

**1. While living in this place, Emil Barton is taunted by phone calls from his younger self in the short story "Night Call, Collect." A book set in this place includes a short vignette about young boys who ride bikes to abandoned houses, where they play the bones of ribcages like xylophones. Another story set here focuses on Jeff Spender, who starts shooting his coworkers in a futile attempt to prevent it from being exploited. A short story originally titled "[This place] is (\*) heaven!" describes how Captain Black and his men arrive here and discover an idyllic small town populated by their families, only to be murdered in their sleep. This place is compared to the Western frontier in stories such as "And the Moon Be Still as Bright," which chronicles the Fourth Expedition to it. A book named for this place includes short stories like "Usher II" and "Ylla." For 10 points, name this setting of many stories by Ray Bradbury, who wrote a book about its chronicles.**

ANSWER: Mars

**2. This artist's son wrote that he never painted in the afternoon and instead put the finishing touches on his works at night by means of artificial light, which explains the presence of unlit candles around the brim of his hat in one self-portrait of this artist in his studio. Edouard Manet borrowed a backdrop from this artist's work for a portrait of Victorine Meurent wielding a sword. This artist satirized arranged marriages by depicting a bride wearing two masks – one on the front and one on the back of her head – as she is given by her father to an ugly old man. This artist of (\*) *They Say Yes and Give Their Hand to the First Comer* also depicted a fat witch being carried away by monsters in *Where is Mama Going?* from the same series. That series also includes a man resting his head on the desk as he is attacked by owls and bats. He is regarded as the "last of the old masters and first of the moderns," and depicted bullfighting scenes in his *Tauromaquia* series. For 10 points, name this Spanish artist whose aquatints include *The Sleep of Reason Produces Monsters*, from his series *Los Caprichos*.**

ANSWER: Francisco Goya [or Francisco de Goya y Lucientes]

**3. During his sojourn in Italy and Switzerland, this man served as a foreign correspondent for several newspapers in his homeland, signing his dispatches with the pseudonym "Altalena." This man wrote an editorial in which he expressed pride in having been a member of the group that formulated the Helsingfors Program, and noted that "every indigenous people will resist alien settlers;" that editorial was called "The Iron Wall." This subject of a recent biography by Hillel Halkin opposed Herzl's "Uganda Plan," as a delegate from Odessa to the Sixth (\*) Zionist Congress and died of a heart attack while visiting New York to recruit soldiers to aid Britain in World War II. This editor of the *Doar Hayom* Hebrew weekly founded the Betar movement in Riga and with Joseph Trumpeldor co-founded the Jewish Legion; until his death, this man also headed the Irgun, founded on his principles of Revisionist Zionism. For 10 points, identify this Odessa-born Zionist leader who changed his name from "Vladimir" to "Ze'ev."**

ANSWER: Vladimir Yevgenyevich (or Ze'ev) Jabotinsky

**4. The presence of this moiety on docarmycin and ptaquiloside makes them exceptional DNA alkylating agents. It's not an epoxide, but in cholesterol biosynthesis the dimerization of farnesyl pyrophosphate generates an intermediate with this moiety that spontaneously collapses to give squalene. The divinyl version of this compound can isomerize to cycloheptadiene in a Cope-like reaction. 1,4 dienes exposed to light rearrange to a substituted form of it in the di-pi-methane rearrangement. Charge-shift bonding is used to explain the structure of a molecule containing three of these moieties sharing a bond, called [1.1.1]-propellane. Because its interorbital angles are (\*) 104 degrees, this molecule can be considered to have sp<sup>5</sup> hybridization. This molecule occurs as an intermediate during the conversion of alpha-halo ketones to carboxylic acids in the Favorskii reaction. Because of its unusual reactivity, AD Walsh described this molecule's MO's as a combination of methylene units. It is generated by treating an alkene with diiodomethylzinc in the Simmons-Smith reaction. Banana-bonds are used to describe its highly deviated bond angles. For 10 points, name this simplest cyclic hydrocarbon.**

ANSWER: Cyclopropane

**5. An aspiring politician in this novel forces a young girl to go to BellaVista, a clinic where she has a secret abortion. Late in this novel, we learn that its narrator is writing it to her estranged granddaughter Sabrina to**

correct the lies told by Sabrina's malicious guardian Winifred. Its narrative is interspersed with chapters from a book about a woman and her lower-class lover, who tells her a story about the Lizard Men of Xenor. That lover is a fictionalized version of Alex Thomas, a socialist who is hidden away by the narrator after being falsely accused of burning down her father's button factory in Port (\*) Ticonderoga. This novel's title refers to a novel about the city of Sakiel-Norn, where the title character falls in love with a tongueless girl he is supposed to murder. Its beginning describes how the narrator's sister killed herself by driving over a bridge in Toronto. For 10 points, name this novel about the sisters Iris and Laura Chase, written by Margaret Atwood.

ANSWER: *The Blind Assassin*

6. Charles Hamm divided this composer's works into nine chronological groups based on "mensural practice." This composer wrote a *chanson* which laments that "to love is so bitter that I want to throw myself into the sea." This composer inserted the names of Pope Eugene IV and King Sigismund of Bohemia at the end of his motet "Supremum est mortalibus bonum." This composer's now-lost requiem was written following his permanent return to Cambrai. He is the confirmed author of 13 isorhythmic motets considered the highest achievements of the genre. A communion by him is the earliest surviving piece to explicitly use the (\*) fauxbourdon technique, although that technique was probably imported from England. A song by this composer, possibly written for the wedding of Dauphin Louis of Savoy, was later used as the cantus firmus for one of his four late mass cycles, marking the first time a composer used a popular song for such a purpose. This composer of *Se la face ay pale* was considered the leading composer of a school centered at Dijon which also included Gilles Binchois. For 10 points, name this French composer considered by contemporaries as the greatest of the 15<sup>th</sup>-century Burgundian school.

ANSWER: Guillaume Du Fay [or Du Fayt; apparently it's pronounced "doo-fah-ee"]

7. One character in this novel marries a Jew in order to obtain her diamonds, but when she refuses to part with them, he orders the cook to serve sausages and bacon every day and locks her in her room for seven years until she dies. Another character in this novel flips a coin to decide whether to marry his true love Judy or the rich Isabella Moneygawl. In its opening pages, the narrator describes how a drunkard's dead body is seized by creditors during his funeral. The narrator's son Jason eventually manages to possess the vast majority of this novel's central estate, which had previously been owned by Sir (\*) Patrick, Sir Murtaugh, Sir Kit, and Sir Condry. This "big house" novel was first published in 1800, and criticizes members of the title family for squeezing the highest amount of money possible from their tenants. For 10 points, name this Anglo-Irish historical novel narrated by the servant Thady Quirk, and written by Maria Edgeworth.

ANSWER: *Castle Rackrent*

8. A cationized version of this enzyme and cisplatin can cut down on cisplatin's nephrotoxic effects. This enzyme is irreversibly inhibited by 3-amino-1,2,4-triazole. A disease in which this enzyme is absent is largely asymptomatic except for an increased risk of oral ulcers and gangrene. An assay for this enzyme involves mixing its unreacted substrate 1:1 with Amplex Red then adding HRP, setting activity of this enzyme inversely proportional to resorufin fluorescence. Clostridium and bacillus species can be distinguished by testing for this enzyme. A 3% solution of this enzyme's substrate is used to distinguish (\*) staphylococcus and streptococcus. This enzyme, like hemoglobin contains four heme groups in four active sites. Its *k<sub>cat</sub>* of around 4 times 10 to the negative seven means the reaction it catalyzes has a rate largely limited by diffusion. For 10 points, name this catalytically perfect enzyme that breaks down hydrogen peroxide and is formed in peroxisomes.

ANSWER: catalase [accept peroxidase]

9. Kyle Herkenhoff proposed that the increasing availability of this concept partly explains the rise of unemployment duration since the late 1970s and the contemporaneous skewing of the wealth distribution, since the unemployed can forego unsuitable job offers. Mian and Sufi's research shows that zip codes in which house prices dropped the most during the financial crisis exhibited the largest drop in demand for non-tradeable services thanks to the buildup of this concept, which titles their book. The most productive agents are also the least patient ones in Kiyotaki and Moore's endogenous business cycle model, which imposes a (\*) collateral requirement to limit this concept. In that model, a negative shock to the market value of collateral provokes insolvency, which brings about a Fisherian deflation driven by this concept. The accumulation of this concept is the driving force in Hyman Minsky's financial instability hypothesis. For 10 points, what is this concept, which goes up the more spending exceeds income?

ANSWER: debt [accept credit. The title of Mian and Sufi's book is *House of Debt*. Prompt on "mortgages."]

**10. The main language for how this action was to proceed was drawn up by Geoffrey Harrison, and both Arthur Lane and Lawrence Steinhardt were instructed by James Byrnes to object to this action. This action and its consequences became much more widely known following the publication of a 1975 article about it by Alfred de Zayas, who also devoted two books to chronicling this action. R.M. Douglas' recent book about this action takes its title, *Orderly and Humane*, from a provision to Article XIII (\*) of the Potsdam treaty dictating how actions such as this one were to be carried out. The main framework for carrying out this action in one country were the Benes decrees, while in another nation, this action was accompanied by a "Slavicization" of groups of people collectively called the "Autochthons," who included the Kashubians. The 12 million people forced to relocate due to these actions represented the largest internal migration in Europe in modern times. For 10 points, identify these events which resulted in the forcible resettlement of people that had or were considered to have a certain nationality from areas such as Poland's Silesia and Czechoslovakia's Sudeten region.**

ANSWER: expulsion of Germans after WWII [accept anything that indicates the forcible relocation of Germans or those with German nationality from Central/Eastern Europe after the war]

**11. This man had Abraham Bogardus fabricate a picture showing the ghost image of Abraham Lincoln behind him in order to expose the "spirit photographer" William Mumler. He built the Moorish revival mansion Iranistan, and employed workers like Nellie Keeler and Isaac W. Sprague. This one-time mayor of Bridgeport, Connecticut wrote the self-help book *The Art of Money-Getting*, and arranged Jenny Lind's tour of America. He staged a series of popular "national baby shows," which offered fifty dollars for the fattest baby, at his namesake (\*) "American Museum" in New York City. At that museum, he exhibited William Henry Johnson as the "missing link" "Zip the Pinhead," alongside other "freaks" like General Tom Thumb, the "Feejee mermaid," and the Siamese twins Chang and Eng. For 10 points, name this promoter who allegedly said "there's a sucker born every minute," and founded a popular circus with James Bailey.**

ANSWER: Phineas Taylor (P. T.) Barnum

**12. In a press conference following this film's premiere, its director declared himself not to be a moralist and uninterested in resolving the "split between moral man and scientific man," before saying that this film's tragedy "stems directly from [a miserable] erotic impulse." A character in this film introduces herself as a 19-year-old married writer who writes in a trance while "usually in touch with the dead." That character, named Gloria Perkins, is discovered having sex with the main male character on a couch in the San Domenico Hotel at the end of this film, the final shot of which shows the male protagonist sitting on a bench with the female protagonist standing behind him and Mt. Etna (\*) in the background. After being proposed to at the top of the Chiesa del Collegio, the main female character of this film rings the church bells in a famous scene. The plot of this film hinges on the disappearance of Anna during a sailing trip, and the subsequent romance between her lover Sandro and her best friend Claudia as they search for her. For 10 points, identify this film starring Gabriele Ferzetti, Lea Massari, and Monica Vitti which won the Jury Prize at the 1960 Cannes Film Festival and was directed by Michelangelo Antonioni.**

ANSWER: L'avventura or The Adventure

**13. In response to this event, protesters burned the girl's wing of a school in Al Ain. This event was triggered by a young man managing to get past a police blockade holding a saffron flag, which was taken as a signal to attack. The RSS was accused of directly running the government by the Liberhan report, which states that this event was not a conspiracy. Taslima Nasrin was exiled for writing a book which opens with this event. The site of this event was home to a statue of an infant placed there by (\*) Dutt Singh and KK Nayar. This event was done by a group of around 150 thousand VHP and BJP volunteers, who were attending a political rally at a site they believed to be the birthplace of Rama. For 10 points, name this 1992 event in Uttar Pradesh in which Hindu zealots destroyed a religious building named for a Mughal emperor.**

ANSWER: Babri masjid demolition [or Babur's mosque demolition or Babri Mosque demolition]

**14. After this politician called Hitler a "brown-shirted fanatic," the Nazi press referred to him as a "Dirty Talmud Jew"; and during World War II, his sister Gemma was sent to the Ravensbruck concentration camp. In 1938, this politician established a namesake commission which found that marijuana was mostly harmless and was not a gateway drug. He was elected to his highest office after Jimmy Walker was forced to resign on**

**charges of corruption. In 1936, he ran for reelection under the American Labor Party on a ticket that included Thomas (\*) Dewey, who worked with him to prosecute gangsters like Lucky Luciano. Known as the “Little Flower,” he appointed Robert Moses to head the parks department for his city during the Great Depression. As a member of Congress, he cosponsored a bill with a senator from Nebraska that banned yellow-dog contracts. For 10 points, name this Italian-American mayor of New York City from 1934 to 1945.**

ANSWER: Fiorello LaGuardia

**15. The 17th discussion of Al-Ghazali’s *Incoherence of the Philosophers* is dedicated to an examination of this phenomenon. The first fully-developed probabilistic account of this phenomenon was given in a posthumously published 1956 work by Hans Reichenbach, which uses the “screening-off” criterion to explain this phenomenon. An influential 1973 paper by David Lewis named after this phenomenon introduced the concept of “comparative similarity” (\*) in offering a counterfactual development of this idea. In *The Critique of Pure Reason*, this phenomenon is, along with “inherence and subsistence” and “community,” one of the three “Categories of Relation;” earlier, in the preface to his *Prolegomena*, Kant wrote that a notable attack on this principle interrupted his “dogmatic slumber.” That attack on this phenomenon, which states that it appears to be real only due to the conjunction of one event following another was formulated by David Hume. For 10 points, identify this phenomenon, the necessity of one thing resulting in another.**

ANSWER: causation or causality or cause and effect [prompt on “necessity” before mention]

**16. After seeing a photograph of this man, Surai Sasai was inspired by a vision of a holy figure to go to his home and build several places of worship. A temple and memorial to this figure contains a statue of him inscribed with the phrase “My Struggle of Life is My Only Message”. This man’s followers greet each other with a saying meaning “victory to” this man, Jai Bhim. LN Hardas was a follower of this man. One of this man’s precepts involved not paying homage to one’s ancestors during a particular 16-day period; that is one of this man’s 22 vows. A posthumous 20-page autobiography of this man was entitled (\*) *Waiting for a Visa*. In a public ceremony at Nagpur, this man accepted the Three Jewels and Five Precepts, inspiring 600,000 of his followers to do the same. This man’s campaigning also led to the reservation of jobs for members of scheduled tribes and Other Backward Classes. For 10 points, name this drafter of the Indian Constitution whose conversion to Buddhism inspired many of his fellow dalits to do the same.**

ANSWER: Bhimrao Ramji Ambedkar [or Babasaheb]

**17. Wigner’s D-matrix formalism is parametrized in terms of these quantities. Crystallographic textures are represented by a so-called orientation distribution function, which depends directly on these quantities, and 9 equations are necessary to convert these quantities into Miller indices. A problem with the use of these quantities occurs because the map from the 3-torus to the real projective space  $RP^3$  is not a covering map. These quantities represent a choice of coordinates on the  $SO(3)$  (\*) configuration space such that a problem with three degrees of freedom can be reduced to a problem of one degree of freedom when two of the degrees are made cyclic. Quaternions are used to avoid the gimbal lock problem that occurs when a degree of freedom is lost due to a degeneracy when using these quantities. These quantities are defined relative to the nodal plane, the vertical, and the horizontal plane. For 10 points, identify these quantities used to represent rotations of a rigid body such that any rotation can be expressed as a rotation by one of these quantities.**

ANSWER: Euler angles [do not accept “Euler axes”]

**18. In Ainu myth, the blood-thirsty demoness Kenash Unarabe is invoked during this action. This process is governed by the Filipino deity Idiyanale and the Mayan deity Ixchel. Hindus believe that those who die from it return as *churel*. Ruddedet is aided in this action by Heqet, Meskhenet, Nephtys and Isis. In Aztec religion, those who die performing this action are referred to as Cihuateteo and travel east-to-west through Mictlan. Zal summons the (\*) Simurgh to assist Rudaba with this action. While performing this action, Rhea presses down on the earth to create the Dactyls. Roman deities propitiated for this event include Egeria, Levana, and Lucina. Hera squats with her legs and arms crossed to prevent Alcmene from doing it. For 10 points, Eileithyia was the Greek goddess of what sacred process involving delivery of a baby.**

ANSWER: Childbirth or labor [prompt on fertility or pregnancy]

**19. In one work by this author, three of the title characters named Lunardo, Simon, and Canciano are chewed out by a woman named Felice, who exhorts them to love, but not to tyrannize their wives. In another of this author's works, Madame Delancour intercedes with the title character, Gernote, to the effect that the latter sanctions his niece's Angelique's marriage to Valere. In addition to writing *The Boors* and *The Beneficent Bear*, this author also wrote a play in which one of the title conflicts is set off when Toffolo gives Lucietta some roast pumpkin; (\*) that play, featuring conflicts between Titta-Nanne and Lucietta as well as Beppo and Toffolo, was favorably reviewed by this author's contemporary Goethe, and was called *The Chioggian Brawls*. In this writer's most famous play, the title character rejects the Cavalier di Ripafratta, the Marquis di Forlipopoli, and the Count d'Albafiorita in favor of the servant Fabricius. For 10 points, identify this Italian playwright who wrote of the courting of Mirandolina in his *The Mistress of the Inn*.**

ANSWER: Carlo **Goldoni**

**20. Sperber and Kim proposed the use of a simple metric for evaluating models of this phenomenon which examines the lag correlation structure of the two principal components extracted from bandpass-filtered outgoing longwave radiation data. This phenomenon is sometimes confused with synoptic-scale westerly wind bursts, and its interaction with oceanic water results in the fluctuation of the temperature of the mixed layer. (\*) This phenomenon consists of an "active" phase and a "suppressed" phase, which are connected by zonal circulations. This phenomenon is thought to occur due to equatorially trapped Kelvin and Rossby waves in the troposphere, which couple to deep atmospheric convection, resulting in an eastward moving wind system that strongly influences the monsoon cycle. For 10 points, identify this tropical disturbance that moves east around the tropics with a 30 to 60 day cycle named for its two discoverers.**

ANSWER: **Madden-Julian** oscillation [accept **MJO** or **30-60 day** oscillation before mention or **intraseasonal** oscillation]

1. One story in this book follows Bamsi Beyrek, who wins an archery contest against his deceitful rival Yaltajuk in order to marry Chichek. For 10 points each:

[10] Name this medieval epic of the Oghuz peoples, which consists of 12 stories linked by the presence of the title character, a wise old man who helps its characters solve their problems.

ANSWER: *The Book of **Dede Korkut*** [or *Kitab-i **Dede Qorqud***]

[10] One story in *The Book of Dede Korkut* follows Basat, who kills Tepegöz, a giant with this feature. That story is strikingly similar to an episode in *The Odyssey* in which Odysseus sharpens a wooden stake to attack a giant with this prominent feature.

ANSWER: having **one eye** [or **being a cyclops**]

[10] This term refers to the classical tradition of poetry in the Ottoman Empire. Authors like Fuzuli and Nedim wrote in this style, whose name is the Arabic and Persian word for a collection of poetry.

ANSWER: **divan** poetry [or **diwan** poetry]

2. This philosopher argued for “The Normativity of Instrumental Reason,” in the first chapter of her book, *The Constitution of Agency*. For 10 points each:

[10] Identify this philosopher of ethics at Harvard whose 1992 Tanner Lectures were collected in *The Sources of Normativity*. She also wrote *Self-Constitution: Agency, Identity, and Integrity*.

ANSWER: Christine **Korsgaard**

[10] Christine Korsgaard is considered one of the foremost interpreters of the work of this deontologist, who proposed the categorical imperative in his *The Grounding of the Metaphysics of Morals*.

ANSWER: Immanuel **Kant**

[10] Korsgaard’s paper “Personal Identity and the Unity of Agency,” a response to this philosopher, criticizes his use of “Relation R” as a criterion for identity. This philosopher combined Kantianism, utilitarianism, and contractarianism into what he called the “Triple Theory” in his latest book, *On What Matters*.

ANSWER: Derek **Parfit**

3. John M. Frame is an important modern interpreter of this man’s work, and this man synthesized the thought of his teacher Abraham Kuyper with rival BB Warfield. For 10 points each:

[10] Name this theologian who developed a version of Kant’s transcendental argument for the existence of God.

ANSWER: Cornelius **van Til**

[10] Van til originated this particularly vapid form of Christian apologetics, which insists that without God, no rational thought or knowledge is possible; therefore, any knowledge claim necessarily implies the existence of God.

ANSWER: **presuppositionalism**

[10] Van Til was a particularly scathing critic of this theologian and leader of the Confessing Church, who wrote a gigantic work of theology called *Church Dogmatics*.

ANSWER: Karl **Barth**

4. This test is often performed poorly by those with frontal lobe damage, esp to the dorsolateral prefrontal cortex, and it was developed by David Grant and Esta Berg. For 10 points each:

[10] Name this neuropsychological test in which objects can be matched using color, shape, or number, but one isn’t told what rule is used.

ANSWER: **Wisconsin Card Sorting Task**

[10] The WCST is often used to diagnose dysfunction of this faculty, which is the ability to regulate and manage cognitive processes

ANSWER: **executive** dysfunction

[10] Another test which is often done with shifting the rules is this one, in which color words in a different font color are displayed to the viewer, who is then asked to either say the word or the color of the word.

ANSWER: **Stroop** test

5. If the symmetry related to this quantity were exact, then the proton and the neutron would have the same mass. For 10 points each:

[10] Identify this quantity that is conserved in strong interactions and treats the proton and neutron as two states of a single nucleonic particle. Its symmetry group is SU(2).

ANSWER: **isospin**

[10] This interaction breaks the isospin symmetry; it is modeled by the U(1) symmetry group and its gauge boson is the photon.

ANSWER: **electromagnetism** [accept word forms]

[10] The third component of the isospin can be written via the Gell-Mann-Nishijima formula as the difference between the charge and one-half of the quantity baryon number plus *this* quantity.

ANSWER: **strangeness**

6. Along with the *Wall Street Journal*, this organization publishes an annual Index of Economic Freedom. For 10 points each:

[10] Name this conservative think tank, which provided many of the ideas for the 1994 Republican “Contract with America.” While working there, Stuart Butler proposed an individual mandate for health care similar to the one included in the Affordable Care Act.

ANSWER: the **Heritage Foundation**

[10] In 2013, this South Carolina politician resigned his seat in the Senate to become president of the Heritage Foundation. He had previously founded the Senate Conservatives Fund.

ANSWER: Jim **DeMint**

[10] Under DeMint’s presidency, the Heritage Foundation has been increasingly dominated by this man, who leads its political arm, Heritage Action. He pressured Republicans to vote against fully funding the government in an effort to defund Obamacare, a major cause of the October 2013 federal government shutdown.

ANSWER: Michael **Needham**

7. Robert Smirke designed the main facade of this building, whose Great Court features a round Reading Room. For 10 points each:

[10] Name this London building whose collections include the Rosetta Stone and the Elgin Marbles.

ANSWER: the **British Museum**

[10] The British Museum displays this piece of Roman cameo glass, which is dark blue and depicts a series of white figures around its base. Josiah Wedgwood produced popular copies of it made of jasperware.

ANSWER: **Portland vase** [or the **Barberini vase**]

[10] Sir Harry Rawson led a punitive 1897 expedition which looted this African kingdom and brought its art to Europe. The British Museum displays many bronzes which originally decorated the palace of this kingdom’s Oba.

ANSWER: **Benin**

8. An anonymous painting of *Diana the Huntress* probably made here was once attributed to Luca Penni. For 10 points each:

[10] Name this palace where Rosso Fiorentino worked after fleeing the 1527 Sack of Rome. He decorated it with the assistance of Francesco Primaticcio.

ANSWER: Palace of **Fontainebleau**

[10] The First School of Fontainebleau brought this style to France. Its champions include Parmigianino and Bronzino, and it was characterized by exaggerated musculature and elongated human features.

ANSWER: **mannerism**

[10] Before he left Rome, Rosso painted this work, now at the Boston MFA, in which a completely nude Jesus is rendered with a hint of sexuality as one of the title characters caresses the wound in his side.

ANSWER: **Dead Christ with the Angels**

9. A form of imaging named for this phenomenon can be used to determine the For 10 points each:

[10] Name this effect in which one atom collides with a solid, violently tearing away the bonding electrons in the solid. The charged components of the solid then move apart under electrostatic repulsion.

ANSWER: **Coulomb explosion**

[10] One method of inducing the Coulomb explosion effect is to use these devices, which are also used in pump-probe spectroscopy.

ANSWER: **femtosecond lasers** [prompt on “lasers” or “really fast lasers” or “ultrafast lasers” or “ultrashort pulse lasers”]

[10] The Coulomb explosion imaging technique was applied to determine the configuration of a chiral example of this functional group. Stereoselectivity in Sharpless' method of synthesizing this functional group is accomplished by using either S,S or R,R tartrate esters.

ANSWER: **epoxide**

10. The ceremonial complex excavated at the Ness of Brodgar is a notable archaeological site containing the artefacts of this culture. For 10 points each:

[10] Identify this Neolithic culture that dominated the area of modern-day Scotland and whose name derives from the distinctive pottery it created.

ANSWER: **grooved ware** culture

[10] This is probably the most famous site of the grooved ware culture, a buried village in the Orkneys that was discovered by William Watt after being exposed during a storm.

ANSWER: **Skara Brae**

[10] A road may have connected Skara Brae to Maeshowe, the most notable example of this type of Neolithic construction in Scotland. Constructions of this type were typically marked by cairns, and mainland examples include the *tholos* of Mycenae.

ANSWER: **tomb** or **grave**

11. This general failed to convince Napoleon to take a more southern route during his invasion of Russia and commanded the V Corps at Borodino. For 10 points each:

[10] Identify this military leader who had previously unsuccessfully fought for his uncle to defend the May 3 Constitution, and who rose to become the only foreigner made Marshal of France by Napoleon.

ANSWER: Prince Jozef Antoni **Poniatowski**

[10] Poniatowski was killed while retreating at the end of this disastrous 1813 defeat for Napoleon. This battle, taking place in Saxony, involved over 600,000 troops and was sometimes called "the Battle of the Nations."

ANSWER: Battle of **Leipzig**

[10] Poniatowski became a national hero due to his victories over the Austrians in the Austro-Polish war of 1809, which itself was a small part of this larger conflict, which ended the same year when Napoleon smashed the Austrians at Wagram and forced the signing of the Treaty of Schonbrunn.

ANSWER: War of the **Fifth Coalition**

12. The main character of this poem is eventually found lying half-buried in the snow at the St. Bernard Pass. For 10 points each:

[10] Name this poem, in which a youth climbs an Alpine mountain while carrying a banner with a "strange device," which is emblazoned with the title Latin word.

ANSWER: **"Excelsior"**

[10] "Excelsior" was written by this American poet of "The Courtship of Miles Standish" and "The Children's Hour."

ANSWER: Henry Wadsworth **Longfellow**

[10] In this author's parody of "Excelsior," the banner instead advertises "Mrs. Winslow's soothing syrup." The speaker curses "whatever brute and blackguard made the world" in a poem from his 1922 collection *Last Poems*, which begins with the poem "We'll to the woods no more."

ANSWER: Alfred Edward (A. E.) **Housman**

13. This structure is home to most of the stars in the solar neighborhood younger than 60 million years, and forms a flattened disk about 700 parsec in size. For 10 points each:

[10] Identify this structure which is home to many stars of types O and B, and is useful for studying stellar evolution. It is named after an American astronomer.

ANSWER: **Gould Belt**

[10] The study of the kinematics of stars within the Gould Belt has been greatly aided by the measurements taken by this satellite mission, which has collected a high-accuracy catalog of positions, distances, and motions for about 120,000 stars.

ANSWER: **Hipparcos** mission or satellite

[10] A peculiar feature of the Gould Belt is its 20-degree angle to this imaginary construct, which passes through the arms of the Milky Way, defining a sort of "horizontal" position.



ANSWER: galactic plane

14. For 10 points each, answer the following about the *Edinburgh Review*.

[10] This cofounder of the *Edinburgh Review* was instrumental in passing the Great Reform Act of 1832 as Lord Chancellor under Earl Grey. He rose to prominence as a lawyer who defended Queen Caroline against George IV in an 1820 trial, and designed a namesake type of four-wheeled carriage.

ANSWER: Henry Brougham

[10] For the *Edinburgh Review*, Brougham wrote a scathing review of this poet's collection *Hours of Idleness*, inspiring his satire "English Bards and Scotch Reviewers." His later poetry includes *Childe Harold's Pilgrimage*.

ANSWER: Lord Byron

[10] Another cofounder of the *Edinburgh Review* was this preacher, a celebrated wit who campaigned for Catholic emancipation in such works as *Peter Plymley's Letters*. In his review of Adam Seybert's *Annals of the United States*, he famously asked "Who reads an American book?"

ANSWER: Sydney Smith

15. The wreckage of this vessel is a popular dive site near West Island of the Three Kings group. For 10 points each:  
[10] Name this ship which departed from Sydney in November 1902 and ran aground in the fog before reaching its destination of Auckland with a cargo of 6000 gold half-sovereigns.

ANSWER: SS Elingamite

[10] The Elingamite disaster took place during the thirteen-year premiership of this New Zealand Liberal Party leader, known as "King Dick." He oversaw the introduction of the Old Age Pensions system and unsuccessfully pushed to annex Fiji and Samoa.

ANSWER: Richard Seddon

[10] Richard Seddon express his Maori policy in a slogan contrasting the Gatling gun with this important nineteenth-century invention, which ran on steam and was invented by George Stephenson.

ANSWER: locomotives [prompt on trains or synonyms]

16. These proteins can work with co-activators or c-repressors, and the "generalized" type of them assemble a complex found at the TATA box. For 10 points each:

[10] Name these proteins that bind to DNA to induce RNA synthesis. They can participate in the recruitment of RNA polymerase or histone acetyltransferases.

ANSWER: transcription factors [or TF]

[10] Transcription factor binding sites bind to these degenerate sequences, which can be written using a logo notation in which the size of a letter tells you how often that base appears at the binding site. For myc, this sequence is CANNTG.

ANSWER: consensus sequence

[10] This DNA binding domain is found in the SRY transcription factor responsible for sex determination. It unusually allows for the bending and changing of confirmation of chromatin.

ANSWER: HMG-box [or high-mobility-group box]

17. At the end of this play, Cleonte disguises himself as a Turkish prince in order to marry Lucille. For 10 points each:

[10] Name this comedy about Monsieur Jourdain, the son of a cloth merchant who aspires to join the aristocracy.

ANSWER: *The Bourgeois Gentleman* [or *The Would-Be Gentleman*; or *The Middle-Class Gentleman*; or *Le Bourgeois Gentilhomme*]

[10] *The Bourgeois Gentleman* was written by this French playwright of *The School for Husbands* and *The School for Wives*,

ANSWER: Moliere [or Jean-Baptiste Poquelin]

[10] In the second act of *The Bourgeois Gentleman*, Monsieur Jourdain has a famous exchange with his philosophy master, in which he's surprised to learn that he's unknowingly been speaking this kind of language his entire life.

ANSWER: prose

18. For 10 points each, answer the following about Irish folk songs.

[10] Frederic Weatherly wrote this folk ballad, which is usually set to the traditional “Londonderry Air.” Its lyrics state “the pipes, the pipes are calling / From glen to glen, and down the mountainside.”

ANSWER: “**Danny Boy**”

[10] This traditional drinking song is narrated by a highwayman who steals money from Captain Farrell, only to be betrayed by his lover, who is called Jenny in the version recorded by The Dubliners. Its chorus repeats “whack fol de daddy-o” before the title four-word phrase.

ANSWER: “**Whiskey in the Jar**”

[10] A whole lot of Irish folk songs were written about this conflict, including “The Boys of Wexford” and “The Rising of the Moon.” The political suppression following this conflict is described in the folk song “The Wearing of the Green.”

ANSWER: **Rebellion of 1798** [or **Wolfe Tone’s Rebellion**; or the **United Irishmen Rebellion**]

19. This thinker summarized and synthesized his views in the musical treatise *Free Composition*.

For 10 points each:

[10] Name this German music theorist whose namesake analysis examines tonal music in terms of elaboration and prolongation of a fundamental structure or “Ursatz.”

ANSWER: Heinrich **Schenker**

[10] This competing music theorist, who Schenker considered his chief rival, analyzed tonality in terms of the fundamental “dualism” between major and minor. He outlined his theories in the book *Harmony Simplified*.

ANSWER: Hugo **Riemann**

[10] Even before publishing his theories of the Ursatz, Schenker had already examined large-scale tonal structures in his early monograph on this piece, which uses trombones to reinforce Friedrich Schiller’s lyrics “Seid umschlügen, Millionen!”

ANSWER: Ludwig van **Beethoven**’s **Ninth Symphony** [or the **Choral Symphony**]

20. Heracles gifted this creature to the Argive king Adrastus. For 10 points each:

[10] Name this divine horse, capable of human speech, that was sired while his mother grazed with the herds of Onkus. A poet with the same name was kidnapped by pirates and rescued by dolphins.

ANSWER: **Arion**

[10] While grieving the loss of her daughter Persephone, this goddess turned into a horse and was mounted by Poseidon.

ANSWER: **Demeter**

[10] Onkus bequeathed Arion to this son of his. Another figure with this name was a son of Pelops and Hippodamia who murdered Iphitus and fled to Eurystheus’s court where he was purified and became the king’s herald.

ANSWER: **Copreus**