

1. One place of this name was home to a nymph named Adrasteia and her sister. The Curetes danced and made loud warlike noises in one location of this name. A golden cloud atop a place of this name hides Hera's seduction of Zeus midway through the *Iliad*; that place of this name contains the headwaters of the Scamander river and the spot where a god disguised as an eagle abducted Ganymede. A cave in a more southerly place of this name was home to the goat Amalthea and a horn of plenty, which fed a hidden child of Rhea. For 10 points, give this name shared by a mountain near Troy and the mountain on Crete where baby Zeus was raised.

ANSWER: Mount **Ida** [accept Cretan **Ida**; accept Phrygian **Ida**; accept any answer indicating a cave on Mount **Ida** until "cloud" is read; prompt on **Crete** until "seduction" is read]

2. This event was exposed by a Kentucky newspaper called the *Western World*. Its leaders used as a headquarters an island on the Ohio River owned by Harman Blennerhassett. This scheme's leader obtained funding from Carlos Martinez de Irujo y Tacon, a Spanish minister. While its leader had early charges dismissed thanks to lawyer Henry Clay, that man eventually faced federal charges in a trial supervised by Chief Justice John Marshall. This plot was exposed by General James Wilkinson, who sent a letter to President Thomas Jefferson revealing the perfidy of his former Vice President. For 10 points, name this 19th century conspiracy to create an independent nation in the American Southwest, a scheme led by the killer of Alexander Hamilton.

ANSWER: The Aaron **Burr** plot

3. Two sets of these images by this artist were accompanied by Neo-Latin verses penned by Benedict Chelidonius. One of these artworks, which amusingly contains a waterspout with a rooster on the handle, a flute player, and a beer drinker, is titled *The Men's Bath House*. The creator of these artworks sued Marcantonio Raimondi for ripping them off and using the artist's signature. Most of these artworks by this artist appear in series such as the *Great Passion* and the *Little Passion*. A bow and empty scales are carried by Pestilence and Famine in the most famous of them. For 10 points, name these images, such as *The Four Horsemen of the Apocalypse*, that were carved onto plant tissue by the Renaissance German artist of *Melancholia I*.

ANSWER: Albrecht **Dürer's woodcuts** [prompt on **woodcuts**; prompt on Dürer's **prints**]

4. This philosopher describes memory as the result of successive abstractions from the "rinds" of a perceived object. A school of thought based on this man's ideas was attacked in *On the Unity of Intellect* by Thomas Aquinas. Siger of Brabant was a proponent of the "monopsychist" school based on this man's thought, which advocated "double truth." This man's most famous work begins with four proofs of the pre-existence of the world. This philosopher wrote Middle and Long Commentaries on Plato's *Republic* and many of Aristotle's treatises, for which he was dubbed "The Commentator." He responded to al-Ghazali's *The Incoherence of the Philosophers* in his *The Incoherence of the Incoherence*. For 10 points, name this Islamic philosopher from Cordoba.

ANSWER: **Averroes** [or **Ibn Rushd**]

5. Charles McEwen Hyde wrote that the most notable resident of this island was "a coarse dirty man," which prompted a literary rebuttal from Robert Louis Stevenson. Jack London wrote that this island was an "accident of fate," but that he did not need to wear "long gauntleted gloves" while visiting this island. It is the only site in the United States where two Roman Catholic saints resided for a significant period of time. A historical park on this island contains a facility whose residents were advocated for by local celebrity Don Ho. This island's colony of Kalaupapa was where the saints Marianne Cope and Father Damien attended the ill for many years. For 10 points, name this Hawaiian island best known for once having a leper colony located on it.

ANSWER: **Molokai**

6. A female addressee in this poem is told, "Nay, smile not at my sullen brow, Alas! I cannot smile again." Alphonse de Lamartine, dissatisfied with this poem's conclusion, published a "last stanza" for it. This poem describes a place with "society, where none intrudes," which incites the speaker to rhapsodize, "I love not Man the less, but Nature more," in its "Apostrophe to the Ocean." This poem's author, who is essentially indistinguishable from the title character, provides a description of a Spanish bullfight and being shipwrecked in Albania, and its fourth canto describes tours through Ferrara, Florence, and Rome. For 10 points, name this long narrative poem ostensibly about a young noble's travels through Europe, written by Lord Byron.

ANSWER: **Childe Harold's Pilgrimage**

7. This was the name of a city that rose to power by dominating trade along the Klyazma River after its prince Andrew the Pious burnt down Kiev. A grand prince of this name, who recounted killing 200 princes of the Cumans in his *Testament*, adapted his epithet from his grandfather Constantine IX Monomachus. The father of Boris and Gleb, who bore this name, ordered a mass baptism in the Dnieper River to inaugurate the Christianization of Kievan Rus. A more notable ruler with this first name jailed the president of Yukos, Mikhail Khodorkovsky, during a protracted struggle with Russia's "oligarchs." For 10 points, give the first name of the current president of Russia.

ANSWER: **Vladimir** [or **Vladimir** II Monomakh; or **Vladimir** I; or **Vladimir**-Suzdal; or **Vladimir** Putin]

8. In a Butcher tableau, this method is diagrammed with zeroes in the top row and a one in the bottom right. The first step of the Adams-Bashforth methods use this procedure. Huen's method is a variant on this procedure though his method's error scales with the interval cubed while this one scales with the interval squared. Implicit versions of this method and its variations are used for stiff equations. It is a first-order Runge-Kutta method. It corresponds to truncating the function's Taylor series to two terms, so the function evaluated at $x + \Delta x$ is equal to its value at x , plus Δx times the derivative at x . For 10 points, name this method of numerically approximating ODE solutions by approximating the function as linear over small intervals, that is named for a Swiss mathematician.

ANSWER: **Euler's** method [prompt on **Runge-Kutta** methods until it is read]

9. Hirofumi Uzawa proved that for a specific model of this phenomenon to hold, technology must be Harrod neutral, or labor augmenting. The AK model of it violates one of the "stylized facts" summarized by Nicholas Kaldor. Oded Galor's unified theory of this phenomenon seeks to explain how humans escaped the Malthusian trap. Thomas Piketty argued the return to capital is almost always greater than the rate of this phenomenon in *Capital in the 21st Century*, leading to stored wealth increasing relative to national income. The savings rate is taken as fixed in an exogenous model of this, and that model also predicts eventual convergence of this phenomenon's rate. For 10 points, name this phenomenon modeled by Robert Solow, the increasing economic output over time.

ANSWER: economic **growth**

10. The eastern portion of this building includes limewood paneling incorporating a rocket, as well as the names of 28,000 deceased American soldiers. A continuous peristyle lies below the Stone Gallery surrounding this building's dome. Above the keystones of this building's interior arches is the "Whispering Gallery," which produces unusual acoustics. Herbert Mason's photograph demonstrating that this building "Survives" became a symbol of resilience during the Blitz. Tombs in this building include John Donne's and that of the architect himself, above which is written in Latin "Reader, if you seek his monument, look around you." For 10 points, name this cathedral that was redesigned after the Great Fire of London by Sir Christopher Wren.

ANSWER: **St. Paul's** Cathedral [or Cathedral Church of **St. Paul** the Apostle]

11. At the end of this war, deserters unsuccessfully tried to find refuge in the temple of Eshmun in the citadel of Byrsa. The winning commander quoted Homer by saying "A day will come when sacred Troy shall perish" while watching the slaughter that ended this war. At its conclusion, Hasdrubal prayed for mercy, while his wife threw herself into a fire. After this war, a city was legendarily sown with salt by the conquering forces of Scipio Aemilianus, who then took over such cities as Mauretania. It was instigated partly because Cato the Elder continually proclaimed a certain city must be destroyed. For 10 points, name this war which ended with the complete destruction of Carthage by Rome.

ANSWER: **Third Punic** War [or **Tercium** Bellum **Punicum**]

12. The orphan drug tetrabenazine can be used to control this disorder, which can be pathologically classified using the Vonsattel grading system. Nancy Wexler discovered the cause of this disease by linkage analysis. The protein mutated in this disorder is SUMOylated by the Rhes protein and binds to HIP1 to mediate clathrin-driven endocytosis. This disease is characterized by selective loss of GABAergic neurons in the striatum. This disease is caused by an expansion of CAG repeats on chromosome four and is inherited in an autosomal dominant fashion. For 10 points, name this neurological genetic disease which usually manifests by age 40 and causes jerky, uncontrolled movements.

ANSWER: **Huntington's** disease

13. The processes that gave rise to the Laramide orogeny can be studied using this present-day plate because it is unusually undergoing flat-slab, or shallow angle, subduction. A very unusual triple junction arises due to the fact that this plate is diverging from the Antarctic plate, forming a mid-ocean ridge that is being subducted. This plate's northern border with the Cocos plate, with which it is part of a triple junction, includes a mysterious "gore" in which the Galápagos Islands lie. Its subduction is responsible for the Andean orogeny. For 10 points, name this eastern Pacific plate that is being subducted by the South American plate and is named for a region in Peru.

ANSWER: **Nazca** plate

14. This city's namesake "great gun," a gigantic cannon, was melted down to raise money by the modernizing Lord William Bentinck. Jean Baptiste Tavernier visited this city in 1665, spreading the rumor that there was a mythical "black" structure across the Yamuna River. The most famous structure here was created after the birth of Gauhara Begum. Founded by Sikandar Lodi, it was where Aurangzeb placed his father in house arrest. This city is the home of the Sikandra, the tomb of Akbar the Great. It is also home to the Red Fort and a mausoleum dedicated to Mumtaz Mahal, the wife of Shah Jahan. For 10 points, name this city in India where the Taj Mahal is.

ANSWER: **Agra**

15. A closed-cycle, regenerative form of this device that has an ideal theoretical efficiency uses a compressor piston and a displacer, as well as an inert gas, and is based on the Stirling cycle. Another type of this device uses phase separation between a concentrated helium-3-rich phase floating on top of a dilute helium-4-rich phase for operation. The coefficient of performance for these devices is equal to $Q_{\text{sub-C}} / (Q_{\text{sub-H}} + Q_{\text{sub-C}})$. Szilard and Einstein designed an absorption type of these devices with no moving parts. Most modern types of these devices use a vapor-compression cycle and a circulating fluid, being essentially a heat pump that transfer heats from objects to the surrounding. For 10 points, name these devices that keep their contents cool.

ANSWER: cryo**refrigerator** [or cryogenic **freezer**; or **air conditioner**; or cryo**cooler** until "cool" is read; or obvious equivalents; prompt on heat **pump** or heat **engine**]

16. A piece in this style is based on a cycle of eleven chords and features a secondary rhythm kept by the human breath of the voices and winds. One of the first pieces in this style requires its performer, "traditionally...a beautiful girl," to arbitrarily play fifty-three phrases of repeated eighth notes. As music critic for *The Spectator*, Michael Nyman coined the name for this style. Henryk Gorecki and tintinnabulation-enthusiast Arvo Part are the foremost exponents of its "holy" or "sacred" type. This style, which was first used by La Monte Young, is better exemplified by *Music for 18 Musicians* and *In C* by Steve Reich and Terry Riley. For 10 points, name this simple, repetitive musical style favored by John Adams and Philip Glass.

ANSWER: **minimalism** [or **minimal** music]

17. A character in this play tells a story about someone being kicked in the head by a red mare but who resists dying for some time afterwards. In its final scene, Shawn is hit by a female character, who rejects his offer to have Father Reilly marry them. In this play, the main character wins a donkey race using the slowest animal, impressing such women as the barmaid Pegeen. The protagonist tells the denizens of Flaherty's tavern that he has murdered his father, which at first brings him praise and then scorn. During its 1907 premiere, this play caused riots at Dublin's Abbey Theatre. For 10 points, name this John Millington Synge play about Christy Mahon.

ANSWER: *The Playboy of the Western World*

18. This is the occupation held by a man who sends servants to the house of Simon the tanner in Joppa. A man in this position states "I do not deserve to have you come under my roof" and explains that he says "Do this" to his obedient servant. In Matthew 8, Jesus heals the servant of one of these men in Capernaum, saying there is no one in Israel with such great faith as that man. After seeing a vision of a sheet being lowered from Heaven containing "unclean" animals, Peter meets one of these men named Cornelius, which symbolically opens up the Gospel to the Gentiles. According to the Gospel of a Mark, a man in this position says "Surely this man was the son of God!" after seeing how Jesus died. For 10 points, name this occupation which is held by various Roman military men in the New Testament.

ANSWER: centurion [or centurio; or hekatonarch; prompt on soldier or officer]

19. The title woman of a poem by this author asks, "Is this what you call making me comfortable?" as she is lifted into an ambulance, after which she says, "What are all those fuzzy looking things out there? Trees? Well, I'm tired of them." This poet of "The Last Words of My English Grandmother" was parodied in a Kenneth Koch poem describing the chopping down of a house titled "Variations on a Theme by" this author. His poem set "by the road to the contagious hospital" opens the collection *Spring and All*, and he described fruit that was "delicious so sweet and so cold" in his poem "This Is Just to Say." For 10 points, name this poet who wrote, "so much depends upon a red wheel barrow."

ANSWER: William Carlos Williams

20. This man wrote an original Greek-style tragedy which opens as the ghost of Tantalus speaks to a Fury and involves the title member of the house of Atreus eating his children. He also wrote a satire in which Heracles defends a stuttering man in a trial before the gods, though that emperor is sentenced to play dice forever with a bottomless cup. This author of *Thyestes* and *The Pumpkinification of Claudius* killed himself in the same year as Petronius and Lucan, after his student accused him of a role in the Pisonian conspiracy against the emperor's life. For 10 points, name this Stoic philosopher who served as tutor and literary advisor to the emperor Nero.

ANSWER: Seneca the Younger [or Lucius Annaeus Seneca the Younger]

21. A prominent philosopher and statesman of this ethnicity, J. V. Snellman, often had his nationalistic work shut down. The Bible was translated into this ethnicity's language by the Lutheran bishop Mikael Agricola. The February Manifesto weakened the power of this ethnic group, whose land was occupied in the "Lesser Wrath," or *Pikkuviha*, following the War of the Hats. In 1809, this ethnic group was placed under a "Grand Duchy," whose first capital was Turku, under Tsar Alexander I of Russia. For 10 points, name these people whose nationalist sentiment grew after Elias Lonnrot collected its folk tales into the epic poem *Kalevala*.

ANSWER: **Finns** [or **Finnish** people; or **Finlanders**; or **Suomi**]

22. Sir Joseph Dalton Hooker at first claimed himself the victor in this event, rather than its most notable participant. A participant in this argument asked whether, "if a lantern were offered to [him], [he] should refuse it because it shed an imperfect light." A lady, identified as Lady Brewster, fainted in shock after that participant made the statement that he would be "ashamed to be connected with a man who used great gifts to obscure the truth" in response to a question about whether it was "from [his] grandfather's or grandmother's side that [he] claim[ed] descent from apes." For 10 points, name this 1860 debate between "Soapy Sam" and "Darwin's Bulldog" over a theory of natural selection.

ANSWER: **Wilberforce-Huxley** debate [or **Huxley-Wilberforce** debate; or 1860 **Oxford** debate on **evolution**; prompt on answers mentioning only one of **Wilberforce** or **Huxley**; prompt on answers indicating a debate over **evolution**]

23. A chapter titled for this character notes that, "All that most maddens and torments; all that stirs up the lees of things" were "practically assailable" in him. This character is the cause of "Rachel, weeping for her lost children, because they were not," in another chapter. This character is the hearse "not made by mortal hands." Dr. Bunger and his superior argue about their encounter with this character. Macey is killed by this character, according to Gabriel, who claims that this character is the "Shaker God incarnated." This character only appears in three chapters titled "The Chase." For 10 points, name this character who kills most of the crew of the *Pequod*, a white whale created by Herman Melville.

ANSWER: **Moby-Dick**

1. The title character of this play married a woman named Anna, who converted from Judaism to marry him. For 10 points each:

[10] Name this 1887 play, whose title character is a government bureaucrat whose wife is dying of tuberculosis. It ends abruptly when the title character shoots himself.

ANSWER: **Ivanov**

[10] *Ivanov* was written by this Russian author, who also wrote such plays as *The Seagull* and *The Cherry Orchard*.

ANSWER: Anton **Chekhov**

[10] This Chekhov character, an aspiring writer, shoots himself at the conclusion of *The Seagull*.

ANSWER: **Konstantin** Treplev [or Konstantin **Treplev**]

2. This effect was first observed when changing the lighting levels in a factory boosted production. For 10 points each:

[10] Name this effect which occurs when adjustments in the environment cause workers to change or improve their behaviors, possibly because they are being watched by psychology researchers.

ANSWER: **Hawthorne** effect [prompt on **observer** effect]

[10] The Hawthorne effect is important in this field of psychology, which deals with issues at the workplace. Psychologists that work in human resources department typically have experience in this field of psychology.

ANSWER: **industrial/organizational** psychology [or **I/O** psychology; or **occupational** psychology; prompt on **work** psychology; prompt on partial answer]

[10] I/O psychologists often have to deal with this phenomenon with employees, which can be mediated through coping mechanisms. If this psychological phenomenon is severe enough, it can manifest with physical symptoms; it is measured on the Holmes and Rahe scale.

ANSWER: **stress**

3. This substance is synthesized at rosette terminal complexes, and it consists of D-glucose units condensing to form beta-1,4 glycosidic bonds. For 10 points each:

[10] Name this indigestible polysaccharide that forms the cell walls of plants.

ANSWER: **cellulose**

[10] Cellulose is often used as a stationary phase in this form of chromatography, which is better at separating non-volatile mixtures than paper chromatography.

ANSWER: **thin-layer** chromatography [or **TLC**]

[10] In paper, slide, membrane forms, this derivative of cellulose is commonly used to immobilize nucleic acids in Northern and Southern blots, and proteins in Western blots.

ANSWER: **nitrocellulose** [or **cellulose nitrate**; or **flash paper**; or **flash cotton**; or **guncotton**; or **flash string**]

4. This character was re-interpreted in the person of Antoinette Cosway in Jean Rhys's post-colonial novel *Wide Sargasso Sea*. For 10 points each:

[10] Name this woman who met and quickly married her husband in Jamaica. Usually confined to an attic, her mad acts escalate until she burns down Thornfield Hall.

ANSWER: **Bertha** Mason [or Bertha **Mason**; or **Bertha** Rochester; prompt on **Rochester**]

[10] This governess, a former resident of the Lowood school, cannot marry Edward Rochester as long as Bertha Mason is alive.

ANSWER: **Jane** Eyre [or Jane **Eyre**]

[10] This cousin of Jane Eyre, a resident of Gateshead, treats Jane poorly as a child, though they make up later in life. This girl's much more religious sister Eliza prevents her from eloping.

ANSWER: **Georgiana** Reed [prompt on **Reed**]

5. Name these techniques in optimization, for 10 points each.

[10] When optimizing subject to equality constraints, one popular method is to set the gradient of the function in question equal to one of these constants times the objective function. These constants are usually written as lambda and are named for a French mathematician.

ANSWER: **Lagrange multipliers** [do not accept "Lagrangians"]

[10] A necessary condition for the existence of the Lagrange multipliers is that the gradient of the constraint curve at the extremum must not equal this number. If the Wronskian determinant is not this value, then solutions of a diff. EQ. are linearly independent.

ANSWER: **zero**

[10] The simplex method is used in this field of optimization. In this field, the equations being optimized are polynomials of degree one constrained by several inequalities.

ANSWER: **linear programming**

6. These writings, which include eighteen folios on the flights of birds and a hyper-realistic map of Imola, are divided into codices named for Trivulzianus, Urbinas, Madrid, Leicester, and Arundel. For 10 points each:

[10] Identify these extensive writings that include a scientific study of light on a sphere, a sketch of a giant crossbow, and a schematic for a manned helicopter.

ANSWER: Leonardo **da Vinci's notebooks** [or **da Vinci's manuscripts**; or **da Vinci's notes**; or **da Vinci's sketches**; prompt on **da Vinci's writings** or answers that don't mention notes or manuscripts]

[10] Notes by da Vinci accompany this drawing of his, a superimposition of a man in two positions with his limbs inscribed in a square and a circle. It is named for a Roman architect.

ANSWER: **Vitruvian Man** [or **Canon of Proportions**; or **Proportions of Man**; or **Le Proporzioni del Corpo Umano Secondo Vitruvio**]

[10] Da Vinci's research into the canon of proportions, of which the *Vitruvian Man* was a snapshot, culminated in this pulley-and-cable powered creation for a pageant held by Ludovico Sforza, Duke of Milan.

ANSWER: Leonardo's **robot** [or **robotic knight**; or **mechanical knight**; or **automaton**]

7. This man's *Symphony No. 2* was written in honor of the twenty-fifth anniversary of the Russian Revolution. For 10 points each:

[10] Name this composer of the symphonic suite *Masquerade* as well as the ballets *Spartacus* and *Gayane*.

ANSWER: Aram **Khachaturian**

[10] *Gayane* is best known for containing this playful piece, consisting of a xylophone solo against a string backdrop and occasional trombone slides, that is based on an Armenian folk song.

ANSWER: "**Sabre Dance**" [or "**Suserov Par**"; or "**Tanets s Sablyami**"]

[10] Along with Shostakovich and Myaskovsky, Khachaturian was targeted in the 1948 Zhdanov decree, accusing the aforementioned composers of adhering to this non-Stalinist-approved musical philosophy, in which the structure of pieces determine their meaning.

ANSWER: **formalism** [or word forms]

8. During complex organic synthesis, this property can be preserved by using auxiliaries. For 10 points each:

[10] Identify this property of a molecule which prevents it from becoming superimposable on its mirror image. This property leads to the formation of enantiomers and diastereomers.

ANSWER: **chirality**

[10] In the Cahn-Ingold-Prelog nomenclature, a chiral center is labelled with one of two letters. Name either.

ANSWER: **R** or **S**

[10] A particularly interesting issue in chiral synthesis is the creation of chiral carbons with this property. A carbon is described by this term if it is bonded to four other carbon atoms, and when discussing protein structure, this level of structure corresponds to multiple protein subunits binding together.

ANSWER: **quaternary**

9. Characters created by this playwright include Troy Maxson, a retired baseball player who did time in jail for murder, and Berniece, who refuses to sell a valuable musical instrument. For 10 points each:

[10] Name this playwright whose *The Piano Lesson* and *Fences* are two entries in his ten-play "Pittsburgh Cycle," depicting black life in each decade of the 20th century.

ANSWER: August **Wilson**

[10] Unlike the rest of the cycle, August Wilson set *Ma Rainey's Black Bottom* among blues singers in this city further west. Its "Sexual Perversity" was chronicled by David Mamet.

ANSWER: **Chicago**

[10] This white family owned the black Charles family in the backstory to Wilson's *The Piano Lesson*. Selling the piano would allow the Charles family to buy the land from this family, one of whose members appears as a ghost to play the piano.

ANSWER: **Sutter** family

10. This musician reflected on his staggering eight marriages in his autobiography *The Trouble with Cinderella*. For 10 points each:

[10] Identify this jazz clarinetist who played in combos he called the Gramercy Five. His big band recorded a popular version of Cole Porter's "Begin the Beguine."

ANSWER: Artie **Shaw** [or Arthur Jacob **Arshawsky**]

[10] Shaw's Gramercy Five included Roy Eldridge, who was famed for his use of high registers and general virtuosity on this instrument. This instrument was also played by Wynton Marsalis and Miles Davis.

ANSWER: **trumpet**

[10] Eldridge is often treated as a bridge between the styles of Gillespie and this earlier musician, a man who recorded "Heebie Jeebies" and went by the nicknames Satchmo and Pops.

ANSWER: Louis **Armstrong**

11. In 1897, this man became secretary of state of the Imperial Navy Department. For 10 points each:

[10] Name this German grand admiral who was the chief architect of the German Navy's buildup in the years before World War I.

ANSWER: Alfred von **Tirpitz**

[10] During World War I, Tirpitz advocated the policy of unrestricted submarine warfare, which culminated in the 1915 sinking of this British ocean liner, resulting in the death of 1,198 of its passengers.

ANSWER: RMS **Lusitania**

[10] In this major naval battle of World War I, Admiral John Jellicoe won a tactical victory over the German navy.

ANSWER: Battle of **Jutland** [or Battle of the **Skaggerak**]

12. Adam Smith critiqued this ideology, which was summarized in Philipp von Hörnigk's treatise *Austria Over All If She Only Will*. For 10 points each:

[10] Name this dominant economic theory in early modern Europe, which advocated high tariffs, an export-heavy or "favorable" balance of trade, and the import of gold and silver bullion.

ANSWER: **mercantilism** [or the **mercantile** system]

[10] This finance minister to Louis XIV of France advanced mercantilist policies after Nicolas Fouquet fell from grace.

ANSWER: Jean-Baptiste **Colbert**

[10] The implementer of mercantilism in Sweden, Queen Christina, scandalized Europe by abdicating in tandem with performing this action, which led her to move South.

ANSWER: **converting to Catholicism** [or equivalent]

13. This man helped draft California's state constitution in his role as military secretary of state, and he translated Jomini's *History of Napoleon*, which was read by pretty much every Civil War general. For 10 points each:

[10] Name this general, nicknamed "Old Brains," an inept General-in-Chief who allowed PGT Beauregard to withdraw at the Battle of Corinth.

ANSWER: Henry Wager **Halleck**

[10] Halleck was deemed "the most hopelessly stupid of all men in high position" by this commander of the Army of the Potomac, who was also General-in-Chief. He lost the 1864 presidential election.

ANSWER: George Brinton **McClellan**

[10] For four months between the terms of McClellan and Halleck, this man served as direct commander of all Union armies. He first saw battle as a volunteer in the Illinois Militia during the Black Hawk War.

ANSWER: Abraham **Lincoln**

14. In 2014, a chemical leak in this state contaminated the Elk River, a tributary of the Kanawha, and forced residents of Charleston to import bottled water. For 10 points each:

[10] Name this Appalachian mountain state.

ANSWER: **West Virginia**

[10] This type of mining has drastically altered West Virginia's landscape in the past half-century. This method uses dynamite to expose coal, blowing off large amounts of land which are then filled into valleys.

ANSWER: **mountaintop removal** mining [prompt on **surface** mining]

[10] This fast-growing vine with threefold leaflets, an invasive species from China, is spreading in West Virginia as it is across the American South. It can smother entire trees.

ANSWER: **kudzu** [or **Pueraria montana**]

15. This activity is performed by those who perform an "aliyah," and it is traditional that the first person called to do this be a Cohen. For 10 points each:

[10] Identify this central activity of the Saturday morning service in a Jewish congregation.

ANSWER: **reading** from the **Torah**

[10] In modern synagogues, this raised area at the front of the congregation is home to the ark where the Torah is stored and the podium from which it is read.

ANSWER: the **bimah**

[10] On Shabbat, the Torah service comes between *shacharit* and this segment of the service, whose Hebrew name means "additional." It often ends with the Aleinu and Adon Olam prayers.

ANSWER: **Musaf** service

16. This man was sent to London on an education scholarship by the Umuofia Progressive Union, and returned to Lagos after getting a degree in English. For 10 points each:

[10] Name this man, a fictional Nigerian who is arrested on bribery charges after he persuades his lover Clara Okeke to get an abortion.

ANSWER: **Obi** Okonkwo [prompt on **Okonkwo**]

[10] This Nigerian author of *No Longer at Ease* wrote about Obi's grandfather Okonkwo in *Things Fall Apart*.

ANSWER: Chinua **Achebe**

[10] In this other postcolonial novel by Sudanese author Tayeb Salih, Mustafa Sa'eed recounts how his Western education in London led into racially-charged seductions of white women.

ANSWER: *Season of Migration to the North* [or *Mawsim al-Hi'ra'il ash-Sham'i*]

17. Tuned mass dampers are a way of cutting down on this effect, and this effect being driven by a vortex street was responsible for the Tacoma Narrows Bridge disaster. For 10 points each:

[10] Name this phenomenon that occurs when a system is driven periodically at its natural frequency. It occurs at normal modes.

ANSWER: resonance

[10] Resonance typically occurs when this parameter is significantly less than one. It is typically represented by zeta.

ANSWER: damping ratio [or damping parameter]

[10] When zeta is much less than one, this technique is used to define the rate at which the amplitude of a system decreases. It involves taking the namesake operation on the ratio of two successive amplitudes.

ANSWER: natural logarithm decrement

18. In 1644, the Manchus held sacrifices here to usher in the reign of the Shunzhi Emperor. For 10 points each:

[10] Name this temple complex in Beijing, centered on the circular hall with three blue gabled roofs. Emperors would perform annual sacrifices on a three-tiered marble platform here called the Circular Mound Altar.

ANSWER: Temple of Heaven [or Altar of Heaven; or Tiantan]

[10] The Temple of Heaven was constructed by this dynasty's Yongle Emperor. This dynasty was defeated by the Manchus.

ANSWER: Ming dynasty

[10] The Ming also built thirteen of these buildings in a valley northwest of Beijing. These buildings were entered through "spirit ways" lined by statues of creatures like the *bixi* tortoise. They were desecrated during the Cultural Revolution.

ANSWER: tombs [or ling; or mausoleums; or other words that mean tomb]

19. Answer some question about everyone's favorite giant hundred-headed snake, Shesha, for 10 points each:

[10] Shesha is the mount of this member of the Hindu Trimurti, the preserver of said group. This god has several avatars, including Krishna and Rama.

ANSWER: Vishnu

[10] Among the incarnations of Seshu are this loyal brother of Rama, who leaves his wife Urmila to join his brother in exile. Among his exploits are cutting off the demon Surpanakha's nose.

ANSWER: Lakshmana

[10] Another avatar of Shesha was this brother and companion of Krishna, who unlike Krishna was born fair. He also taught the Pandava Bhima how to fight with a mace.

ANSWER: Balarama

20. This man posted the video "Creationism is Not Appropriate for Children." For 10 points each:

[10] Name this man, who was then invited to debate Creation Museum founder and Answers in Genesis leader Ken Ham about creationism and evolution in a February 4, 2014 debate. This former television personality has also urged for more work fighting climate change.

ANSWER: William "Bill" **Nye**

[10] The Ham/Nye debate spurred fundraising for Ham's latest project, which plans to construct this object in Grant County, Kentucky.

ANSWER: A replica of Noah's **Ark** [or **Ark Encounter**; prompt on **theme park**]

[10] Nye recently vigorously debated climate change with S.E. Cupp on *Crossfire*. Cupp asserts membership in this branch of Republicans that supports equal rights for homosexuals.

ANSWER: **Log Cabin** Republicans

21. A trap is used while using this laboratory instrument to prevent bumping. For 10 points each:

[10] Identify this device which quickly removes solvent from a compound through a combination of a heat bath, a vacuum pump, and a motor that spins the flask containing your product.

ANSWER: **rotary evaporator** [or **rotovap**; or **rotavap**]

[10] Along with evaporation, this is the second kind of liquid vaporization into a gas. This phase transition occurs for water at 100 Celsius.

ANSWER: **boiling**

[10] This part of a rotovap cools gases back into liquid form and allows them to drop into a waste container. This same device is used in a reflux to prevent gases from escaping at the top of the apparatus.

ANSWER: reflux **condenser**