1. As this cellular structure separates from the cytoskeleton during apoptosis, it can form a bulge called a bleb. They contain protein receptors that are rich in sphingomyelin called rafts, which are more tightly packed than the surrounding bilayer. Visualized by the fluid-mosaic model, they engulf and take in materials through endocytosis. For 10 points, name these selectively permeable structures that surround cells.
ANSWER: cell **membrane** [or plasma **membrane**]

079-13-76-01101

2. In *The Legend of Zelda: Majora's Mask*, Zora Link can win a bottle from two of these creatures by going through twenty-five rings in two minutes. Daggett and Norbert are a pair of "angry" ones who star in a 1990's Nickelodeon cartoon. In *The Lion, the Witch, and the Wardrobe*, a married couple of these animals guides the Pevensey children to Aslan's camp. On a television show, Jerry Mathers played a boy given this nickname by his brother Wally. For 10 points, name this aquatic mammal after whom Theodore Cleaver is nicknamed on a 1950s sitcom.
ANSWER: **beaver**s

080-13-76-01102

3. Nuclei of this element were fired at the target of an experiment conducted by Ernest Rutherford disproving the "plum pudding" model of the atom. Pyotr Kapitsa discovered superfluidity as exhibited by an isotope of this element. The nuclei of this element, which were used in the gold foil experiment, are called alpha particles. The second least reactive element after neon, this element is the lightest noble gas. For 10 points, name this element with atomic number 2.
ANSWER: **helium** [or **He**]

014-13-76-01103

4. This people's strike in response to a planned expropriation of land by the government is celebrated on "Land Day." Roughly 700,000 of these people fled their home country in an mass exodus called "the Catastrophe" or "al-Nakba." Police forces fired steel bullets wrapped in rubber at them during an uprising called the "shaking off," or "Intifada." The Oslo Accords created a national authority for these people, who live in the Gaza Strip and the West Bank. For 10 points, name these stateless Arabs engaged in an ongoing conflict with Israel.
ANSWER: **Palestinians** [or **Israeli Arabs**; prompt on **Arabs**; prompt on **Muslims**]

080-13-76-01104

5. William Blake used lines comprised of this poetic foot in *The Book of Thel.* This poetic foot is exclusively used in Alexander Pushkin's *The Bronze Horseman* and dominates Tennyson's "The Lady of Shalott." A tetrameter using this foot is exemplified by Christopher Marlowe's "The Passionate Shepherd to His Love." A rhyming pair of lines using five of these feet is known as a heroic couplet, and its unrhymed pentameter form is known as blank verse. For 10 points, identify this poetic foot consisting of an unstressed syllable followed by a stressed one.
ANSWER: **iamb**s [or obvious equivalents]

019-13-76-01105

6. Similarly to the cochlea, ribbon synapses are found in this organ's bipolar cells. This organ contains Muller cells, which may explain this organ's "backward" function, and amacrine cells. At the center of this organ is the fovea. Namesake ganglion cells exit this organ in an area responsible for the "blind spot." For 10 points, name this light-sensing organ containing rods and cones, which is found at the back of the eye.
ANSWER: **retina** [prompt on **eye**]

7. The last stanza of this poem begins with a repetition of the word "Forlorn," which is compared to the tolling of a bell. At one point, this poem's speaker declares he is already with the addressee and exclaims, "Tender is the night!" This poem ends with the speaker asking, "Do I wake or sleep?" The speaker of this poem states that he feels "as though of hemlock I had drunk" while addressing a "light-winged Dryad of the trees." For 10 points, name this poem containing the line "Thou wast not born for death, immortal bird," an ode by John Keats.
ANSWER: "**Ode to a Nightingale**"

8. One ambassador from this country married George Clinton's daughter and tried to raise a militia. Elbridge Gerry, John Marshall, and Charles Pinckney were in this nation when the Pinckney said "Not a sixpence!" This country's navy prevented Thomas Graves' fleet from reinforcing Lord Cornwallis at Yorktown. This nation fought the United States in the undeclared Quasi-War and demanded payment in the XYZ Affair. For 10 points, name this country, home to Comte Rochambeau (row-SHAM-bow) and the Marquis de Lafayette.
ANSWER: **France** [or **French Republic**; or **Republique Francaise**]

9. This region's native Jemmy Button spoke its indigenous Yaghan language, which has only one native speaker left. Its largest island is home to a regional capital at Porvenir and the rainy town of Ushuaia. Its highest peak, Mount Darwin, lies near Beagle Channel. This region is separated from Patagonia by the Strait of Magellan. For 10 points, name this archipelago south of Chile and Argentina which was named after Magellan saw distant fires rising from it.
ANSWER: **Tierra del Fuego**

10. The rise of this state's Democratic party under Theodore F. Green is called the "Bloodless Revolution." This state's governor Samuel Ward King put down a rebellion that issued the People's Constitution, leading to the Supreme Court case *Luther v. Borden*. In one incident on this state's coast, the sailors of the *Hannah* burned a British schooner. Anne Hutchinson moved to this state after she was banished from Massachusetts. This state was the site of Dorr's Rebellion and the *Gaspee* Affair. For 10 points, name this New England state where Roger Williams established his Providence Plantations.
ANSWER: State of **Rhode Island** and Providence Plantations

11. The severity of this disease is monitored by the HbA1c test, and drugs used to treat it include sulfonylureas and metformin. Its more severe cases can lead to retinopathy and neuropathy, and its onset can be prevented with a high-fiber diet. Frequent urination and thirst are symptoms of this disease, which has type I and type II forms. For 10 points, name this disease leading to high blood glucose levels, which involves an inability to produce and use insulin.
ANSWER: **diabetes** mellitus

12. This poet included "September on Jessore Road" in his collection *The Fall of America*. One poem by this man asks, "When did you look at your skin and decide you were an impotent dirty old locomotive?" This poet asked Walt Whitman which way his beard points in another poem. This poet of "Sunflower Sutra" and "A Supermarket in California" repeatedly invoked Moloch in the second section of another poem in which he famously declared, "I saw the best minds of my generation destroyed by madness." For 10 points, name this Beat poet of "Howl."
ANSWER: Allen **Ginsberg** [or Irwin Allen **Ginsberg**]

13. An early episode in this show features a then-experimental procedure of pericardiocentesis on a patient suffering from dropsy. On this show, Charles Grigg tries to blackmail his former vaudeville partner, Charles Carosn, who is now a butler. On this television show, the Turkish diplomat Kemal Pamuk dies in the room of Mary; the secret removal of his body is witnessed by the kitchen maid Daisy. The death of Vera leads to the conviction of John Bates, the valet for Lord Grantham, for her murder on, for 10 points, what PBS show of British origin that centers on the Crawley family?
ANSWER: ***Downton Abbey***

14. A white man named Neil discovers he has African American heritage in this author's *Kingsblood Royal,* while Buzz Windrip is elected president in his *It Can't Happen Here.* One of his title characters is a realtor who goes camping in Maine with his best friend, Paul Riesling. Another of his protagonists, Carol Milford, marries Will Kennicott and subsequently moves to the boring town of Gopher Prairie, Minnesota. For 10 points, name this realist American novelist of *Main Street* and *Babbitt.*
ANSWER: Sinclair **Lewis** [or Harry Sinclair **Lewis**]

15. The only idempotent, invertible matrix is one denoted by this term. An elementary matrix differs from a matrix denoted by this term by only a single row operation. The matrix denoted by this term is a square matrix with ones in the main diagonal and zeroes elsewhere. This type of function always returns its argument. This term is often applied to mathematical relations like sine squared of theta plus cosine squared of theta equals one. It is one and zero for multiplication and addition, respectively. For 10 points, name this element that does not change the output of a binary operation.
ANSWER: the **identity** element

1A. "Priam's treasure" was a term used by what German archaeologist during his excavations at the site now believed to be ancient Troy?
ANSWER: Heinrich **Schliemann**

1B. What female author wrote about Edna Pontellier in *The Awakening*?
ANSWER: Kate **Chopin** [or Katherine **O'Flaherty**]

2A. What Greek prophetess was guided by Apollo and lived in a cave, where she breathed gas vapors that guided her answers?
ANSWER: **Pythia** [or the **Oracle at Delphi**]

2B. What name is given to two numbers that only share one as a positive integer divisor?
ANSWER: **coprime**s [or **relatively prime** numbers; or **mutually prime** numbers]

3A. Name the dual monarchy formed by the 1867 Ausgleich that lasted until the end of World War I.
ANSWER: **Austria-Hungary** [or **Austro-Hungarian** Empire; or **Oesterreich-Ungarn**; or **Oesterreichisch-Ungarisches** Reich; prompt on **Austria**]

3B. What Hungarian-American physicist is given the nickname "the father of the hydrogen bomb?"
ANSWER: Edward **Teller**

4A. What branch of the Indo-European languages includes members such as Dutch, Afrikaans, and English?
ANSWER: West **Germanic** languages

4B. What philosopher, the author of *Three Dialogues between Hylas and Philonous*, stated "to be is to be perceived?"
ANSWER: George **Berkeley**

5A. This is a 20-second calculation question. If a fair, six-sided die is rolled two times, what is the probability at least one of the rolls will return 1 or 2?
ANSWER: **5/9** [or **20/36**]

5B. This is a 20-second calculation question. Find the determinant of a two-by-two matrix with first row eight, six, and second row twelve, thirteen.
ANSWER: **32**

6A. The Milky Way is an example of what type of galaxy, which has a bright line running through its center and is found on the lower end of Hubble's tuning fork?
ANSWER: double-**barred spiral** galaxy [prompt on **spiral** galaxy]

6B. Sakhalin lies within what body of water, which is located east of the Kamchatka Peninsula and is separated from the main body of the Pacific Ocean by the Kuril Islands?
ANSWER: Sea of **Okhotsk**

7A. This is a 30-second calculation question. Solve: sin squared theta plus sin theta equals zero, on the domain theta is greater than or equal to 0 degrees and strictly less than 360 degrees. Give your answers in degrees.
ANSWER: **{0,180,270}** [or theta equals **0**, **180**, and **270** degrees; do not accept or prompt on partial answer]

7B. This is a 30-second calculation question. A circle with center at O is tangent to line AB at point C. Triangle AOB is an isosceles right triangle with area 32 square units. What is the radius of circle O?
ANSWER: **4** times the square **root** of **2** units [or **4 radical 2**; or square **root** of **32**]

8A. Name the abolitionist supported by the Secret Six who organized the Pottawatomie Massacre.
ANSWER: John **Brown**

8B. The "Lady Blunt" was made by what native of Cremona, Italy renowned for his stringed instruments, which are used by virtuosos such as Yo-Yo Ma and Itzhak Perlman?
ANSWER: Antonio **Stradivari** [or **Stradivarius**]

9A. What running back fell nine yards short of breaking Eric Dickerson's single-season rushing record in 2012 for the Minnesota Vikings?
ANSWER: Adrian Lewis **Peterson**

9B. In optics, what is the name of the angle of incidence above which total internal reflection occurs?
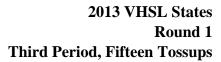ANSWER: **critical** angle

10A. In what country was a U.S. embassy the target of a February 1, 2013 suicide bombing carried out by a member of the Revolutionary People's Liberation Party-Front?
ANSWER: Republic of **Turkey**

10B. What composer created the early opera featuring Eurydice, *L'Orfeo*?
ANSWER: Claudio Giovanni Antonio **Monteverdi**

1. This television host likened the potential firing of Ellen DeGeneres by J.C. Penney to McCarthy-era blacklisting practices in an unexpected show of support. This man recently collaborated with Martin Dugard on two books about the Lincoln and Kennedy assassinations. In 2012, he took part in the "Rumble in the Air Conditioned Auditorium" against his frequent guest Jon Stewart. His show includes the segments "Pinheads and Patriots" and "Talking Points Memo." For 10 points, name this political commentator who runs a Fox show known as his namesake "factor."
ANSWER: William James "Bill" **O'Reilly**, Jr.

020-13-76-01117

2. In one of his poems, this man suggested wine, poetry, and virtue as three things you could use to perform the title action, "Be Drunk." He imagined a trip to "sweltering Africa and languorous Asia" within the title body feature in "The Hair" and compared the poet to a bird who sailors kill for amusement in "The Albatross." His best-known collection begins with "To the Reader," and includes sections named "Wine," "Revolt," and "Spleen and Ideal." For 10 points, name this French Symbolist poet of *Les Fleurs du Mal*.
ANSWER: Charles **Baudelaire** [or Charles-Pierre **Baudelaire**]

192-13-76-01118

3. In 1988, fires in this state consumed part of the John D. Rockefeller Jr. Memorial Parkway. It is home to a location frequently used for Native American vision quests, the Medicine Wheel National Historic Landmark. A popular site for trapping in this state is called Jackson Hole. This state contains the first United States National Monument, a site known as "Bear Lodge" by the Lakota. The least populous of the fifty states, it is the primary location of Grand Teton and Yellowstone National Parks. For 10 points, name this western state whose capital is Cheyenne.
ANSWER: **Wyoming**

052-13-76-01119

4. Directions in these things can be described using Miller indices. Daniel Shechtman won a Nobel for his discovery of the "quasi-" form of these things. These things can undergo twinning. The external shape of these things is their namesake habit. Solids can be divided into amorphous, a poly form of this class and this class. These things tend to split along certain structural lines, a property known as cleavage. For 10 points, identify this solid form whose atoms or molecules are arranged in a repeating, periodic pattern.
ANSWER: **crystal**line solids

066-13-76-01120

5. This building was originally designed by George Frederick Bodley but was overseen by Philip Frohman during the last fifty years of its eighty-three year construction, which ended in 1990 atop Mount St. Alban. It will become only the second-largest building of its type in the U.S. once New York's St. John the Divine is completed. Landmarks on its grounds include the Olmsted Woods, the only combination peal and carillon bell system in North America, and a Darth Vader gargoyle. For 10 points, name this building in the District of Columbia which hosts Presidential funerals and prominent interfaith services.
ANSWER: Washington **National Cathedral** [or **Washington Cathedral**; or **Cathedral Church of St. Peter and St. Paul**]

019-13-76-01121

6. Whether photons have this quantity was the subject of the Abraham-Minkowski controversy. The change in this quantity is equal to the impulse. It's not velocity, but this property and position cannot be known with perfect precision by Heisenberg's principle. Newton's second law says the time derivative of it is equal to force. Newton's laws of motion also imply its conservation in a closed system. Its rotational analog is equal to the moment of inertia times the angular velocity. For 10 points, name this product of velocity and mass.
ANSWER: linear **momentum**

7. This poem states that "heard melodies are sweet, but those unheard are sweeter," and it describes "happy, happy boughs" that cannot shed their lives. This poem addresses its subject as "thou foster-child of silence and slow time," after referring to it as a "still unravished bride of quietness!" This poem ends with the lines, "Beauty is truth, truth beauty; that is all ye know on earth, and all ye need to know." For 10 points, identify this ode about a work of ancient pottery written by John Keats.
ANSWER: "**Ode on a Grecian Urn**"

8. When one side of this equation is divided by the other, a parameter symbolized Z, called the compressibility factor, is obtained. One correction to this equation uses parameters symbolized a and b, representing molecular volume and attractive forces. The virial equation is a more useful correction to this equation. A restatement of this equation uses particle number times Boltzmann's constant, rather than number of moles times this law's namesake constant. This law is a combination of Guy-Lussac's, Charles', and Boyle's Law. For 10 points, name this law often stated "PV = nRT".
ANSWER: **ideal gas** law

9. One of this writer's poems contains the line, "Do not think I underestimate your great concern," and that poem describes how they had to "pick the worms off me like sticky pearls." That poem by this poet states that "one year in every ten I manage it." Another of her poems calls a figure "marble-heavy, a bag full of God" and claims that "every woman adores a Fascist" and tells a black shoe "you do not do any more." For 10 points, name this confessional poet who wrote "Lady Lazarus" and "Daddy."
ANSWER: Sylvia **Plath**

10. Reduced temperature and pressure are defined to be pressure and temperature divided by their values at this state. At this state, the derivative of pressure with respect to volume is zero. Carbon dioxide in this state is used to decaffeinate coffee beans. At this point, a dashed line is usually drawn vertically and horizontally on a P-T diagram, and it occurs at the end of a coexistence curve. For water, it occurs at 647 Kelvin and 218 atmospheres. For 10 points, name this state above which a substance cannot exist as a liquid.
ANSWER: **critical** point [or super**critical** fluid]

11. The seven-year-old Philip tries to understand his butler Baines's affair in this man's short story "The Basement Room." In one of his novels, a man marries the waitress Rose to keep her from providing evidence to the police. This author of *Brighton Rock* wrote about a man on the run from the lieutenant who is eventually betrayed by the mestizo. That character is a whiskey priest living in an anti-clerical Mexican state. For 10 points, name this British novelist of *The Power and the Glory.*
ANSWER: Graham **Greene** [or Henry Graham **Greene**]

12. Along with the pons, this structure develops from the rostral rhombencephalon (rom-been-SEPH-ah-lon). The vermis separates the two hemispheres of this structure, whose other subdivisions include the flocculonodular node. The substantia nigra (sub-STAN-sha NEE-gra) are located within it, while mossy and climbing fibers converge upon it. Featuring Purkinje neurons, this structure is located below the cerebral cortex. For 10 points, name this "little brain," whose responsibilities include coordinating motor actions.
ANSWER: **cerebellum**

13. This man claimed what he had written "seems like straw" when he refused to dictate to Reginald of Piperno. In his most famous work, he refers to Aristotle as "the philosopher" and labeled the first section "Treatise on Sacred Doctrine." In that work, this man posed questions such as "Is sacred doctrine a science?" Known as "Doctor Universalis," this man compiled a work which features the "five ways," or five arguments for God's existence. For 10 points, name this Dominican priest who wrote the *Summa theologiae*.
ANSWER: Thomas **Aquinas** [or **Thomas of Aquin**; prompt on **Doctor Universalis** until it is read]

14. The first of these institutions was bought out by Stephen Girard. William Jones was the first president of another of these institutions, which was also led by Langdon Cheves. The second of these institutions was unconstitutionally taxed according to the ruling in *McCulloch v. Maryland*. Roger Taney (TAW-nee) was directed by Andrew Jackson in a feud with Nicholas Biddle to remove all federal deposits from one. That second and last of these institutions did not have its charter renewed in 1836. For 10 points, name these institutions that held and loaned money for the federal government.
ANSWER: **Banks of the United States** [or **Banks of the U.S.**; or **First and Second Banks of the United States**; or **First and Second Banks of the U.S.**; or **First Bank of the United States** until "William Jones"; prompt on **bank**s; do not accept "Federal Reserve"; do not accept "the Fed"]

15. In his *Double Portrait in a Honeysuckle Bower*, this man commemorated his marriage to Isabella Brant. This man depicted the *Flight from Blois* and the *Disembarkation at Marseilles* in his cycle depicting the life of Marie de Medici. This man painted two versions of the *Judgment of Paris*, but is better known for a triptych in which eleven muscular men use a ladder to accomplish the title action after the Crucifixion. For 10 points, name this Flemish artist who painted the *Descent from the Cross* triptych for the Cathedral of Our Lady in Antwerp, known for his numerous full-figured nudes.
ANSWER: Peter Paul **Rubens**

1. This author wrote about a man whose quince is laced with a love potion that causes him to believe that he is made of glass. After freeing a galley of slaves, one character created by this man encounters Cardenio in the Sierra Morena. He wrote the *Exemplary Novels*. One of this man's characters goes mad after reading the romances of Amadis of Gaul. A character created by this man travels on a horse named Rocinante and mistakes windmills for giants. For 10 points, name this Spanish author of *Don Quixote*.
ANSWER: Miguel de **Cervantes** [or Miguel de **Cervantes** Saavedra]

149-13-76-01132

2. Least significant digit and most significant digit are two examples of the radix instance in this class of algorithms. One algorithm in this class constructs a heap, adds elements to it, maintaining the heap property, and then removes them one by one. Many examples of this class of algorithms are divide-and-conquer, including one that reorders an input around a pivot. That one is C.A.R. Hoare's "quick" example. A commonly taught one compares two adjacent elements and switches them if necessary; that is the bubble one. For 10 points, identify this class of algorithms that puts a list in order.
ANSWER: **sort**ing algorithms

066-13-76-01133

3. Cataclasites are rocks associated with these structures. These geologic structures separate horsts and grabens. These structures are the subject of elastic-rebound theory. They can be classified depending on the direction their hanging wall moves in relation to their footwall. Types of these structures include normal, reverse, thrust and strike-slip. They are breaks in the Earth's crust along which rocks have moved past each other. For 10 points, identify these structures along which earthquakes generally occur and which include the San Andreas one.
ANSWER: tectonic **fault**s [or **shear zone**s]

066-13-76-01134

4. This man wrote of how he "had a dream, which was not all a dream" in a poem describing the end of humanity after the sun goes out. This author of "Darkness" wrote a poem in his collection *Hebrew Melodies* that declares, "All that's best of dark and bright meets in her aspects and her eyes." This man wrote an unfinished epic in ottava rima about a man who is repeatedly seduced by women. His most famous lyric begins, "She walks in beauty like the night." For 10 points, name this Romantic poet who wrote *Don Juan.*
ANSWER: Lord **Byron** [or George Gordon **Byron**; or Baron **Byron**]

121-13-76-01135

5. One leader sent the generals Manuel Boutoumites and Tatikios to take part in a siege during this conflict, during which Bohemond of Taranto and Godfrey of Bouillon were victorious at the Battle of Dorylaeum. Peter the Hermit was defeated by Seljuk Turks during this conflict, which was prompted by a speech by the pope at the Council of Clermont. That pope who called for this conflict and caused a crowd to state, "God wills it!" was Urban II. For 10 points, name this earliest expedition to take back the Holy Land that was launched in 1095.
ANSWER: **First Crusade** [prompt on partial answer]

189-13-76-01136

This is a calculation question. A fair coin is flipped four times, and the variable X is the number of heads. What is the cumulative distribution function at X = 2?
ANSWER: **11/16** [or 0**.6875**]

Name the war in which Britain lost the HMS *Sheffield* to an Exocet missile and which led to increased popularity for Margaret Thatcher.
ANSWER: **Falklands** War [or **Falkland** Islands War; or **Malvinas** War]