

1. The measurement of this quantity by radiosonde uses an aneroid cell, which is made of a beryllium-copper alloy, has had part of its air evacuated, and is attached to a stiff spring. A geopotential height is indexed to a constant value for this quantity. The force due to this quantity's gradient is balanced by the Coriolis force for geostrophic winds. The eye of a cyclone has a much (*) lower value for this quantity relative to outside of the cyclone and is thus depicted on a weather map with a red L. This quantity is commonly measured in inches of mercury or millibars, and it is measured with a barometer. For 10 points, identify this force that the weight of the atmosphere exerts on objects.

ANSWER: air pressure [or atmospheric pressure]

<Voight>

2. One group from this city is famous for a piece based on "blood memories" of plantation life called *Revelations* and was long led by Judith Jamison. Another company from this city performs at the David H. Koch Theater, which was designed by Le Corbusier for that company's Russian founder. This city is the base of the dance companies founded by Alvin Ailey. The School of American Ballet is located in this city's (*) Lincoln Square neighborhood. After he defected, George Balanchine founded this city's namesake ballet company, and Martha Graham first rose to prominence with this city's Greenwich Village Follies. For 10 points, name this major American city home to the American Ballet Theater, which performs at the Metropolitan Opera House in Manhattan.

ANSWER: New York City [or NYC]

<Spencer>

3. This effort created a location dubbed "the polygon," which was campaigned against by nationalist poet Olzhas Suleimenov. In later years, this effort resulted in *Chagan*, a response to Operation Plowshare. This effort worked largely from translated copies of the Smyth report, since many of its participants were afraid to request data provided by Klaus Fuchs. This effort created sites like Mayak and (*) Semipalatinsk, where it culminated in First Lightning, nicknamed "Joe-1" by foreign intelligence. Its architects included Igor Kurchatov and future Nobel laureate Andrei Sakharov. For 10 points, name this project aided by the espionage of the Rosenberg couple, which, following a 1949 test in Kazakhstan, created the second nuclear power in history.

ANSWER: Soviet nuclear weapons program [accept any reasonable equivalents, including Russian for "Soviet"]

<Ray>

4. This is the simplest compound exhibiting a "skew chain" dihedral angle of about 120 degrees as a compromise between steric and hyperconjugative effects. mCPBA is synthesized from meta-chlorobenzoyl chloride and this compound. Potassium iodide catalyzes the disproportionation of this compound, releasing lots of foam. The anthraquinone process makes this compound. Though this compound is not linear, it readily homolyzes into (*) radicals because it has four electrons in pi star orbitals. This very strong oxidizing agent is used to treat wastewater as Fenton's reagent, and in the body, it is broken down by catalase into water and oxygen gas. For 10 points, name this compound with an oxygen-oxygen single bond, and formula H₂O₂.

ANSWER: hydrogen peroxide [or H₂O₂ before it is read; prompt on peroxide]

<Silverman>

5. Excerpts from six of this author's works were combined into a 2008 play by John Reed. He was dubbed a "Johannes factotum" and an "upstart Crow" who had a "Tiger's heart wrapped in a Player's hide" in Robert Greene's *Groats-Worth of Wit*. He is the subject of a Harold Bloom book subtitled "The Invention of the Human" and Stephen Greenblatt's (*) *Will in the World*. T.S. Eliot popularized the term "objective correlative" in an essay about one of this man's works, while George Bernard Shaw mocked excessive worship of him with the term "bardolatry". For 10 points, name this author of the poems "The Phoenix and the Turtle" and "Venus and Adonis", as well as a play that was analyzed in Thomas de Quincey's essay "On the Knocking at the Gate in Macbeth".

ANSWER: William Shakespeare [do not accept any non-Shakespeare authors]

<Carson>

6. A member of this group depicted an oarsman wearing only red briefs in *Three Girls in a Barque*. A successor to this group founded by Galka Scheyer included the Russian painter Alexey von Jawlensky. One member of this group demonstrated principles like "red is matter, brutal and heavy" in a painting whose title creatures are trapped in a vague apocalyptic event. Its founder argued that one's inner spirit should inform the color of a canvas in *On the* (*) *Spiritual in Art*, and its namesake Almanac included contributions from the painter of *The Fate of the Animals*. Its members included August Macke and Franz Marc. For 10 points, identify this art movement named for a Wassily Kandinsky painting of a cloaked figure atop a white horse.

ANSWER: Der Blaue Reiter [or The Blue Rider]

<Bentley>

7. James Prinsep translated a set of decrees from this dynasty, which called one of its rulers "Beloved-of-the-Gods." This empire's four provinces were run from capitals such as Ujjain in the west. A text on rulership which divides the day into 90-minute segments was written by this empire's Taxila-educated advisor Chanakya. Its founder, who died by (*) fasting, overthrew the Nanda state. A later ruler of this empire commissioned a pillar topped by four outward-facing lions at Sarnath, and described his conquest of Kalinga in his Rock and Pillar Edicts. This ancient empire resisted attacks from the west by Alexander's successor Seleucus. For 10 points, name this Indian empire ruled by the Jain convert Chandragupta and the Buddhist convert Ashoka.

ANSWER: Mauryan empire

<Jackson>

8. In one account, this god fathers the Hunnish king Sigi and has his wife give Rerir a fertility-granting golden apple; in that same collection, he challenges guests at a wedding feast to draw a sword out of the oak tree Barnstokk. In a different story, this god turns into a snake to fit through a hole in a mountain after spending a summer as Baugi's servant. He habitually seeks counsel from the head of (*) Mimir, who once guarded a well where this god made a sacrifice. This god, who retrieves the mead of poetry, scopes out the earth from Hlidskjalf and gives his meat to the wolves Geri and Freki. This god rides on the eight-legged horse Sleipnir. For 10 points, name this one-eyed, spear-carrying chief god in Norse myth.

ANSWER: Odin [or Wotan]

<Bollinger>

9. This author outlined four "victim positions" characteristic of a certain country's literature in *Survival*. In a novel by this author, Simon Jordan investigates the title character, who was institutionalized after allegedly murdering her employer Thomas Kinnear. Newspaper clippings and excerpts from a fictional pulp novel about the planet Zycron punctuate a novel by this author about Alex Thomas, Richard (*) Griffen, and Iris and Laura Chase. This author of *Alias Grace* and *The Blind Assassin* penned a novel set in the theocratic Republic of Gilead, in which increasing sterility causes men like the Commander to employ concubines like Offred, the title character. For 10 points, name this female Canadian author of *The Handmaid's Tale*.

ANSWER: Margaret Eleanor Atwood

<Carson>

10. This thinker used the work of Broca and Lombroso to conclude that the brains of women were intellectually superior to those of men in the book *Pedagogical Anthropology*. While confined to the Theosophical Society in Madras, this thinker incorporated the natural world into a "cosmic" form of a certain process. This theorist was popularized by Rabindranath Tagore and Alexander Graham Bell and critically panned by John Dewey. This (*) educator came to prominence after establishing the *Casa dei Bambini*. This educator's name is attached to a procedure that stresses the importance of independence, discovery, and play for children in pedagogy. For 10 points, name this Italian educator known for her namesake "method" of learning.

ANSWER: Maria Montessori [or Maria Tecla Artemisia Montessori]

<Jose>

11. This territory was home to the ZCMI, one of the nation's first department stores. Judge Perry E. Brocchus was one of the "runaway officials" who fled this territory fearing for their safety. Miners were encouraged to flock to this territory by Colonel Patrick Connor. The policies of Wilford Woodruff helped this territory achieve statehood. After offering safe passage to migrants from Arkansas, John Doyle Lee and a group of Paiute Indians carried out the (*) Mountain Meadows Massacre here. A town named for Millard Fillmore was once the center of this territory, which lent its old name to the Deseret Telegraph Company. For 10 points, name this territory once run by Brigham Young, which became a state after polygamy was ended by its Mormon settlers.

ANSWER: Utah Territory [prompt on "Deseret"]

<Bentley>

12. This poet concluded "alas, we all are babes" after declaring "tradition, thou art for suckling children" in one poem. In another poem, this man's "pen could mash" the "many red devils" that run from his heart. Those poems appear in a collection titled for a group who, with "clang of spear and shield," "came from the sea." This author set several stories in Whilomville, New York. In a novel by this author of the collection *The (*) Black Riders*, a "tattered solider" begs for companionship from "the youth," who is moved by the death of Jim Conklin; in that novel, the solider who leads the 304th New York to victory is wounded by a rifle blow to the head. For 10 points, name this author who created Henry Fleming in *The Red Badge of Courage*.

ANSWER: Stephen Crane

<Mehigan>

13. One of these beings from a non-fictional religion carries a staff with jingling rings and is called "Lord of the Six Paths." Another of these individuals has thousands of arms behind him arranged like peacock feathers and received ten extra heads to redeem the wicked. The Chinese goddess Kannon derives from the most compassionate of these beings, (*) Avalokiteshvara (uh-VAH-low-kee-tesh-VAH-ruh). Although their self-sacrifice is celebrated in China and Japan, becoming one of these individuals is less admirable than becoming an arhat in Theravada tradition. For 10 points, name these idealized humans in Mahayana Buddhism who return to earth after achieving enlightenment.

ANSWER: bodhisattvas

<Bollinger>

14. The stria vascularis, a rare example of vascular epithelial tissue, supplies this organ with a very high 80 millivolt resting potential. The motor protein prestin is found in cells of this organ. Boettcher, Hensen, and Claudius name specialized cells in it. The modiolus forms a central axis through this organ. Perilymph is found in the outer two sections of this organ, while endolymph is found between its basilar and Reissner membranes. The (*) base of this structure contains the round and oval windows. The vestibule, the semicircular canals, and this structure form the bony labyrinth. At its apex is the Organ of Corti, which is covered in both inner and outer hair cells. For 10 points, name this snail-shaped organ located in the inner ear.

ANSWER: cochlea [prompt on organ of Corti before it is read]

<Silverman>

15. In the ancient world, locales of this type stored penteconters. In Roman times, the trip between one of these locales at Brundisium and another at Dyrrhacium consistently took a single day. Trajan ordered that a hexagonal one of these structures be built behind the Claudian one near Ostia, which served as this type of site for the city of (*) Rome. The Long Walls ran northeast of a settlement of this type called the Piraeus, which became important to Athens after Themistocles began using it for military purposes. The ones on the islands of Delos and Rhodes were free from mercantile taxes. For 10 points, name this type of place which the lighthouse Pharos aided in Hellenistic Alexandria, where goods were unloaded from quinquiremes and triremes.

ANSWER: ports [or harbors; or port towns; or harbor towns; or shipyards; or docks; or coastal cities; or seaside cities; or maritime cities; prompt on "towns," "cities," "markets," or "emporia"]

<Jackson>

16. A device primarily used for this purpose is an array of alternating p- and n-type semiconductors sandwiched between two conductors, one of which has a current passed through it to use the Peltier effect. The coefficient of performance for devices that perform this process is the reciprocal of the Q-sub-h over Q-sub-c minus one. Steven Chu's Nobel-winning research was in the use of lasers and the Doppler effect to perform this process. This happens to the gas during the isentropic expansion step of the Carnot cycle. A law named for it states that the time derivative of (*) temperature is equal to a negative proportionality constant times the difference in temperature between a body and its surroundings; said law was derived by Isaac Newton. For 10 points, name this process in which heat is transferred away from a body.

ANSWER: cooling [or refrigeration; or obvious equivalents, such as making things colder by the transfer of heat; prompt on heat transfer]

<Voight>

17. In 2014, this premier increased penalties for harming police animals by signing Quanto's Law. He unsuccessfully nominated Marc Nadon to his country's Supreme Court, then criticized Chief Justice Beverley McLachlin for calling him to warn about the nomination. He has multiplied the size of the Nahanni National Park Reserve, and in 2014 set aside hundreds of millions of dollars for a National Conservation Plan. After Mike Duffy was given financial assistance, this man's Chief of Staff Nigel (*) Wright resigned in 2013. He defeated Jack Layton in his most recent election, and his current opposition is led by Thomas Mulcair and Justin Trudeau. For 10 points, name this Conservative Party leader who, in 2006, replaced Paul Martin as Prime Minister of Canada.

ANSWER: Stephen Harper

<Reinstein>

18. This island is the center of production for the myzithra and graviera varieties of cheese. Culture on this island also involves the "mandinades" and "sitiakos" song and dance forms. German general Heinrich Kreipe was kidnapped during World War II near this island's town of Archanes. Since the 1970s, this island's rural areas have depopulated into cities such as Khánia and Réthimnon. This island's capital, then called (*) Candia, was taken by the Ottomans from Venice in 1669 after a lengthy siege. Near this island's city of Iraklion, Arthur Evans excavated the Palace of Minos in the Knossos archaeological site. For 10 points, name this large island, often thought to be the oldest outpost of Greek civilization.

ANSWER: Crete [or Kriti]

<Karas>

19. Alternate editions of this work have been created by Duncan Druce and Franz Beyer. One movement of this work opens with a solo trombone playing a melody consisting of a B-flat arpeggio before a bass soloist sings the same melody. In one movement in this work, dotted-rhythm melodic fragments in A minor imitated between tenors and basses describe the flames of hell; those figures alternate with sopranos and altos singing a C major melody beginning "voca me" in its (*) "Confutatis" movement. This work includes a double fugue in D minor for its "Kyrie eleison" movement. This work's Sanctus and Agnus Dei sections were written by the man who completed its "Lacrimosa", Franz Sussmayr. For 10 points, name this unfinished final work by Mozart, a mass for the dead.

ANSWER: Wolfgang Amadeus Mozart's Requiem Mass in D minor [accept Requiem alone after Mozart's name is read; prompt on "Requiem" before then; also accept K. 626]

<Lawrence>

20. This character responds to the drowning of a religious man by stating that the bay was formed "expressly for [him] to drown in." In his penultimate appearance, this character is revived upon being cut open by a surgeon, having been saved by an inept executioner's poorly-made noose. This character loses an eye and an ear to syphilis, which he contracts by engaging in "experimental physics" with (*) Paquette. Martin acts as a foil to this expert in metaphysico-theologo-cosmolo-nigology, who travels with the novel's protagonist to the earthquake-damaged city of Lisbon. This character is a parody of Gottfried Leibniz. For 10 points, name this optimistic tutor from *Candide* who insists that we live in the "best of all possible worlds."

ANSWER: Dr. Pangloss

<Gupta>

21. This poet described "casual flocks of pigeons" that "sink, downward to darkness" in a poem that describes "silent Palestine" as "Dominion of the blood and sepulchre" and begins with a woman enjoying "complacencies of the peignoir." An object envisioned by this man "did not give of bird or bush, like nothing else in Tennessee" after it was placed upon a (*) hill. This author of "Sunday Morning" and "Anecdote of the Jar" wrote a poem whose narrator knows "noble accents and lucid, inescapable rhythms" and notes that "Among twenty snowy mountains, the only moving thing was the eye of" the title creature. For 10 points, name this poet who called for "the roller of big cigars" in "The Emperor of Ice-Cream" and wrote "Thirteen Ways of Looking at a Blackbird".

ANSWER: Wallace Stevens

<Mehigan>

22. Under Liuvigild's son Reccared, these people rejected the teachings of the bishop Ulfilas when they switched from Arianism to Catholicism. These people became *foederati* under emperor Valens, who let them settle across the Danube. This ethnic group won the battle of Covadonga under Pelayo. Between the fall of Rome and the Islamic conquest, these people ruled (*) Spain from Toledo. Their unrest touched off the battle of Adrianople, which they won, and they later prompted Augustine to write *City of God* when their ruler Alaric sacked Rome in 410 CE. For 10 points, name this barbarian tribe which separated from the Ostrogoths.

ANSWER: Visigoths [or Visi; prompt on "Goths"]

<Jackson>

23. JBS Haldane's hypothesis about this disease suggests that it does not affect patients with favism. Cells infected by this disease express projections called knobs and may show rosetting. Crystallized heme called hemozoin forms in this disease. Henry Heimlich infamously advocated using this disease to treat HIV. The quotidian fever, for which this disease sometimes gets its name, consists of a cold stage, a hot stage, and a sweating stage, which (*) repeats every 48 hours in a paroxysm. Artemisinin derivatives treat this disease. In an example of heterozygote advantage, carriers of the gene for sickle cell anemia are resistant to this disease. For 10 points, name this disease caused by *Plasmodium*, carried by the *Anopheles* mosquito.

ANSWER: malaria

<Silverman>

24. Apollodorus states that one of these figures named Okypete collapsed on the Strophades, giving them their current name. A pair of flying purple-haired warriors spared the lives of these creatures at the request of Iris. One of these creatures slept with Zephyrus to produce Xanthus and Balius, the immortal horses of Achilles. Various sources list the name of these figures as Podarge and (*) Celaeno. The prophecy of one of these creatures came true when Aeneas' men ate meat on bread. These creatures continuously stole the food of a king who was blinded for revealing the future to mankind; Zetes and Calais drove these creatures away from that king, Phineas, in the myth of the Argo. For 10 points, name these birds that appear like human women in Greek mythology.

ANSWER: harpies

<Jose>

1. Simon Conway Morris disputed this scientist's argument that most fauna of the Cambrian Explosion left no modern descendants. For 10 points each:

[10] Name this evolutionary biologist who critiqued Samuel Morton's skull measurements in *The Mismeasure of Man* and developed punctuated equilibrium with Niles Eldredge.

ANSWER: Steven Jay **Gould**

[10] Gould and Richard Lewontin borrowed this architectural term to describe a characteristic of an organism that is not an adaptation but evolves as a byproduct of an adaptive trait.

ANSWER: **spandrels**

[10] Gould argued with Lewontin that species were subject to this mechanism of evolution, by which organisms with favorable adaptations survive better to reproduce. It was formulated by Charles Darwin.

ANSWER: natural **selection**

<Kothari>

2. The "Hollyhock" event of this type is popular in Kyoto, as is one known as Jidai, or "of the Ages." For 10 points each:

[10] Name these events in Japan, known as *matsuri*. Those taking place on fixed days include Tanabata, which marks the annual meeting day of two lovers separated by the Milky Way.

ANSWER: Japanese **festivals** [prompt on **holidays**]

[10] On this annual festival day, which takes place on March 3rd, objects with the ability to capture malevolent spirits are displayed on rows of red-carpeted platforms.

ANSWER: **Doll's Day** [or **Girls' Day**; or **Hinamatsuri**]

[10] Beethoven's Ninth Symphony is often performed during this other festival, celebrated according to the Gregorian calendar unlike its other East Asian counterparts, which depend on the Chinese lunar calendar.

ANSWER: Japanese **New Year** [or **oshogatsu**]

<Gupta>

3. A lawyer named Galip adopts the life of the columnist Celal while searching for his wife Ruya in this man's novel *The Black Book*. For 10 points each:

[10] Name this Nobel Laureate. Kadife removes her headscarf on television during a performance of *The Spanish Tragedy* in this Turkish author's novel *Snow*.

ANSWER: Orhan **Pamuk** [or Ferit Orhan **Pamuk**]

[10] Satan, two dervishes, and the murdered miniaturist Elegant Effendi are among the unusual narrators of this Pamuk novel, which also features a scene in which Shekure marries Black.

ANSWER: **My Name is Red** [or **Benim Adim Kirmizi**]

[10] In 2012, Pamuk opened a real-life counterpart to the title entity of his most recent novel, a book about the love between Kemal and Fusun titled for one of them "of Innocence". Theo Decker survives a terrorist attack on one at the beginning of Donna Tartt's *The Goldfinch*.

ANSWER: a **museum** [or an art **museum**; or *The **Museum of Innocence***]

<Carson>

4. A fictional poet created by E.T.A. Hoffmann inspired this composer's *Kreisleriana*. For 10 points each:
[10] Name this German composer of *Carnaval* and symphonies nicknamed "Spring" and "Rhenish".

ANSWER: Robert **Schumann**

[10] Originally titled *Easy Pieces*, this Schumann work is a set of 13 piano pieces that begins with "Of Foreign Lands and Peoples" and "Blind Man's Bluff". Its most famous movement, the seventh, is titled "Träumerei".

ANSWER: **Kinderszenen** [or *Scenes from Childhood*; or **Opus 15**]

[10] Schumann founded the *New Journal for Music*, which was based in this city. J.S. Bach was cantor of the St. Thomas Church in this city from 1723 until his death in 1750.

ANSWER: **Leipzig**, Germany

<Lawrence>

5. If an undirected example of one of these structures has any pair of vertices connected by one path, and only one path, then it is a tree. For 10 points each:

[10] Name these structures studied in discrete mathematics that consist of vertices and the edges connecting them.

ANSWER: **graphs**

[10] The beginning of graph theory is dated to Euler's negative resolution to a problem concerning whether one could cross the seven bridges in this city once, and only once.

ANSWER: **Königsberg** [or **Kaliningrad**]

[10] The Königsberg Bridge Problem focused on devising an Eulerian path visiting each edge of a graph once. In contrast, this type of path, sometimes called a traceable path, visits each vertex once.

ANSWER: **Hamiltonian**

<Reinstein>

6. Russell Conwell delivered the "Acres of Diamonds" speech on the benefits of wealth at many of its meetings. For 10 points each:

[10] Name this turn-of-the-20th-century adult education movement. It involved lecturers and entertainers traveling a "circuit" and speaking to audiences.

ANSWER: **Chautauqua** movement [or **Chautauqua** circuit]

[10] This politician spoke on the Chautauqua circuit until his 1925 death following the Scopes "monkey trial". This Nebraskan delivered the "Cross of Gold" speech at the 1896 Democratic National Convention.

ANSWER: William Jennings **Bryan**

[10] The Chautauqua gatherings were organized similarly to camp meetings, which held these intense outdoor gatherings during the Second Great Awakening.

ANSWER: camp meeting **revivals** [or religious **revivals**]

<Nutter>

7. The first recorded performance of Shakespeare's *The Tempest* was hosted at this complex, which began existence as York Place. For 10 points each:

[10] Name this complex which mostly burned down in 1689. Its only surviving element is a neoclassical banqueting house designed by Inigo Jones.

ANSWER: the Palace at **Whitehall**

[10] Jones pioneered the use of the system of proportions advocated by this Roman architect, the namesake of a Leonardo da Vinci drawing and the author of *De Architectura*.

ANSWER: **Vitruvius** [or Marcus **Vitruvius** Pollio, or *The Vitruvian Man*]

[10] *De Architectura* is also the first written source of the story of this man's discovery of the principle of buoyancy, which reportedly prompted him to leap out of a tub shouting "Eureka!"

ANSWER: **Archimedes** of Syracuse

<Carson>

8. Name these ancient Hellenic city-states, none of which are Athens or Sparta, for 10 points each.

[10] This city-state used a stone track called the *diolkos* to move trade ships overland across its namesake isthmus.

ANSWER: **Corinth** [or **Korinthos**]

[10] Herodotus hailed from this city, as did a female captain at Salamis named Artemisia. The term "mausoleum" came from a huge tomb here built for Mausolus, among the Seven Wonders.

ANSWER: **Halicarnassus**

[10] The doctor Galen came from this other Hellenic city in Asia Minor ruled by the Attalids, where the *Dying Gaul* sculpture was found. Its namesake monumental altar was recreated in a Berlin museum.

ANSWER: **Pergamon** [or **Pergamum**]

<Jackson>

9. This novel opens with the protagonist killing a mouse with a skillet. For 10 points each:

[10] Name this novel in which Bigger Thomas is sentenced to death for smothering a white girl and throwing her body in a furnace after she got drunk with her communist boyfriend Jan.

ANSWER: **Native Son**

[10] *Native Son* is by this author of the memoir *Black Boy* and the short story collection *Uncle Tom's Children*.

ANSWER: Richard Nathaniel **Wright**

[10] In *Native Son*, Bigger goes to work for this family. The girl he smothers is their daughter Mary, and it is revealed that the father, Henry, owns the apartment where Bigger's family lives.

ANSWER: the **Daltons**

<Mehigan>

10. This city was founded near the River Torrens. For 10 points each:

[10] Name this city that contains Sellicks Beach in its south, lies on Gulf St. Vincent, and is the capital of South Australia.

ANSWER: **Adelaide**

[10] This other Australian city contains the largest tram system in the world and its port is the largest in the country. The central business district of this city is laid out in the Hoddle Grid and it is home to the Queen Victoria Market.

ANSWER: **Melbourne**

[10] The Moonta Street area of Adelaide constitutes this kind of neighborhood. Neighborhoods of this kind worldwide are often demarcated by paifang gates and guardian lion statues.

ANSWER: **Chinatowns** [or a **place where Chinese immigrants live**, etc.]

<Karas>

11. This son of Apollo was a bard who composed stories about the exploits of Dionysus using Pelasgian letters. For 10 points each:

[10] Name this music teacher who was brutally murdered by one of his students.

ANSWER: **Linus**

[10] Linus was murdered by this man, to whom he taught the art of playing the lyre. This demigod was the son of Alcmene and Zeus.

ANSWER: **Heracles** [accept **Hercules**]

[10] Another instance of music-playing leading to violence occurred when this satyr challenged Apollo to a music contest and lost. He was flayed alive for his efforts.

ANSWER: **Marsyas**

<Jose>

12. Name the following works of Edmund Spenser, for 10 points each.

[10] Britomart rescues Artegall from Radigund and Una marries the dragon-slaying Redcrosse Knight, who is revealed to be Saint George, in this incomplete epic written in praise of Queen Elizabeth I.

ANSWER: *The **Faerie Queene***

[10] Spenser borrowed John Skelton's rustic character Colin Clout to serve as the main character of this collection of twelve eclogues, his first major poetic work.

ANSWER: *The **Shepherd's Calendar*** [or *The **Shepherd's Calendar***]

[10] Spenser's sonnet cycle *Amoretti* is usually accompanied by this "song made in lieu of many ornaments", a poem chronicling the day of his wedding to Elizabeth Boyle.

ANSWER: "**Epithalamion**"

<Carson>

13. The fringe separation in a certain experiment is equal to the order times wavelength times screen distance divided by this value. For 10 points each:

[10] Identify this value multiplied by the sine of the angle and set equal to the order times wavelength as the condition for the existence of a bright fringe.

ANSWER: double **slit separation** [or obvious equivalents, such as the **distance** between the two **slits**; prompt on small **d**]

[10] The double slit experiment was performed by this English scientist.

ANSWER: Thomas **Young**

[10] Claus Jönsson was the first physicist to perform the double-slit experiment with these particles instead of photons, a now-common setup. A thought experiment due to Feynman illustrates wave-particle duality by considering passing individual ones of these particles through the double-slit, which will create a diffraction pattern because each one passes through both slits, despite the fact that, classically, each one can only pass through one slit.

ANSWER: **electrons**

<Voight>

14. This man wrote that the system of signifiers has no "center" anymore in his essay "Structure, Sign, and Play." For 10 points each:

[10] Name this Algerian-born French thinker, who pioneered a method of critiquing the meanings of texts, called deconstruction, in his 1967 book *Of Grammatology*.

ANSWER: Jacques **Derrida**

[10] In one essay, Derrida argued that this document created its signatories through performative utterances such as "We hold these truths to be self-evident, that all men are created equal."

ANSWER: the **Declaration of Independence** of the United States of America

[10] *Of Grammatology* argues that this activity has historically been privileged over other related modes. Gayatri Spivak, who translated *Of Grammatology*, wrote an essay asking if "the subaltern" could do this.

ANSWER: **speech** [or **speaking** or other synonyms; or "Can the Subaltern **Speak**?"; do not accept or prompt on "language"]

<Jackson>

15. This series of events was motivated by Savonarola's prophetic preaching against the church of Pope Alexander VI. For 10 points each:

[10] Name these massive burnings of supposedly sinful objects like paintings and books. The largest one took place in the Piazza della Signoria on Mardi Gras.

ANSWER: **Bonfires** of the **Vanities** [or **Falò delle vanità**]

[10] Savonarola directed the Bonfire of the Vanities in this city, where he helped oust Piero the Unfortunate of this city's ruling Medici family.

ANSWER: **Florence** [or **Firenze**]

[10] This French king's invasion of Italy seemed to confirm Savonarola's prophetic teaching that a "new Cyrus" would arrive to purge Christians of their sins.

ANSWER: **Charles VIII** of France [or **Charles the Affable**]

<Liu>

16. Many prominent architects also designed chairs. Name some of them, for 10 points each.

[10] The Knoll furniture company produced this man's Womb, Grasshopper, and Tulip chairs. This Finnish architect, the son of fellow architect Eliel, designed the main terminal at Dulles and St. Louis's Gateway Arch.

ANSWER: Eero **Saarin**

[10] Ludwig Mies van der Rohe designed a famous steel-frame chair for the German Pavilion at the 1929 International Exposition in this city. This city is also home to Antoni Gaudi's Sagrada Familia basilica.

ANSWER: **Barcelona**, Spain

[10] This man designed a joint consisting of three orthogonal battens joined together by dowels, which is alternately known as a "Cartesian node" and was used in his Red and Blue Chair. He was also the architect of the Schröder House.

ANSWER: Gerrit **Rietveld**

<Carson>

17. An equation giving this quantity named for Van Slyke includes the natural logarithm of 10 and the sum of the concentrations of acid and base. For 10 points each:

[10] Name this quantity, often symbolized beta, equal to the derivative of moles of strong acid with respect to pH.

ANSWER: buffer **capacity** [or buffering **capacity**]

[10] The pH of a buffer is given by the Henderson-Hasselbalch equation, which sets pH equal to this quantity minus the log of the concentration of the acid over its conjugate base. This quantity increases as acidity decreases.

ANSWER: **pKa** [or the **logarithmic** constant; do not accept or prompt on "Ka"]

[10] In the acid-base form of this technique, the halfway point occurs where the pH is equal to the pKa of the solution. This technique uses a buret to determine concentrations of unknown compounds.

ANSWER: acid-base **titration**

<Silverman>

18. *NOTE TO MODERATOR: do not read the alternate answers to the first bonus part.*

In one scene of the novel in which he appears, this character is almost suicidal in prison when he chances upon and befriends the Abbe Faria. For 10 points each:

[10] Give the real name of this character who goes on to seek his revenge against men like Fernand and Danglars.

ANSWER: **Edmond Dantes** [accept either; prompt on "The **Count** of Monte Cristo" or "Abbe **Busoni**" or "Lord **Wilmore**"]

[10] Dantes is the protagonist of this Alexandre Dumas novel, in which he escapes from prison and disguises himself as the ruler of an island in order to carry out his revenge.

ANSWER: *The **Count of Monte Cristo*** [or *Le **Comte de Monte-Cristo***]

[10] Dantes is imprisoned for supposedly subscribing to this political view. The father of Villefort, the judge who condemns him, also holds this political view.

ANSWER: **Bonapartism** [or word forms, such as **Bonapartist**; accept anything that communicates the idea "he wants Napoleon to come back"]

<Bentley>

19. This empire divided itself into provinces called satrapies after it revolted from and overtook the Medes. For 10 points each:

[10] Name this dynasty of classical Persian emperors such as Darius, which helped repatriate the Jews from Babylon to their homeland under the rule of Cyrus the Great.

ANSWER: **Achaemenid** dynasty [or **Achaemenid** empire]

[10] This Achaemenid emperor's 480 BCE invasion of Greece, in which he ordered his men to whip the Hellespont, takes up the latter part of Herodotus's *Histories*.

ANSWER: **Xerxes I** [or **Ahasuerus**; or **Achashverosh**]

[10] This Achaemenid public works project linked Susa, a capital in modern-day Iran, to Sardis in Anatolia. It allowed horse-mounted mail couriers to go super-fast.

ANSWER: the **Royal Road**

<Jackson>

20. A yellow flag flies in the middle background of this painting from its pole atop the corner of a long white building which features a row of arches. For 10 points each:

[10] Name this painting, which also features an open cart standing in the shadow of another arch-heavy building and a girl rolling a hoop across an otherwise-deserted street.

ANSWER: *The **Mystery and Melancholy of a Street*** [or *The **Melancholy and Mystery of a Street***]

[10] *Mystery and Melancholy of a Street* is a creation of this painter of *The Disquieting Muses*, an Italian-Greek surrealist who also founded metaphysical art.

ANSWER: Giorgio **de Chirico**

[10] A de Chirico painting in this genre depicts a man raising a hand to his face, which is next to a large marble bust of the same man. Several Vincent van Gogh paintings in this genre depict a man with a bandaged ear.

ANSWER: **self-portraits** [accept logical equivalents]

<Karas>

21. While working on this structure, Canvass White developed a type of cement from local materials which still worked underwater. For 10 points each:

[10] Name this artificial waterway which was built to connect the Great Lakes and the Hudson River in the late 1810s.

ANSWER: **Erie Canal**

[10] A New York politician of this surname asked the legislature for huge loans to finance the Erie Canal, which was called his "Folly." Another man from this family succeeded Aaron Burr as Vice President.

ANSWER: **Clinton** [or DeWitt **Clinton**; or George **Clinton**]

[10] This first commercially-successful steamboat helped transport people between Albany and New York. Its designer, Robert Fulton, eventually became an Erie Canal commissioner.

ANSWER: **Clermont** [or **North River Steamboat**]

<Bentley>

22. The Large Hadron Collider is the most powerful one of these devices in the world. For 10 points each:

[10] Name these devices, other examples of which include Stanford's SLAC and Fermilab's Tevatron. As their name suggests, they bring protons and electrons to high speeds, often to collide them.

ANSWER: **particle accelerators**

[10] The LHC is located in this laboratory on the Franco-Swiss border. The W and Z bosons were discovered here, and a sample of antimatter lasted for 15 minutes here in 2011.

ANSWER: **CERN** [or **European Organization for Nuclear Research**]

[10] The ongoing OPERA experiment, which reported measuring faster-than-light neutrinos in 2011, fires particles from CERN and detects them 731 kilometers away at this Italian lab.

ANSWER: Laboratori Nazionali del **Gran Sasso** [or **LNGS**]

<Eltinge>

23. Oscar Wilde wrote a short story which uses puns from the twentieth of these poems to assert that their mysterious dedicatee, "Mr. W.H.", was actually a young actor named Willie Hughes who played female roles. For 10 points each:

[10] Identify these 154 poems, most of which are addressed to either the "Fair Youth" or the "Dark Lady". The most famous of them is the eighteenth, which begins by asking "Shall I compare thee to a summer's day?"

ANSWER: William **Shakespeare's sonnets**

[10] The speaker of sonnet 116 asserts that "Love is not love which alters when it alteration finds" after opening the poem by stating that he should not "admit impediments" to this four-word entity.

ANSWER: the **marriage of true minds**

[10] Shakespeare's final two sonnets are both versions of a story about this mythological figure. His torch is stolen while he sleeps and is quenched in cool water, but in a bawdy metaphor for love, it instead heats the water up.

ANSWER: **Cupid** [prompt on "the little Love-god"]

<Carson>