

2016 Terrapin XXIX: Lead Can't Penetrate Steele

Packet 5

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Tossups

**1. A character in this play complains about her friend's false prudery in a speech stating that she thinks "naked statues are immoral, but with a naked man she has no quarrel." In this play's last scene, a man reads a letter in which his love interest mocks him and his rival suitor as "the big bumbling viscount" and "the little marquess." The protagonist of this play is summoned before a tribunal for criticizing a (\*) sonnet written by his friend Oronte. In the last scene of this play, Philinte and Eliante declare their love for each other, and the protagonist's flirtatious love interest Célimène is unable to dissuade him from leaving society and living as a hermit. For 10 points, name this comedy titled for the society-hating Alceste, a work of Molière.**

ANSWER: The *Misanthrope* [or the *Cantankerous Lover*; or Le *Misanthrope*; or l'*Atrabilaire amoureux*]

<JH European Literature>

**2. A nonprofit organization named after a type of these objects was founded by Bill Coperthwaite, a notable designer of these objects. A type of these objects has a top part called a *toono* or *tunduk*, the shape of which is imposed over a 40-rayed sun in a certain country's flag. The Gandan Monastery is surrounded by a *horoolol* characterized by many of these objects. In October 2015, heated instances of these objects were provided to the inhabitants of a community near (\*) Calais called "The Jungle." Coal-burning stoves used to heat these objects are a major source of air pollution in Ulaanbaatar, Mongolia's capital, where over half of the population lives these dwellings. For 10 points, yurts and tipis are examples of what kind of portable dwelling?**

ANSWER: tents [anti-prompt on specific types like yurts, gers, tipis, etc. until they are read]

<WC Other (Academic)>

**3. According to the Greenwald–Stiglitz theorem, markets will *not* satisfy this condition so long as there is imperfect information, or the market is incomplete. It's not equilibrium, but the set of points that satisfy this condition in the interior of the Edgeworth box is known as the contract curve. Amartya Sen demonstrated that this condition was incompatible with "minimal liberalism" in his "liberal paradox." By considering the possibility of (\*) compensations, Kaldor and Hicks introduced a more general form of this condition. This condition is satisfied in a competitive equilibrium according to the first fundamental theorem of welfare economics. For 10 points, name this condition in which there exists no alternative allocation of resources that would make someone better off without making someone else worse off.**

ANSWER: Pareto optimality [or Pareto efficiency; accept other word forms]

<WC Social Science>

4. One form of this quantity is proportional to a standard pressure divided by pressure, all raised to the two-sevenths power, according to Poisson's equation. The square of the Brunt–Väisälä frequency for an atmospheric parcel is proportional to the spatial derivative of the natural log of that form of this quantity, which is denoted theta and is its “potential” form. In the stratosphere, the normal vertical (\*) gradient in this quantity is inverted, causing the lapse rate to change sign. Relative humidity can be calculated in terms of the “wet-bulb” and “dry-bulb” forms of this quantity. It's not density, but weather fronts are generally classified as to whether they have high or low values of this quantity. For 10 points, name this quantity whose “standard” form for 22.4 liters of gas at one atmosphere equals zero degrees Celsius.

ANSWER: temperature [prompt on T or theta]

<BB Other Science (Earth Science)>

5. The fifth chapter of a work subtitled for this type of object claims that “Oblivion is not to be hired” and that it “blindly scattereth her poppy.” A poem about one of these objects wonders what town “built with peaceful citadel / Is emptied of this folk, this pious morn?” An argument against paraphrasing poetry appears in a work of New Criticism by Cleanth Brooks titled for a “well-wrought” one of these objects, a phrase taken from John (\*) Donne's “The Canonization.” The discovery of some buried ancient objects of this type in Norfolk is the starting point of Thomas Browne's essay *Hydriotaphia*. One of these objects is called a “foster child of Silence” and a “still unravished Bride of quietness” in a poem that declares “Beauty is truth, truth beauty.” For 10 points, John Keats wrote an ode on a Grecian vessel of what type?

ANSWER: urns [or “Ode on a Grecian Urn”; or *The Well-Wrought Urn*; or *Hydriotaphia, Urn-Burial*; prompt on vases, containers, or other similar terms]

<JB Other Literature>

6. This artist used the unusual combination of a rhythm section, flugelhorn, alto flute, and bass trombone on his album *Speak Like a Child*. One composition by this artist won a Grammy for a recording of it made when he filled in for Chick Corea in Mongo Santamaria's band. The intro and outro of another rework of that track by this artist features an imitation of the pygmy music sound of the hindewhu when Bill Summers blows into (\*) beer bottles. This artist wrote the jazz standards “Eye of the Hurricane” and “Dolphin Dance” for his album *Maiden Voyage*. Later in his career, this artist became interested in jazz-funk and the synthesizer, which can be seen in his album *Head Hunters* and his hit single “Rockit.” For 10 points, name this jazz pianist of the songs “Chameleon” and “Watermelon Man.”

ANSWER: Herbie Hancock

<SY Other Arts (Jazz)>

7. In Allan Frankovich's 1992 documentary on a secret operation in this country, a leader of a clandestine association in this country claimed that the CIA gave him a copy of the forged *US Army Field Manual 30-31B*. In this country, false-flag attacks were carried out as part of an alleged “strategy of tension” conducted by agents of a NATO stay-behind operation that was codenamed “Gladio.” This country's Communist and Christian Democratic parties formed an alliance in the (\*) Historic Compromise. This country experienced a period of domestic terrorism during the 1970s and 1980s known as the Years of Lead, which saw attacks by the Armed Revolutionary Nuclei and the Red Brigades. For 10 points, name this country where its prime minister Aldo Moro was kidnapped in Rome.

ANSWER: Italy [or Italia]

<WC European History>

8. The fundamental solution to the equation describing this system is the Mehler kernel. Excitations of a one-dimensional chain of these systems correspond to phonons. The solutions to this system contain a factor equal to one over the square root of the quantity  $2$  to the  $n$  times  $n$  factorial. Analytically solving this system using a power-series method yields solutions proportional to the product of (\*) Gaussians with Hermite polynomials; however, the solutions can be obtained algebraically using the ladder operators. The allowed energies of this system are evenly spaced, with the spacing given by  $\hbar$  times  $\omega$ . This system has a potential proportional to the square of the displacement. For 10 points, name this simple quantum system analogous to the classical mass on a spring.

ANSWER: quantum harmonic oscillator [or QHO]

<SR Physics>

9. When the holder of this position was deemed unfit for service, he was replaced by the *segen* (“s’GONE”). The holder of this position wore the “breastplate of judgment,” which contained several inscribed jewels arranged in four rows of three, as well as two stones that could be used for divination that were known as the Urim and Thummim. Jesus is repeatedly described as a holder of this position after the order of (\*) Melchizedek in the Epistle to the Hebrews. Moses conferred this position upon Aaron, who is considered its first holder. On Yom Kippur, the holder of this position would pronounce the Tetragrammaton, or the name of God, and enter the Holy of Holies. For 10 points, holders of what now-vacant position led Jewish worship from the Temple of Jerusalem?

ANSWER: high priest of Israel [or kohen gadol; prompt on priest or kohen]

<WC Religion>

10. The main character of this novel replaces the brandy in a jar with tar-water, surprising a man who frequently reminds him he was “brought up by hand.” This novel’s narrator is attacked by the “pale young gentleman,” who years later nicknames him “Handel.” A castle-like house in this novel is home to an old man who often shouts “All right, John!” and has a cannon fired every day at 9, the “Aged Parent.” While being (\*) rowed out to a steamer, a character in this novel who got rich farming sheep in Australia is attacked by Compeyson, whose jilting of another character led her to stop all the clocks in her mansion, Satis House. This novel’s main character receives a fortune from the escaped convict Abel Magwitch and falls in love with Estella, the ward of Miss Havisham. For 10 points, name this Charles Dickens novel about Pip.

ANSWER: Great Expectations

<JB British Literature>

11. Richard Strauss quoted this symphony’s slow movement above the remark “In memoriam!” at the end of *Metamorphosen*. Pizzicato strings play a bass line starting on scale degrees 1 5 5 1 after a flourish to open this symphony’s finale, a double variation on themes used in *The Creatures of Prometheus*. A held C-sharp in bar 7 of this symphony’s first movement disappears in its long coda. (\*) Cellos and basses play its quiet arpeggiated first theme after two loud tutti chords. This symphony began its composer’s middle period and Romantic music as a whole. The horn, over a dominant chord, begins its first movement’s recapitulation 4 bars before other instruments. Its second movement is a C minor funeral march. The composer rededicated it to “a great man” after Napoleon’s coronation. For 10 points, name this symphony in E-flat major by Beethoven.

ANSWER: Eroica Symphony [accept Symphony No. 3 in E-flat major by Ludwig van Beethoven, but “Beethoven” is only needed until it is read]

<OL Music>

12. A legislation of this type indirectly caused riots by overturning the Rumford Fair Housing Act. A legislation of this type that was intended to prevent gay people from working in schools was inspired by Anita Bryant's Save Our Children organization in Florida and is sometimes named for John Briggs. Howard Jarvis championed a legislation of this type that limited property taxes to one percent of assessed value and is credited with beginning a nationwide (\*) tax revolt. Pete Wilson was reelected after supporting a legislation of this type that barred children of illegal immigrants from public schools. *Hollingsworth v. Perry* overturned one of these initiatives from 2008 that declared "only marriage between a man and a woman" to be valid. For 10 points, name these ballot initiatives voted on by the California electorate.

ANSWER: California ballot propositions [or California ballot initiatives; or California referendums; prompt on initiatives or referendums alone]

<JB American History>

13. When computing these entities, the relevant equations can be simplified by invoking an assumption called either ZDO or NDDO. One method of computing these entities sets the determinant of "H minus ES" equal to zero. Solving that set of secular equations allows for calculating their energies in terms of the resonance, Coulomb, and overlap integrals. They are denoted using the subscript "g," or "gerade," when they are centrosymmetric. Kenichi (\*) Fukui postulated that reactivity only depends on their "frontier" types, which are composed of the HOMO and LUMO. The higher-energy half of these entities are denoted with a superscript star and referred to as "antibonding." For 10 points, name these wavefunctions that represent the behavior of electrons in molecules.

ANSWER: molecular orbitals [accept MOs until "HOMO" is read, prompt after it is read; prompt on orbitals; prompt on wavefunctions until "frontier" is read]

<BB Chemistry>

14. An essay by this thinker discusses a pupil who, when forced to decide between caring for his mother and fighting for his country, faces a realization of "abandonment." This philosopher described a woman who ignores the sexual undertones of her date's comments to illustrate a concept that involves the denial of facticity or transcendence. A collaborator of this man developed an (\*) ethical system based on his work in *The Ethics of Ambiguity*. He wrote of a man whose movements are "a little too precise, a little too rapid" because he is playing at being a café waiter. This man dubbed his philosophy "a humanism," and wrote that "existence precedes essence" in a book that discusses self-deception, or "bad faith." For 10 points, name this partner of Simone de Beauvoir, a French existentialist who wrote *Being and Nothingness*.

ANSWER: Jean-Paul Sartre

<JB Philosophy>

15. A character in this novel cries over an organ grinder's monkey and attempts to jump into a passing political procession while sitting on a balcony. While in a trance, a character in this novel talks to three spirits, including one carrying a carpenter's rule; that character, Alice, dies after running in the snow while still hypnotized. A now-useless (\*) deed of land is discovered behind a portrait near the end of this novel. In this novel, a man is found dead in his oak chair with blood on his ruff after being cursed by Matthew Maule. In this novel, Phoebe falls in love with Holgrave after Clifford is freed from prison for the murder of his uncle Jaffrey Pyncheon. For 10 points, name this novel about the title New England estate by Nathaniel Hawthorne.

ANSWER: *The House of the Seven Gables*

<ES American Literature>

16. While employed by a member of this family, Matthäus Schwarz commissioned watercolor paintings of his outfits, which were collected into his *Book of Clothes*. This family was divided into branches named after prominent symbols on their coats of arms, such as a deer and a lily. Archduke Sigismund granted a member of this family control over Tyrol's silver mines after that member of this family (\*) loaned Sigismund a huge number of florins. That member of this family also played the largest part in financing the defeat of Francis I of France by Charles V in the election to succeed Maximilian I as Holy Roman Emperor. For 10 points, Jakob ("YAH-kop") "the Rich" was a member of what prominent German banking family based in Augsburg?

ANSWER: **Fugger** ("FOOG-guh")

<WC European History>

17. Andre Salmon claimed that this art movement's founder saw foreign images as "rational" in an "Anecdotal History" of it. The "Rise" of this movement is the subject of a book by art collector Daniel-Henry Kahnweiler. This movement was accused of becoming a "decorative art" by Amédée Ozenfant and Le Corbusier, founders of the offshoot Purist movement. The first book on this movement was co-written by Jean (\*) Metzinger, whose painting *Tea Time* was dubbed the "Mona Lisa" of this movement. A pun on the name of this movement is used to refer to the style used in paintings such as *Three Women* by Fernand Léger. It's not Fauvism, but Louis Vauxcelles coined the name of this movement to mock its first painting, *Houses at l'Estaque*. This movement had analytic and synthetic phases. For 10 points, name this art movement founded by Georges Braque and Pablo Picasso.

ANSWER: **cubism** [accept analytic **cubism** or synthetic **cubism**]

<JB Painting>

18. Evidence for the worship of this god appears in *Frithiofs Saga*, in which a sanctuary named for him is burned down by the title character. This god appears as a demigod who fights a sea battle against Gevar and has his magical food stolen by a rival suitor in Saxo's *Gesta Danorum*. A possession of this god is moved by a giantess who appears riding a wolf with vipers for reins. A son of this god settled lawsuits in his hall of Glitnir and was named (\*) Forseti. Skadi tried to select this god for marriage when presented with the feet of the gods, but accidentally picked Njord instead. A giantess named Thokk thwarted Hermod's request that every living thing weep for this god. This god was avenged when Vali grew to adulthood in one day and slew the blind god Hodr. For 10 points, name this Norse god who was killed by a mistletoe-tipped spear.

ANSWER: **Balder** [or **Baldr**; or **Baldur**]

<JB Mythology>

19. The FRIGIDA complex recruits chromatin modification factors to activate the expression of FLC, an inhibitor to this process. Phytochromes and cryptochromes act as light receptors to the CONSTANS gene, whose expression signals other genes like FT to begin this process. In one model of this process, cadastral genes regulate the action of organ-identity transcription factors in the MADS-box family, which determine the order of the primordium. The photoperiodic and (\*) vernalization pathways send signals from the phloem to the shoot apical meristem during this process, which is described by the ABC model. One of the four whorls in the structures formed during this process is called the stamen, which contains filaments that attach the pollen-producing anther to the stem. For 10 points, name this process in which an angiosperm produces a reproductive structure with petals.

ANSWER: **flowering** [or **florescence**; accept **flower** development or equivalents; prompt on **blossoming** or **blooming**]

<SY Biology>

20. A ruler of this dynasty was advised by the Jew Yaqub ibn Killis and, according to legend, converted to Christianity after watching Simon the Tanner lift a mountain into the air. This dynasty's vizier Shawar used naphtha to burn one of its main cities after his repeated switching between alliances with Amalric I and Shirkuh led to invasions by both. A ruler of this dynasty forced Jews to wear bells and Christians to wear iron crosses, and disappeared into the desert years after (\*) demolishing the Church of the Holy Sepulchre in Jerusalem. This dynasty included the "Mad Caliph," al-Hakim. This caliphate built its capital near al-Fustat and was eventually supplanted by Saladin's Ayyubid dynasty. For 10 points, name this caliphate with a capital in Egypt that took its name from Muhammad's daughter.

ANSWER: **Fatimid** dynasty [or **Fatimid** caliphate]

<JB World History>

## Bonuses

1. Under the alias “Agent 13,” this man attempted to secure Kentucky a monopoly on trading on the Mississippi River. For 10 points each:

[10] Name this scandalous Spanish agent and American soldier who betrayed Aaron Burr in his conspiracy by sending Burr’s private “cipher letter” to Thomas Jefferson.

ANSWER: James **Wilkinson**

[10] This man developed a hatred for Wilkinson after Wilkinson refused an invitation to one of his Christmas parties. Nicknamed “Mad Anthony,” this general led the victorious Legion Army at the Battle of Fallen Timbers.

ANSWER: Anthony **Wayne**

[10] After his exoneration by James Madison, Wilkinson led two failed American defenses of British attacks at Lacolle Mills and Crysler’s Farm, which were part of the War of 1812 theater along this river.

ANSWER: **St. Lawrence** River

<AP American History>

2. These devices, which are typically double-focusing, can make use of the Nier–Johnson or Mattauch–Herzog geometries. For 10 points each:

[10] Name this type of mass analyzer that uses electric and magnetic fields to accelerate ions in a curved path. Thus, by varying the strength of the fields, the mass of the ions passing through the exit slit can be controlled.

ANSWER: (electric or magnetic) **sector** instruments

[10] Sector instruments and time-of-flight instruments are common mass analyzers used in mass spectrometry, which separates ions based on the ratio of their mass to this quantity, which is denoted for ions using superscripts like plus 2 or minus 1.

ANSWER: electric **charge**

[10] This scientist’s namesake “cup” is commonly used as the ion detector in mass analyzers. He names a constant approximately equal to 96,500 coulombs per mole.

ANSWER: Michael **Faraday**

<BB Chemistry>

3. After selling this building, its owner left a poem claiming that its new owner may change it “into a doll’s house.” For 10 points each:

[10] Identify this residence, whose owner took his pen name from the banana tree his followers planted outside of it. A descriptive answer is acceptable.

ANSWER: Matsuo **Bashō’s hut** [or equivalents of the **home** of Matsuo **Bashō**; accept Matsuo **Kinsaku** in place of “Matsuo Bashō”]

[10] Bashō described leaving his hut at the beginning of *Narrow Road to the Deep North*, a travelogue which contains many poems in this form. This Japanese form consists of three lines of five, seven, and five syllables.

ANSWER: **haiku** [prompt on **haibun**]

[10] Descriptions of natural disasters open *An Account of My Hut* by the Buddhist monk Kamo no Chōmei, a work in this genre. Literature in this genre, such as *The Pillow Book*, consist of random essays and reflections.

ANSWER: **zuihitsu** [prompt on translations like “following the **brush**” and “random jottings”]

<JB Other Literature>

4. A woman looks down on a crying, urinating baby in the bottom left corner of this man's painting *The Stonemason's Yard*. For 10 points each:

[10] Identify this appropriately-named artist whose paintings of Venice's waterways were often sold to young men visiting Italy on their Grand Tour.

ANSWER: **Canaletto** [or Giovanni Antonio **Canal**]

[10] This German art historian and friend of Anton Raphael Mengs never returned from his Grand Tour, instead staying in Rome to work on his treatise *The History of Ancient Art*.

ANSWER: Johann Joachim **Winckelmann**

[10] Many aristocrats on the Grand Tour had their portraits painted in this medium by Rosalba Carriera. This term refers both to a type of crayon made of dried pigment and to the characteristic subdued colors they produce.

ANSWER: **pastel**

<JB Painting>

5. Answer the following about the use of photographs in anthropology, for 10 points each.

[10] These two anthropologists created a "photographical analysis" of *Balinese Character*, and filmed *Trance and Dance in Bali* on the same trip. Give both their names.

ANSWER: Margaret **Mead** AND Gregory **Bateson**

[10] Black-and-white photographs feature in *Righteous Dopefiend*, Philippe Bourgois's study of homeless heroin addicts in this state. In this state, the last of the Yahi tribe, Ishi, was housed at a university in Berkeley.

ANSWER: **California**

[10] The often staged and airbrushed photographs of Native Americans taken by E. S. Curtis are usually considered part of this kind of ethnography, which focuses on preserving information about disappearing cultures.

ANSWER: **salvage** ethnography [or **salvage** anthropology]

<JB Social Science>

6. Answer the following about Hindu kingdoms outside the Indian subcontinent. For 10 points each:

[10] This kingdom in modern-day Vietnam was surrounded by the Khmer empire and Đại Việt until it was annexed in 1471 by Vietnamese emperor Lê Nhân Tông. This kingdom's king Bhadravarman I built the Mỹ Sơn ("mee sun") temple complex.

ANSWER: **Chămpa** [or **Chiêm Thành**; or Nagara **Campa**]

[10] On this island, the Hindu prince Ken Arok founded the Singhasari Kingdom, which was later supplanted by the Islamic Majapahit Empire. The Sailendra dynasty built the temple complex Borobudur on this island.

ANSWER: **Java** [or **Jawa**]

[10] The Khmer empire was ruled from this capital city, where King Suryavarman II built a namesake Wat temple complex.

ANSWER: **Angkor** [or **Angkor Wat**]

<AP World History>



7. Michaelis–Menten kinetics describes how the activity of these proteins depends on the concentration of their substrates. For 10 points each:

[10] Name these biological catalysts.

ANSWER: enzymes

[10] Enzymes can be divided into six major classes. This class of enzymes either adds functional groups to a double bond or removes functional groups to form a double bond.

ANSWER: lyases [do not accept “ligases”]

[10] These two researchers won a Nobel Prize for their studies of mutations in the bread mold *Neurospora*, which led them to propose the “one gene, one enzyme” hypothesis. Name either scientist.

ANSWER: George Beadle OR Edward Tatum

<TW Biology>

8. In *Iola Leroy* by Frances Harper, the title character declines to engage in this action in order to marry Dr. Gresham. For 10 points each:

[10] Name this action that titles a Nella Larsen novel in which Irene Westfield and Clare Kendry perform it.

ANSWER: passing for white [or equivalents like claiming to be white or pretending to not be black]

[10] This author’s *Autobiography of an Ex-Coloured Man* ends with the protagonist wondering whether he’s traded his birthright for a mess of pottage by passing for white.

ANSWER: James Weldon Johnson

[10] Like Langston Hughes, Nella Larsen and James Weldon Johnson participated in this cultural flourishing named for a New York neighborhood.

ANSWER: Harlem Renaissance

<JB American Literature>

9. In a film by this man, the Woman from the City dances in front of a projected image of a brass band as she tries to convince the Man to leave the Wife. For 10 points each:

[10] Name this director of silent films such as *Sunrise, A Story of Two Humans*. In another film by him, the title character, Count Orlock, spreads a plague by hiding in a coffin aboard a ship.

ANSWER: F. W. Murnau

[10] Murnau’s film *Nosferatu* prompted a copyright infringement suit, as it was an unauthorized adaptation of this Bram Stoker horror novel that was also filmed by Francis Ford Coppola.

ANSWER: Dracula

[10] In *The Last Laugh*, Murnau avoided using explanatory intertitles, a device that this 1929 Dziga Vertov film also eschews. This film contains a famous shot of a human eye superimposed on a lens.

ANSWER: Man with a Movie Camera [or Chelovek s kinoapparatom; or Liudyna z Kinoaparatom; accept Man with a Kinocamera or A Man with a Movie Camera or The Man with the Movie Camera or Living Russia]

<JB Other Arts (Film)>

10. Answer the following about elements of Greek mythology that appear in Plato's Myth of Er. For 10 points each:  
[10] Er witnesses and remembers the series of events that took place in Hades after his death because he did not drink the waters of this "river of forgetfulness" that flows through Hypnos's cave.

ANSWER: **Lethe** ("LITH-ee")

[10] Er was taken to the Spindle of Necessity, which was guarded by Ananke, her daughters the Fates, and these beautiful creatures that lured sailors to disaster with their soothing voices.

ANSWER: **Sirens**

[10] The myth alludes to Ananke, a goddess who took the form of a serpent with Kronos to coil around one of these objects. In a Pelasgian myth, Ophion coils around one of these objects created by Eurynome.

ANSWER: the world **egg**

<AP Mythology>

11. Philippe Ariès ("ar-YES") claimed that the concept of people of this type did not exist in the Middle Ages in a book titled for "Centuries" of their condition. For 10 points each:

[10] Identify these people who participated in 13th-century movements led by Stephen of Cloyes and Nicholas of Cologne.

ANSWER: **children** [or equivalents like **kids**, **teenagers**, or **adolescents**] (The movements are the Children's Crusade.)

[10] A source used throughout Philippe Ariès's *Centuries of Childhood* is the diary kept by Dr. Jean Héroard about the childhood of this French king, whose son of the same name was nicknamed the "Sun King."

ANSWER: **Louis XIII** [prompt on **Louis**]

[10] Nicholas Orme's response to Ariès, *Medieval Children*, cites observations about the treatment of children in England made by a noble from this city. A few years before the Children's Crusade, this city's blind 98-year-old leader Enrico Dandolo died.

ANSWER: **Venice**

<JB European History>

12. These active galactic nuclei are believed to obtain their energy from a central supermassive black hole. For 10 points each:

[10] Name these distant objects that emit incredibly bright radio waves. Their name stands for "quasi-stellar radio source."

ANSWER: **quasars**

[10] Some quasars produce a dense series of these signals that comprise the Lyman-alpha forest. Neutral hydrogen produces one of these signals at 21 centimeters.

ANSWER: **spectral lines**

[10] The class of quasars known as FSRQs have spectra with this property. A compact and radio-loud quasar's spectrum has this property if the power-law index is less than one-half.

ANSWER: **flat** spectrum

<BB Other Science (Astronomy)>

13. Answer the following about dubious attempts to apply Gödel's incompleteness theorems to philosophical problems, for 10 points each.

[10] J. R. Lucas used the first theorem to argue that the human mind is not equivalent to one of these things. Advocates of "strong artificial intelligence" believe it is possible to create one of these things with the same abilities as a human.

ANSWER: computers [or machines; or robots; or Turing machines]

[10] Régis Debray's application of Gödel's work to societal organization is criticized in this book by Alan Sokal and Jean Bricmont that documents the "abuse of science" by postmodern intellectuals.

ANSWER: *Fashionable Nonsense: Postmodern Intellectuals' Abuse of Science* [or *Intellectual Impostures*]

[10] This thinker argued that Gödel's theorem shows that there is not one plane of being that is the "totality of all planes." With the psychoanalyst Felix Guattari, this man authored *Capitalism and Schizophrenia*.

ANSWER: Gilles Deleuze

<JB Philosophy>

14. Simeoni repeatedly calls this novel's protagonist to observe a dot on the horizon, which he correctly believes to be a road being built by the Northerners. For 10 points each:

[10] Name this Dino Buzzati novel in which the soldier Giovanni Drogo spends his life at a remote border fortress, hoping for an invasion from the residents of the title area.

ANSWER: *The Tartar Steppe* [or *Il deserto dei Tartari*; or *The Desert of the Tartars*]

[10] In Julien Gracq's *The Opposing Shore*, a novel from this country, a young man is sent to a fortress on the ocean that separates the nation of Orsenna from its rival, Farghestan. *Le Monde*, a newspaper from this country, included the novel on their list of "100 Books of the Century."

ANSWER: France

[10] *The Tartar Steppe* and *The Opposing Shore* have similar premises to this J. M. Coetzee ("COOT-see") novel, in which the magistrate of a border town observes Colonel Joll's sadistic preparations for an invasion by the title group.

ANSWER: *Waiting for the Barbarians*

<JB European Literature>

15. This leader promised that one of his projects would be constructed "with clean hands only!" For 10 points each:

[10] Name this leader whose propaganda used phrases like "project of the century" and "path to the future" to promote that project, the BAM railway.

ANSWER: Leonid Brezhnev

[10] Brezhnev's "clean hands" promise implied that the BAM would not be constructed with workers from this Soviet system of forced labor camps, which Aleksandr Solzhenitsyn compared to an "archipelago."

ANSWER: the gulag

[10] In 1988, former BAM workers rioted when the government announced it would not honor vouchers for these products. Shoddy Eastern Bloc products of this type included the Yugo and the Trabant.

ANSWER: cars [or automobiles]

<JB European History>

16. Zaha Hadid left her mark on this city through both the Bergisel Ski Jump and the glacier-inspired Hungerburg Funicular railway station, which services Nordkette Mountain. For 10 points each:

[10] Name this Austrian city, the capital of Tyrol.

ANSWER: **Innsbruck**

[10] The Brenner pass connects Innsbruck to Bolzano, the capital of the autonomous province of *South Tyrol* in this country that borders southwest Austria, whose regions include Veneto, Piedmont, and Lombardy.

ANSWER: **Italy** [or **Italia**]

[10] Bolzano houses the remains of this oldest Chalcolithic mummy, who was nicknamed for the range of the Alps on the Italo-Austrian border where this mummy was discovered. Either his name or that Alpine range is acceptable.

ANSWER: **Ötzi** the Iceman [or the **Similaun** Man; or **Frozen Fritz**; or the **Hauslabjoch** Man; or the **Ötztal** Alps]  
<AP Other (Geography)>

17. Einstein's first postulate of special relativity states that the laws of physics hold true in all of these systems that are required for Newton's first law. For 10 points each:

[10] Name these frames of reference that have a constant velocity.

ANSWER: **inertial** frames of reference [accept **non-accelerating** frames]

[10] A non-inertial reference frame undergoing this type of motion and constant acceleration can be modeled by a fictitious force with magnitude  $mv^2/r$ . The centripetal and Coriolis forces occur in systems with this type of motion.

ANSWER: **rotational** motion [accept **rotating** or **circular**; accept **uniform circular** motion]

[10] The magnitude of the Coriolis force in a rotating reference frame is proportional to the cross product of these two quantities.

ANSWER: the **angular velocity** of the reference frame AND the linear **velocity** of the object with respect to the reference frame [accept **omega** AND **v**]

<SY Physics>

18. Arnold Schoenberg discussed the “emancipation of” this phenomenon in the essay “Opinion or Insight?” near the start of his twelve-tone period. For 10 points each:

[10] Name this musical concept in which a clashing combination of tones creates an impression of harshness or tension. The tritone and semitone are “unstable” intervals with this property, the opposite of consonance.

ANSWER: **dissonance** [accept word forms like **dissonant**]

[10] Charles Seeger's “dissonant” type of this technique reversed its strict rules of “five species” taught by J. J. Fux. In this technique used in canons and fugues, voices are melodically and rhythmically independent, but harmonically dependent.

ANSWER: **counterpoint** [accept word forms like **contrapuntal**]

[10] This composer's “double” songs “Play a Simple Melody” and “Old-Fashioned Wedding” combine two tunes in counterpoint. He wrote the latter for a revival of his musical *Annie Get Your Gun*, which includes “There's No Business Like Show Business.”

ANSWER: Irving **Berlin** [or Israel Isidore **Baline**]

<OL Music>

19. Answer the following about novels set in British country houses in which adolescents get disastrously mixed-up in the love lives of adults, for 10 points each.

[10] L. P. Hartley's *The Go-Between* opens with the adult Leo Colston finding one of these books recording his summer at Brandham Hall, where he served as a messenger for Marian Maudsley's love affair. Samuel Pepys's ("peeps's") book of this type records the Great Fire of London.

ANSWER: a **diary** [or a **journal**; do not accept or prompt on "autobiography" or "memoir"]

[10] In this Ian McEwan novel, 13-year-old Briony Tallis falsely accuses her sister's lower-class love-interest, Robbie Turner, of rape while he stays at their country estate.

ANSWER: **Atonement**

[10] In *Love in a Cold Climate*, a novel by an author of this surname, the teenager Polly falls in love with her married uncle at the Hampton house. Another woman with this surname lambasted the funeral home industry in *The American Way of Death*.

ANSWER: **Mitford** [or Nancy **Mitford**; or Jessica **Mitford**]

<JB British Literature>

20. In this religion, an important naming ceremony was first performed by the Panj Pyāre, who volunteered to sacrifice their lives to a certain Guru. For 10 points each:

[10] Identify this religion in which the name "Singh" is taken by anyone who performs the Amrit Sanchar ceremony to enter the Khalsa order.

ANSWER: **Sikhism**

[10] Male Sikhs take the name "Singh," but female Sikhs take this name, meaning "princess," to signify equality between men and women.

ANSWER: **Kaur** ("cower")

[10] This Guru introduced the five Ks and succeeded his father, Guru Tegh Bahādur.

ANSWER: Guru **Gōbind Singh** [prompt on partial answer]

<AP Religion>