2016 Terrapin XXIX: Lead Can't Penetrate Steele
Packet 10
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Tossups

1. This poet wrote that, although "the last lights off the black West went," "morning, at the brown brink eastward, springs." In that poem, this poet observed "All is seared with trade" and "Generations have trod, have trod, have trod." A poem by this author mentions "worlds of wanwood leafmeal" and begins "Margaret, are you grieving / Over Goldengrove unleaving?" The title (*) attribute of another poem by this author "will flame out, like shining from shook foil." This poet of "Spring and Fall" praised "All things counter, original, spare, strange" in a poem that uses his technique of sprung rhythm and begins "Glory be to God for dappled things." For 10 points, name this Catholic English poet who wrote "God's Grandeur" and "Pied Beauty."
ANSWER: Gerard Manley **Hopkins**
<JB Other Literature>

2. H. L. Mencken's *Happy Days* describes how his father, the owner of a factory that produced these items, broke a strike by hiring tramps. In some cities, workers producing these goods would listen to a "lector" who read the news and novels from a platform. Women often created these products in squalid New York tenement apartments, a practice lobbied against by Adolph Strasser and a more famous colleague. A man who made these products by trade presented a tract advocating (*) Chinese Exclusion to Congress in 1902 and founded an organization eventually taken over by George Meaney. AFL founder Samuel Gompers started his career as a maker of these items. Factories in Miami and Tampa that produced these items often employed Cuban immigrants. For 10 points, name these products consisting of tobacco wrapped in tobacco leaf.
ANSWER: **cigar**s
<JB American History>

3. One protein domain that binds to this molecule contains a signature LSGGQ motif. The binding of this molecule drives conformational changes in the cystic fibrosis transmembrane conductance regulator. This molecule binds to the P-loop motif in the NBD domain of proteins in the ABC transporter family. In one pathway, PGK enzymatically reacts with 1,3-BPG to form 3-PG and this molecule; in that same pathway, (*) hexokinase uses this molecule and glucose to generate G6P. In the enzyme that synthesizes this molecule, the gamma subunit rotates as this molecule is generated. According to the chemi·osmotic hypothesis, F-type pumps use a proton gradient to drive the synthesis of this molecule. For 10 points, name this molecule that is produced in the processes of glycolysis and oxidative phosphorylation, the energy currency of the cell.
ANSWER: **adenosine triphosphate** [or **ATP**]
<SY Biology>

4. **The commissioner of this structure rejected its initial plans by telling her father "NO NO NO NO NO." The main architect of this structure dealt with fire safety laws by wrapping steel I-beams in bronze, giving the illusion that the exposed beams were made of steel. Phyllis Lambert wanted this building's design to emulate that of a nearby building designed by Natalie de Blois and Gordon Bunshaft of Skidmore, Owings, and Merrill. This building was the first to have (*)** floor-to-ceiling windows, and its architect maintained its uniform façade by installing blinds that operated in just three positions. Mark Rothko decided to "ruin the appetite of every son of a bitch who ever ate" at the Four Seasons Restaurant in this building. For 10 points, name this former headquarters of a distillery, a Manhattan skyscraper designed by Philip Johnson and Ludwig Mies van der Rohe.
ANSWER: **Seagram** Building
<JH Other Arts (Architecture)>

5. **A preacher from this movement was accompanied by people who threw their garments before him and sang "Holy, holy, holy, Lord God of Sabaoth" while riding into Bristol. That preacher, who was thought to be Jesus Christ by some of his companions, was named James Nayler. This movement experienced a schism between the Wilburites and the Gurneyites. In this movement, Books of Discipline are issued by regional units called (*)** Yearly Meetings. Members of this movement historically used the pronoun "thee" instead of "you" when referring to a single person as part of "plain speech." For 10 points, name this movement that emphasizes the concept of Inner Light, was founded by George Fox, and is named after a command to tremble before God.
ANSWER: **Quaker**s [accept Religious Society of **Friend**s or **Friend**s Church]
<WC Religion>

6. **After waking up on a park bench, this character is given some pages by a blond-bearded man who is immediately arrested. This character reads the diary of a writer who uses a spyglass to stare at a woman from the balcony of his Swiss chalet and meets some boys laying out signals for UFOs. After accusing a leader of a "fake police force" of being his lover's sister, this character tears off her costumes and has sex with her. This character meets a researcher of Dead Languages, Professor (*)** Uzzi-Tuzii ("OOT-zee TOOT-zee"). This character's lover sought refuge in Silas Flannery due to her abuse by a translator who lives in Ataguitana, Ermes Marana. This character meets Ludmilla at a bookstore after discovering that his copy of the title book is incomplete. For 10 points, identify this character who reads Italo Calvino's *If on a winter's night a traveler*, which is written in second person.
ANSWER: **you** [or **tu**; or the **Reader** or il **Lettore** before "reads"; or the **protagonist** or **main character** of *If on a winter's night a traveler* or *Se una notte d'inverno un viaggiatore*; accept any physical cues or answers that indicate the answerer is referring to themselves, such as "**me**!"]
<AP European Literature>

7. **In 2006, *Manager Magazine* alleged that a plot to overthrow the holder of this position had been developed in Finland; those allegations had been made by leaders of the People's Alliance for Democracy. During the Black May protests, the holder of this position summoned the leader of the protestors and the prime minister to a televised meeting in which those leaders prostrated before him, leading to the resignation of (*)** Suchinda Kraprayoon. In 2002, the holder of this position gave a speech calling for action against his country's problems with methamphetamine, sparking a "war on drugs" launched by his prime minister Thaksin Shinawatra. For 10 points, members of the Chakri Dynasty named Rama have had what royal title no longer held by Bhumibol Adulyadej ("POOM-i-pon ah-DOON-ya-det")?
ANSWER: **King** of **Thai**land [or **monarch** of **Thai**land; accept **head of state** of **Thai**land; prompt on less specific answers like leader of Thailand or ruler of Thailand]
<WC World History>

8. **For compounds with this geometry, the total splitting energy is approximately 1.74 times delta-sub-o. In the Monsanto process, the catalyst takes on this geometry between the elimination of acetyl iodide and the addition of methyl iodide. This geometry is formed by low-spin d-8 complexes with a total of 16 electrons. The *x*-squared minus *y*-squared orbital is the highest energy d orbital in this geometry, in which the d orbitals split into 4 energy levels. Wilkinson's catalyst and (*)** cisplatin both have this geometry, which is formed by removing the two axial ligands from an octahedral complex. For 10 points, xenon tetrafluoride has what molecular geometry that consists of four ligands oriented at 90 degrees to each other within the same plane?
ANSWER: **square planar** [prompt on planar]
<BB Chemistry>

9. **Unusually for its artist, a version of this scene features a harbor scene in the background and an ornate marble table copied from Piero de Medici's tomb. In a weird version of this scene, God appears diving out of a cloud in the background. In addition to that version by Lorenzo Lotto, a circular mass of wings appears at the top center of a version of this scene which is flanked by St. Margaret and St. Ansanus. An artist included Adam and Eve in the left background of some of his (*)** versions of this scene, which he set in a loggia in a garden. The monastery of San Marco is home to one of Fra Angelico's versions of this scene. The main elements of this scene are a figure carrying a lily, a woman reading from *Isaiah*, and a dove. For 10 points, name this Biblical scene in which an angel informs Mary she will give birth to Jesus.
ANSWER: the **Annunciation** (The first and third clue describe Leonardo da Vinci's and Simone Martini's versions.)
<JB Painting>

10. **In October 2016, this politician launched the No Nights Sleeping Rough taskforce to assist the homeless. This politician called upon the TfL to establish an Advertising Steering Group and banned ads that promote an unhealthy body image on public transport following a controversial Protein World ad campaign that asked viewers, "Are you beach body ready?" In a May 2016 election, this politician defeated Zac Goldsmith before taking his current office. After (*)** Donald Trump was asked whether a policy he proposed would prevent this politician from entering the United States, Trump commented, "There will always be exceptions." For 10 points, name this Labour politician, who succeeded Boris Johnson to become the first Muslim mayor of London.
ANSWER: Sadiq Aman **Khan**
<WC Other (Current Events)>

11. **A firm named BRABAG was established to produce a synthetic substitute for this resource. The name "Black Sunday" was given to the day of Operation Tidal Wave, an air attack on several plants that processed this resource near the Romanian city of Ploieşti ("ploy-ESHT"). Army Group A was tasked with capturing a production center of this resource during (*)** Case Blue, a German offensive that resulted in the Battle of Stalingrad. Fred Koch, the namesake of Koch Industries, helped build plants that processed this resource in Nazi Germany and the Soviet Union. Baku was a major Soviet production center of this natural resource. For 10 points, name this natural resource, a liquid that one might refine in order to produce fuel for airplanes and tanks.
ANSWER: crude **oil** [or **petroleum**; prompt on fossil fuels; anti-prompt on gasoline, diesel fuel or other things that are derived from crude oil]
<WC European History>

12. **In a novel by this author, a hunchbacked man named Blinker admits to torturing a woman until she confesses to killing her son. In that novel by this author, the dying Count de Frontenac gifts a glass fruit to the protagonist, the daughter of a Québécois apothecary. In a novel by this author, Doña Isabella is convinced to reveal her true age so that her daughter Inez can receive her inheritance. The (*)** mules Contento and Angelica serve the protagonist, who befriends Kit Carson, in that novel by this author of *Shadows on the Rock*. Father Vaillant travels to New Mexico with the protagonist of a novel by this author, who wrote a novel in which Anton Cuzak marries Jim Burden's friend, a girl from the Bohemian Shimerda family. For 10 points, name this author of *Death Comes for the Archbishop* and *My Ántonia*.
ANSWER: Willa **Cather**
<ES American Literature>

13. **Different solutions to equations of this type can be interrelated using an auto-Bäcklund transformation. Some strategies for solving equations of this type only converge when the Courant number is less than one. Sobolev spaces replace spaces of distributions when considering singularities in these equations. One method for solving these equations seeks to find a parametric curve along which this type of equation reduces to a system of simpler equations. These equations can be solved on a discrete lattice using (*)** finite element and finite difference methods, and they can be solved analytically by the method of characteristics. One hyperbolic equation of this type has a solution that varies sinusoidally in space and time; that is the wave equation. For 10 points, what equations can be simplified by separation of variables to produce multiple ordinary differential equations?
ANSWER: **partial differential** equations [or **PDE**s; prompt on differential equations; accept more specific answers like **hyperbolic partial differential** equations]
<SR Other Science (Math)>

14. **In a discussion of free will, this philosopher imagined a man who stays in a room voluntarily, but could not have left anyway since the door is locked. A chapter on personal identity by this thinker differentiates being a man from being a person with the thought experiment of a prince and a cobbler switching bodies. This man used the example of pounding an almond to change its texture to distinguish between the "utterly inseparable" (*)** qualities of objects and qualities produced by sensations, known as primary and secondary qualities. This thinker's treatise *Some Thoughts Concerning Education* builds on his idea that the mind is a *tabula rasa*, or blank slate, at birth. For 10 points, name this English philosopher who wrote *An Essay Concerning Human Understanding* and outlined his political philosophy in *Two Treatises of Government*.
ANSWER: John **Locke**
<JB Philosophy>

15. **The name "Pārvati" means "daughter of" these beings, whose king was her father Himāvat. While he is flying to Lanka, Hanumān encounters one of these beings named Mainak ("MY-nuck"), the only one that did not have its wings severed by Indra. Having failed to find the *Sanjīvani* ("sun-JEE-vuh-nee") herb that could heal Lakshmana, Hanumān returns to the battlefield after (*)** picking up one of these objects. To protect the residents of Gokul from the storms of Indra, Krishna lifts one of these objects with his pinky. During the churning of the milky ocean, the serpent Vāsuki was wrapped around one of these landforms. Shiva lives on the largest one of these landforms, Kailash. For 10 points, name these natural features, the holiest of which is Meru.
ANSWER: **mountain**s [or **Mount** Kailash; or **Mount** Meru; prompt on *parvat*; anti-prompt on Himalayas]
<AP Mythology>

16. **A letter from Trajan to Pliny the Younger suggests that he call on the "aid of the populace" to deal with events of this sort in Nicomedia rather than create a separate organization to do so. Due to these events, the height of structures known as** *insulae* **was restricted to 70, and later 60, feet. The** *Vigiles* **were modeled on a group that Crassus organized in order to extort money and property from victims of these events. In the aftermath of an event of this sort, the (*)** architects Severus and Celer were commissioned to build a massive palace called the Golden House. Suetonius claims that after ordering that one of these events, the emperor went to Esquiline Hill to sing about Troy and play his lyre. For 10 points, Rome's Christians were blamed for starting what type of disaster in 64 AD, during which Nero apocryphally fiddled?
ANSWER: urban **fire**s [or equivalents such as **conflagration**s or **burning**s]
<JB European History>

17. **This composer wrote the insertion aria "Popoli di Tessaglia!" for Aloysia Weber, who rejected him. This composer, inspired by Mysliveček, omitted the minuet from a symphony whose three movements are in sonata form. Mitsuko Uchida recorded all his piano sonatas, and Max Reger used one in** *Variations and Fugue on a Theme by* **this composer. He wrote four joke-filled (*)** horn concerti for Joseph Leutgeb. After visiting Rome, he transcribed Allegri's *Miserere* from memory. Both his Violin Concerto No. 5 and Piano Sonata No. 11 end in A minor and imitate Turkish music. Two of his piano concerti and two of his symphonies are in minor keys; the latter G minor symphony opens by repeating E-flat D D, while its finale opens with a Mannheim rocket. For 10 points, name this composer of *Eine Kleine Nachtmusik* and the Prague and Jupiter Symphonies.
ANSWER: Wolfgang Amadeus **Mozart**
<OL Music>

18. **The protagonist of this novel repeatedly tries to perform the card trick "Fly-away Jack," but cannot find a pack of cards until the antagonist gives him one. While trying to visit a child who offered to teach him Morse code, a character in this novel finds her house abandoned and inhabited only by a starving dog. While staying with a German couple, this novel's main character allows himself to be tricked into traveling to see a dying American bank robber. Stories about the boy (*)** martyr Juan are interspersed in this novel, whose last chapter reintroduces characters like the Fellows family and the dentist Mr. Tench. This novel's protagonist is executed after being betrayed by the mestizo to the Lieutenant. For 10 points, name this novel in which an alcoholic priest is pursued by anti-Catholic authorities in Mexico, a work of Graham Greene.
ANSWER: The *Power and the Glory*
<JH British Literature>

19. **The number density of particles in these systems contains a constant equal to 16 pi times the Riemann zeta function of 3. In an accelerating reference frame, vacuums resemble one of these systems with a temperature proportional to the acceleration. One equation describing these systems is derived by counting the number of standing waves per unit volume, then calculating the average energy per mode with a Boltzmann distribution. That law was derived because using the equipartition theorem to describe these systems leads to them having (*)** infinite power at low wavelengths, a result called the ultraviolet catastrophe. The spectral irradiance of these systems is described by the Stefan–Boltzmann law and Planck's law. For 10 points, name these idealized systems that absorb all incoming electromagnetic radiation.
ANSWER: **blackbody** [prompt on photon gas]
<SR Physics>

20. **People can be divided into three groups based on their sensitivity to this sensation via a test created by Linda Bartoshuk. A phenomenon involving this sensation was first illustrated by an experiment in which rats did not react negatively to a red light after being exposed to radiation. That phenomenon associated with this sensation is often called the "Garcia Effect" after its discoverer. This sense can (*)** detect propylthiouracil in the 25 percent of the population who have its "super" variety. A type of conditioned aversion involving this sense often occurs after an illness. Protrusions called papillae contain the receptors for this sense, which is responsible for sensations such as umami. For 10 points, name this sense, also called gustation, that, with smell, detects flavor.
ANSWER: **taste** [or **gustation** until read; or **sweet**ness; or **salt**iness; or **bitter**ness; or **sour**ness]
<JB Social Science>

Bonuses

1. A model described in this thinker's book *The Isolated State* involves an isolated city in the middle of a level and uniformly fertile plain surrounded by a wilderness. For 10 points each:
[10] Name this German thinker who pioneered location theory by describing a model of agricultural land use in which a city is surrounded by concentric rings that produce different agricultural commodities.
ANSWER: Johann Heinrich **von Thünen**
[10] In von Thünen's model, the ring closest to the city is used for market gardening and the production of this good. In India, Operation Flood improved its production through the crossbreeding of exotic cows with indigenous cows.
ANSWER: **milk** [or **dairy** products; accept specific types like **cheese**, **cream**, **butter**, etc.]
[10] In a location model created by Harold Hotelling, two firms must choose their locations in a city shaped as this geometric figure. If they charge the same price, the equilibrium for both firms is to be located at the center.
ANSWER: straight **line**s [accept **line**ar]
<WC Other (Geography)>

2. The Shannon type of this quantity for a distribution *p* of *x* is the expected value of the log of *p* of *x*. For 10 points each:
[10] Name this quantity that is conceptually linked to the amount of information expressed by a system. This quantity always increases in an isolated system according to the second law of thermodynamics.
ANSWER: Shannon **entropy**
[10] When the Shannon entropy of a quantum gate remains constant, the gate has this property. Clausius's theorem states that the line integral over a cyclic process of dQ over T equals zero for a process with this property.
ANSWER: **reversible** [accept word forms]
[10] For an information channel that is subject to additive Gaussian noise, the Shannon–Hartley theorem states that the maximum rate of information transfer equals the bandwidth times the base-2 logarithm of one plus this dimensionless quantity.
ANSWER: **signal**-to-**noise ratio** [accept **S/N** or **SNR**]
<SY Physics>

3. The trend of covering these items in ambergris was started by Catherine de Medici, who apocryphally sent a poisoned pair of them to Jeanne d'Albret. For 10 points each:
[10] Name these items that were frequently perfumed during a fashion craze of the early 17th century. Knights sometimes threw their gauntlet, a heavy item of this type, to the ground to issue a duel challenge.
ANSWER: **glove**s
[10] While imprisoned for supporting this person, Eleanor Davies claimed to have been visited by an angel wearing a glove oiled in ambergris. This prisoner supposedly wrote the autobiography *Eikon Basilike*.
ANSWER: **Charles I** [prompt on Charles Stuart]
[10] John Stow's *Survey of London* claims Edward de Vere ("veer"), an earl of this place, introduced the perfumed glove to England. Hugh Latimer, Nicholas Ridley, and Thomas Cranmer were burnt at the stake in this city.
ANSWER: **Oxford**
<JB European History>

4. This story begins at a party at the Westerhazy's house on an afternoon when "everyone sits around saying 'I drank too much.'" For 10 points each:
[10] Name this short story that chronicles Neddy Merrill's trip home, in which he discovers that his house is abandoned.
ANSWER: "The **Swimmer**"
[10] John Cheever's short story "The Five Forty-Eight" follows Blake's encounter with his ex-employee Miss Dent on this type of vehicle. Anna Karenina commits suicide by throwing herself in front of this type of vehicle.
ANSWER: **train** [or **locomotive**]
[10] "The Five Forty-Eight" partially takes place in this neighborhood where several of Cheever's stories are set. In one story, Johnny Hake becomes the titular "Housebreaker" of this neighborhood after losing his job.
ANSWER: **Shady Hill**
<ES American Literature>

5. The Kolmogorov type of this term for a string is the length of the shortest program that can output it, while the cyclomatic type of this term measures how many independent paths a program has. For 10 points each:
[10] Give this term, whose time variety for algorithms is often expressed in big-O notation. Solutions to problems in the NP class of this type can be verified in polynomial time.
ANSWER: **complexity** [accept Kolmogorov **complexity**, cyclomatic **complexity**, time **complexity**, or **complexity** class]
[10] The problem of finding the Kolmogorov complexity of a string has this property, which Turing proved for the halting problem. In problems of this type, no algorithm can be created that will yield a definitive yes or no answer.
ANSWER: **undecidable** [or **non-computable**]
[10] This paradox can be used to prove that Kolmogorov complexity is undecidable. This paradox arises because the English expression "the smallest positive integer not definable in fewer than twelve words" is itself eleven words long.
ANSWER: **Berry** paradox
<JB Other Science (Computer Science)>

6. Adam of Bremen claimed that this many of "every living creature" would be sacrificed at the temple of Uppsala every this many years. For 10 points each:
[10] Give this important number in Norse myth, which is how many daughters the sea god Ægir had, the number of worlds, and the number of days a god spent hanging on Yggdrasil.
ANSWER: **nine**
[10] In an Old English charm, this god's Germanic version uses nine "glory-twigs" to smite a serpent into nine parts. This one-eyed deity was the chief god of the Norse pantheon.
ANSWER: **Odin** [or **Wotan**]
[10] While trying to get the mead of poetry, Odin tricked nine people of this type into killing each other with scythes. The ancestor of people of this type was the brother of Karl and Jarl and the son of Rig.
ANSWER: **slave**s [or **thrall**s; or **servant**s; or **bondsman**; or **serf**s]
<JB Mythology>

7. In one poem, the author expresses envy for this creature, whom a woman "loves to provoke with outstretched finger, tempting the little pecker to nip harder." For 10 points each:
[10] Name this creature. The same poet instructed "Mourn, Cupids all, every Venus" after the death of this animal, and tells it "it's your fault that now my sweetheart's eyelids are sore and swollen from weeping."
ANSWER: Lesbia's **sparrow** [or **passer**; prompt on Lesbia's bird or pet]
[10] The author of those poems, the Roman poet Catullus, took the name Lesbia from Lesbos, the island where this female Greek poet wrote a hymn to Aphrodite.
ANSWER: **Sappho**
[10] Catullus's other poems include an elegy that describes how he travelled "many nations and over many seas" to say goodbye to his dead brother with these three words. Either Latin or English translation is acceptable.
ANSWER: "**ave atque vale**" [or "**hail and farewell**"; or "**farewell and farewell**," because Anne Carson translates it that way]
<JB Other Literature>

8. The tablature notation for this instrument uses script lowercase letters to indicate a note's position, and uses detached flags above the staff to indicate changes in the duration of notes. For 10 points each:
[10] Name this plucked, pear-shaped instrument that often has an angled neck, which is related to the mandolin, oud, and theorbo. Composers for this instrument include John Dowland, Denis Gaultier, and Silvius Leopold Weiss.
ANSWER: **lute**
[10] This modern English composer used reverse variation form in *Nocturnal after John Dowland* for guitarist Julian Bream, based on the melancholy lute song "Come, heavy sleep." He adapted *Peter Grimes* into *Four Sea Interludes*.
ANSWER: Benjamin **Britten**
[10] Dowland's "Flow my tears," which Britten used in *Lachrymae*, is this type of stately Italian dance in AABBCC form often paired with a faster triple-time galliard. Ravel and Fauré wrote piano pieces that evoke this slow dance.
ANSWER: **pavane** [accept **pavan**, **pavana**, or other variants]
<OL Music>

9. The Himmerod Memorandum called for the rehabilitation of this organization. For 10 points each:
[10] Name this organization that, despite carrying out the Hunger Plan, the Commissar Order, and various other atrocities, is the subject of the "clean hands" myth.
ANSWER: **Wehrmacht** [or **Waffen-SS**; prompt on Nazi or German army; do not accept or prompt on "SS"]
[10] The Himmerod memorandum was drafted by Konrad Adenauer, the first chancellor of this country. While leading this country, Willy Brandt reopened relations with its eastern neighbor.
ANSWER: **West Germany** [or **Federal Republic** of **Germany**; or **FRG**; do not accept or prompt on "Germany"]
[10] Crowds rioted in 1965 when a future holder of this position got engaged to former Wehrmacht officer Claus von Amsberg. While holding this position, Wilhelmina headed a government-in-exile during World War II.
ANSWER: **Queen** of the **Netherlands** [or anything indicating **monarch** or **ruler** of the **Netherlands** or **Holland**]
<JB European History>

10. This author set many of his novels in the fictional county of Wessex in south west England. For 10 points each:
[10] Name this author who wrote about a failed scholar who is left by Sue Bridehead in *Jude the Obscure* and a poor girl with powerful relatives in *Tess of the d'Urbervilles*.
ANSWER: Thomas **Hardy**
[10] Hardy also set this novel in Wessex, in which a main character Elfride Swancourt must save a character from falling off a cliff with her underwear.
ANSWER: A *Pair of Blue Eyes*
[10] In *Tess of the d'Urbervilles*, Tess's lover Angel Clare leaves Wessex to start a farm in this country. Evelyn Waugh's *A Handful of Dust* ends with Tony Last trapped in this country, where he is forced to read Dickens to Mr. Todd.
ANSWER: **Brazil**
<JH British Literature>

11. The dotted red mushroom *Amanita muscaria* produces the compound muscimol whose agonistic effects on GABA receptors cause this type of psychological response. For 10 points each:
[10] Identify this type of response also caused by the psychoactive compound lysergic acid diethylamide, also known as LSD.
ANSWER: **hallucinogenic** effects [accept **hallucination**s or **psychedelia**]
[10] Under the influence of hallucinogens, rows of these GABAergic neurons degenerate. These large neurons are found in their namesake layer of the cerebellum and are named for a Czech scientist.
ANSWER: **Purkinje cell**s [do not accept or prompt on "Purkinje fibers"]
[10] Members of this class of drugs, which includes phenobarbital, act as allosteric modulators of the GABA receptor by opening the chloride channel. Like benzodiazepines, these drugs suppress central nervous system activity and are thus used as anesthetics and antiepileptic drugs.
ANSWER: **barbiturate**s ("bar-BIT-chu-its" or "bar-BIT-chur-its")
<SY Biology>

12. This pattern appears behind a floating rock in *The Castle of the Pyrenees*, and above a shadowy street in *Empire of Light*. For 10 points each:
[10] Describe this pattern, which in the same artist's *The False Mirror*, appears reflected in an eye.
ANSWER: blue **sky** AND **cloud**s [or **cloudscape**; prompt on clouds or sky alone]
[10] The artist of those paintings, René Magritte, also painted blue sky onto a death mask of this man for his *The Future of Statues*. This French leader is depicted "crossing the Alps" in a Jacques-Louis David painting.
ANSWER: **Napoleon** Bonaparte [or Napoleon **Bonaparte**]
[10] This Magritte painting features a more overcast sky behind a man in a suit and bowler hat, whose face is covered by a floating apple.
ANSWER: The *Son of Man* [or Le *fils de l'homme*]
<JB Painting>

13. According to future President Bartolomé Mitre, Domingo French and Antonio Beruti distributed blue and white ribbons to statesmen during this event. For 10 points each:
[10] Name this revolution that led to the establishment of the Primera Junta ("HOON-tuh") and the ousting of Viceroy Baltasar Hidalgo de Cisneros.
ANSWER: **May** Revolution [or Revolución de **Mayo**]
[10] In this nation's war of independence, forces under José de San Martín and Manuel Belgrano quashed Royalist forces that resisted the May Revolution, which had taken place in this nation's capital of Buenos Aires.
ANSWER: **Argentina**
[10] The May Revolution began with an open meeting called by officials of this social class. In the Spanish Empire, this term denoted people of Spanish ancestry born in America, in contrast to Iberian-born *peninsulares*.
ANSWER: *criollo*s [or **creole**s]
<AP World History>

14. The "spot" variant of this quantity is quoted for an immediate transaction, whereas the "forward" variant of this quantity is quoted for a transaction that will take place sometime in the future. For 10 points each:
[10] Name this quantity that is the price of a country's currency in terms of another country's currency.
ANSWER: foreign **exchange rate** [or **forex rate**]
[10] *Two answers required.* Under the Mundell–Fleming model, a country cannot simultaneously pursue a fixed exchange rate and these two other members of the impossible trinity, also known as the Trilemma.
ANSWER: **financial integration** AND **monetary independence** [accept **free capital flow** or **free capital movement** in place of "financial integration"; accept **independent monetary policy**, **sovereign monetary policy**, or anything indicating **having control over its own monetary policy** in place of "monetary independence"]
[10] In order to deter short term speculation on currency transactions, this economist proposed a namesake tax that would be levied on currency transactions, thus reducing the volatility of exchange rates.
ANSWER: James **Tobin**
<WC Social Science>

15. This author used the pseudonym Sally Mara for a novel in which Gertie Girdle is trapped in the Dublin post office during the Easter Rising. For 10 points each:
[10] Name this author of *We Always Treat Women Too Well*. Another of his novels opens with the word "Doukipudonktan" and follows a girl who escapes her uncle Gabriel's apartment to explore Paris.
ANSWER: Raymond **Queneau** ("kuh-NO")
[10] In addition to *Zazie on the Metro*, Queneau wrote a book composed of 99 retellings of an encounter on a bus which is titled for "Exercises" in this thing. William Strunk's book titled for "Elements" of this thing was revised by E. B. White to include even more prescriptions about verb agreement and split infinitives.
ANSWER: **style**
[10] The rebels in *We Always Treat Women Too Well* use this novel's title as a password. After finishing *Ulysses*, James Joyce wrote this notoriously difficult-to-read book about the Earwicker family.
ANSWER: *Finnegans Wake*
<JB European Literature>

16. *Two answers required.* In the Book of Ezekiel, God urges Ezekiel to stand against the chief prince of Meshek and Tubal, the first of these entities from the land of the second of these entities. For 10 points each:
[10] Name these two entities that are prophesied to lead a coalition against Israel. The Book of Revelation describes how Satan will deceive these two nations in the four corners of the Earth and gather them for battle.
ANSWER: **Gog** AND **Magog**
[10] Gog and Magog will be deceived after Satan is freed after being imprisoned for this length of time. Some Young Earth creationists hold that the Earth has existed for only six of these lengths of time.
ANSWER: **millennium** [or equivalents like a **thousand years**]
[10] In Islam, the Sūrat al-Kahf describes how a figure named after having two of these objects built an iron wall to separate mankind from Gog and Magog. That figure is often identified with Alexander the Great.
ANSWER: **horn**s [or *qarnayn*; accept **Dhul-Qarnayn**]
<WC Religion>

17. Correlation diagrams can be used to visualize the output of this procedure. For 10 points each:
[10] Name this procedure that constructs molecular orbitals with a superposition using a simpler set of orbitals as the basis functions. The coefficients in this procedure can be calculated using the Roothaan–Hall equations.
ANSWER: **LCAO** [or **linear combination** of **atomic orbitals**]
[10] Molecular orbitals for fermions can be computed using these objects, which are used to construct antisymmetric multiparticle wavefunctions. The normalization factor for these objects is one over the square root of the factorial of the number of particles.
ANSWER: **Slater determinant**s
[10] Slater determinants for fermionic systems must be antisymmetric due to this principle, which prevents two electrons from occupying the same quantum state.
ANSWER: **Pauli exclusion** principle [accept either underlined portion]
<SR Chemistry>

18. Name some newspaper men who ran for president, for 10 points each.
[10] This governor of Ohio grew his *Dayton Daily News* into a namesake media conglomerate. Supporters of this candidate, who ran with FDR, spread William Chancellor's theory that his opponent was part black.
ANSWER: James M. **Cox**
[10] Cox lost to this other Ohio politician, the owner of *The Marion Star* newspaper. This man won the 1920 election by promising a "return to normalcy."
ANSWER: Warren G. **Harding**
[10] In the election of 1872, this Liberal Republican and editor of the *New York Tribune* was defeated by incumbent Ulysses S. Grant, and died before the electoral votes were counted.
ANSWER: Horace **Greeley**
<JH American History>

19. James P. Johnson, the composer of the track to this dance, noted that each time he wrote a new accompaniment to this dance he ended up using "that same damn beat." For 10 points each:
[10] Name this dance that became the "theme song of the Roaring Twenties" after it featured in the Broadway show *Runnin' Wild*. It involves kicking the legs up from behind and tapping the soles with the hands while spinning.
ANSWER: the **Charleston**
[10] Johnson played this instrument, which was also played by Jelly Roll Morton and Duke Ellington. Johnson's compositions for this instrument were influenced by ragtime tracks such as the "Maple Leaf Rag."
ANSWER: **piano**
[10] This dance style, nicknamed "The Jitterbug," developed concurrently with its namesake jazz style. Lindy Hop emerged out of this dance style.
ANSWER: **swing**
<AP Other Arts (Jazz)>

20. Answer the following about discussions of "home" and "dwelling" in Continental philosophy, for 10 points each.
[10] In "Building, Dwelling, Thinking," Martin Heidegger revisited the term "dwelling," which he'd used to describe this concept's interaction with the world. In *Being and Time*, this German word denotes an entity concerned with its own being.
ANSWER: **dasein**
[10] In a book about the "Poetics" of this concept, Gaston Bachelard ("bosh-LARR") discussed the home as a shelter for dreaming. Henri Lefebvre ("luh-FEV") wrote about the production of the social form of this concept.
ANSWER: **space**
[10] Emmanuel Levinas, a philosopher who practiced this religion, defined "dwelling" as "a retreat home with oneself." Moses Maimonides wrote about this religion and philosophy in *The Guide for the Perplexed*.
ANSWER: **Judaism**
<JB Philosophy>