell, causing a third electron to be emitted.
ANSWER: **Auger** electron spectroscopy [or **AES**]
[10] Auger electron spectroscopy is complementary to a form of photo-electron spectroscopy which uses light from this portion of the spectrum. Bragg's Law was formulated while studying the diffraction of light in this portion of the spectrum.
ANSWER: **X**-rays

19. This man, who was appointed governor in Guatemala late in life, left Cuba to join Juan de Grijalva on his trip to the Yucatan where he was ambushed by natives. For 10 points each:
[10] Name this conquistador who wrote the "True History of the Conquest of New Spain" after traveling with Hernán Cortés to Mexico.
ANSWER: Bernal **Díaz** del Castillo [prompt on "**Castillo**"]
[10] Díaz was allegedly present at over 130 battles in Mexico, including the final siege of this Aztec capital, which was followed by La Noche Triste after Alvarado was left in charge.
ANSWER: **Tenochtitlan**
[10] Díaz borrowed from the ideas of this author of "Concerning the Just Cause of the War against the Indians." This theologian ridiculed the New Laws, and was the opponent of Bartolomé de las Casas in the Valladolid Controversy, where he argued in favor of slaveholding rights.
ANSWER: Juan Ginés de **Sepúlveda**

20. In 1993, Kurt Vonnegut wrote a new libretto for this piece, replacing its narrative with the story of Eddie Slovik. For 10 points each:
[10] Name this theatrical work for seven instruments composed by Igor Stravinsky. It begins with the title character, Joseph, trading his fiddle to the devil for a book that can predict the future.
ANSWER: The **Soldier's Tale** [or L'**Histoire du Soldat**]
[10] The "Grand Chorale" of *The Soldier's Tale* parodies the melody of this popular Protestant hymn composed by Martin Luther. Mendelssohn quoted it in the finale of his *Reformation* symphony.
ANSWER: "A **Mighty Fortress** is Our God" [or "Ein **Feste Burg** ist unser Gott"]
[10] Stravinsky studied privately under this composer, and borrowed several melodies for *The Firebird* from his collection *100 Russian Folk Songs*. His own works include the "Procession of the Nobles" and the symphonic suite *Antar*.
ANSWER: Nikolai **Rimsky-Korsakov** [or Nikolai Andreyevich **Rimsky-Korsakov**]