1. This ion is combined with iron in Prussian blue. Compounds of this ion are used in the standard process for extracting gold and silver from ore. When this is not an ion, but instead covalently bonded in an organic molecule, the molecule is called a nitrile. Since it inhibits cytochrome c (SITE-oh-chrome see) oxidase, it is capable of stopping aerobic cellular respiration. That is the mechanism behind its most common usages, including insecticides. For 10 points, name this ion with formula CN minus that is poisonous and is consequently used in suicide pills.
ANSWER: **cyanide** [or **CN-** before it is read]

001-10-24-01101

2. The advisor Aeschere (ASH-er-uh) is killed in an act of retribution for the death of this character. His slayer is rewarded with a necklace by Queen Wealtheow (WEE-al-thow) and this character is apparently provoked by the sound of singing soldiers. He is killed by a warrior from Geatland (GAT-land) who fights unarmed and tears off his shoulder. He attacks the mead hall Heorot (HAIR-ut) of the Danish King Hrothgar (ROTH-har), and his death provokes the wrath of his mother, who lives at the bottom of a lake. For 10 points, name this monster who is killed in the first part of *Beowulf*.
ANSWER: **Grendel**

064-10-24-01102

3. This poet states that "Life is real! Life is earnest!" in his poem "A Psalm of Life." He wrote "The Jewish Cemetery at Newport," and his poetry collections include *Voices of the Night* and *Tales of a Wayside Inn.* In another of his poems, John Alden loves Priscilla, but his friend, the title character, is also in love with her. That poem, "The Courtship of Miles Standish," was written after his poem about Minnehaha (MIN-ee-HA-ha), who lives near Gitche Gumee along with her husband Hiawatha. For 10 points, name this poet of *Evangeline* and "Paul Revere's Ride."
ANSWER: Henry Wadsworth **Longfellow**

001-10-24-01103

4. This organ has been studied in the *Aplysia* genus of slugs by Eric Kandel. It is home to the suprachiasmatic (SOOP-ruhk-eye-as-MAT-ic) nucleus. It was divided into fifty-two regions by Korbinian Brodmann, and other regions of this organ include Wernicke's (VERN-ick-eez) area and Broca's area. It is surrounded by three membranes collectively known as the meninges (men-IN-jeez), and its stem is home to the pons and the medulla oblongata. For 10 points, name this organ which contains the temporal and frontal lobes.
ANSWER: **brain**

024-10-24-01104

5. As Duane Jackson, this actor attends Sam the Lion's cinema in *The Last Picture Show*. He dates Maggie Gyllenhaal in his Oscar-winning turn as fading country star "Bad" Blake in *Crazy Heart*. A girl named Mattie Ross hires his character, "Rooster" Cogburn, to track her father's killer in the Coen brothers' *True Grit*. In another film, he plays a bowler named "The Dude" who must deliver a million dollar ransom. For 10 points, name this star of *Tron* and *The Big Lebowski*.
ANSWER: Jeff **Bridges**

079-10-24-01105

6. One minor character in this work has the ability to understand birdsong but must not tell anyone what he hears under penalty of death. After that character banishes his wife for insolence, his daughter falls under the care of the evil hunchback Manthara (mon-TAR-ah). Later in this poem, Manthara suggests to Kaikeyi (kai-KAY-ee) that she demand her son Bharata (bah-RAH-tah) be installed as the next king. The main conflict of this work begins when a demon disguised as a golden deer helps capture Sita. For 10 points, identify this Hindu epic in which the title hero defeats Ravana(rah-VAH-nah).
ANSWER: the **Ramayana**

7. This man blasted the "empty and heartless" sound of rejoicing in his Fourth of July speech delivered in Rochester in 1852. He merged his newspaper with Gerrit Smith's *Liberty Party Paper* shortly before the Seneca Falls Convention, were he presented a passionate argument for women's suffrage. This man started that newspaper after reading William Lloyd Garrison's *The Liberator.* For 10 points, name this author of *The North Star* and *My Bondage and My Freedom,* who was a runaway slave and prominent abolitionist.
ANSWER: Frederick **Douglass** [or Frederick Augustus Washington **Bailey**]

8. This man addressed his aesthetic theories in his public lecture "Ten O'Clock," which was collected in his book *The Gentle Art of Making Enemies*. Many of the letters in that work address those who attacked his work known as *The White Girl* and a painting that was likened to "flinging a pot of paint in the public's face." This painter of *Nocturne in Black and Gold: The Falling Rocket* is better known for a painting of a woman seated in a chair against a wall. For 10 points, name this painter of *Arrangement in Grey and Black: The Artist's Mother*.
ANSWER: James Abbott McNeill **Whistler**

9. At the end of this story, the narrator attempts to calm down his friend by reading a story about a knight named Ethelred who kills a dragon in order to obtain a large amount of gold, a work called *The Mad Trist*. Earlier, one character in this work sings about "evil things, in robes of sorrow" which "assailed the monarch's high estate" in a poem titled "The Haunted Palace." The end of this work sees the death of Madeleine and the narrator's friend Roderick. For 10 points, name this Edgar Allan Poe short story which ends with the collapse of the title estate.
ANSWER: "The **Fall of the House of Usher**"

10. The group of this name is the set of all loop equivalence classes on a surface. This word names Fisher's theorem that the rate of increase in fitness is proportional to the genetic variation. This word refers to the lowest resonance frequency of an oscillating system. One theorem of this type states that definite integral of a function over an interval a to b is equal to the value of the function's antiderivative at b minus the value at a. For 10 points, give this word that names an important theorems from calculus, arithmetic, and algebra, the later of which implies that every polynomial of degree n has n complex roots.
ANSWER: **fundamental**

11. A backwards question mark has often been proposed as a symbol for this term. The cosmic form of this term refers to when a god or other greater being is toying with fate of a human being. The dramatic form of this term occurs when the audience knows something that a character does not, as seen in *Othello* and *Oedipus Rex*. An example is in *Rime of the Ancient Mariner* in which there is water everywhere but not a drop to drink. For 10 points, name this literary device in which there is a sharp difference between what a character says and what actually happens.
ANSWER: **irony**

12. In C# (c sharp), delegates act as references to these things. Their contents are duplicated for increased performance at the cost of size when they are inlined. Closures are examples of these that can be treated like objects. Virtual ones can be overridden in object oriented programming. These have a return type which can be void. For 10 points, name these sections of code that are called to accomplish a task, an example of which is the "main" one seen in Java and C.
ANSWER: **function** [or **method**; or **procedure**; or **subroutine**]

13. These characters are admonished that "security is mortals' chiefest enemy." One of these characters notes that "By the pricking of my thumbs, something wicked this way comes" just before the entrance of the title figure of the play in which they appear. In their best-known scene, they add "scale of dragon, tooth of wolf," "eye of newt and toe of frog," among other ingredients, to a boiling cauldron. For 10 points, name these prophetesses who chant, "Double, double toil and trouble; fire burn and cauldron bubble" in Act IV, Scene I of *Macbeth.*
ANSWER: the **witches** from *Macbeth* [or the **Weird Sisters**]

14. The characteristic feature of this phylum of animals is composed of a matrix of conchiolin (conk-EYE-o-lin) which binds to aragonite. The ctenidia (ten-ID-ee-uh) are a breathing apparatus in this phylum which includes periwinkles and conniwinks. The chiton (KAI-ton) is an extremely primitive member of this phylum, whose members possess a scraping feature used for collecting food called the radula (RAD-yoo-luh). Among the classes found in this phylum are cephalopods, gastropods, and bivalves. For 10 points, name this class of shelled invertebrates that includes mussels and clams.
ANSWER: **mollusca** [or **mollusk**s]

15. One of this man's operas ends in the Louisiana desert as a woman dies in the arms of her lover, the Chevalier des Grieux (shev-AHL-ee-ey day GROO). In addition to *Manon Lescaut,* (les-COW) this man also composed an opera about two men competing for the love of Minnie, entitled *The Girl of the Golden West.* Another of his works ends with Cio-Cio San (cho-cho san) stabbing herself with a sword. The seamstress Mimì dies in the presence of poor students in another work by him. For 10 points, name this Italian composer of *Madama Butterfly* and *La Bohème*.
ANSWER: Giacomo Antonio Domenico Michele Secondo Maria **Puccini**

1A. Name the last major battle of the American Revolution, during which Lord Cornwallis surrendered.
ANSWER: Siege of **Yorktown**

1B. What band, led by Mark Knopfler, has produced albums such as *Making Movies* and *Brothers in Arms?*
ANSWER: **Dire Straits**

2A. What falcon-headed Egyptian god was the rival of Set?
ANSWER: **Horus**

2B. What Japanese emperor was forced to officially renounce his divine status after World War II?
ANSWER: **Hirohito** [or the **Showa** Emperor]

3A. This is a 10-second calculation question. A magician has 3,000 bunnies in his hat. If one fourth of the bunnies are black, one third are red and the remaining are chartreuse, what is the probability of choosing a chartreuse rabbit?
ANSWER: **5/12**

3B. This is a 10-second calculation question. A beehive's honeycomb has 400 individual cells. It takes one day for one worker bee to fill one cell. If the beehive is currently 40% full and houses 3 worker bees, how many days will it takes to completely fill the remaining honeycomb?
ANSWER: **80** days

4A. Name the San Francisco bridge which is the second-longest suspension bridge in the United States, after the Verrazano-Narrows.
ANSWER: **Golden Gate** Bridge

4B. What Roman poet wrote about the founding of Rome in his epic work the *Aeneid* (uh-NEE-id)?
ANSWER: **Virgil** [or Publius **Vergil**ius Maro]

5A. This is a 20-second calculation question. What is the median of the Fibonacci sequence from 1 to 89, inclusive?
ANSWER: **8**

5B. This is a 20-second calculation question. If the shortest leg of a 30-60-90 triangle has length 8, and the shortest leg of a 45-45-90 triangle has length 4 divided by square root of 2, what is the product of those two triangle's hypotenuses?
ANSWER: **64**

6A. What American sculptor invented two forms of three-dimensional art, mobiles and stabiles?
ANSWER: Alexander **Calder**

6B. Name the Peter Carey novel in which the two gambling-addicted title characters make a bet regarding the transportation of a glass cathedral across Australia.
ANSWER: *Oscar and Lucinda*

7A. This is a 30-second calculation question. What is the absolute value of the difference between 48 squared and 49 squared?
ANSWER: **97**

7B. This is a 30-second calculation question. In terms of x, what is the difference between the volume of a cube with radius x + 1 and the volume of a cube with radius x + 2?
ANSWER: $3 x^2 + 9 x + 7$

8A. Name the versatile athlete who is the only man to have played in both a World Series and a Super Bowl.
ANSWER: Deion Luwynn **Sanders**

8B. What special case of the mean value theorem states that, for a differentiable function f, if f of a equals f of b, then there exists a number c between a and b such that f prime of c equals zero?
ANSWER: **Rolle**'s Theorem

9A. What river flows into the Atlantic river from Africa after passing between the capital cities of Kinshasa and Brazzaville?
ANSWER: **Congo** River [or **Zaire** River]

9B. What French composer used the Devil's chord and imitated rattling bones in his symphonic poem *Danse Macabre*, and also wrote the piece *The Carnival of the Animals*?
ANSWER: Charles Camille **Saint-Saëns**

10A. What hypothetical language is the ancestor of most of the languages of Europe, including the Romance languages and the Germanic languages?
ANSWER: **Proto-Indo-European** [or **PIE**]

10B. What Eastern European country was led until 1989 by its Communist dictator Nicolae Ceausescu (chou-SHESS-koo)?
ANSWER: **Romania**

1. This man's earliest political post was Governor of Seringapatam (ser-in-GAH-pah-tam), to which he was appointed by his older brother, Lord Mornington. Under this man's government, the Test Act was repealed and the Catholic Emancipation Act was passed. He succeeded Castlereagh as Britain's delegate to the Congress of Vienna. He is the only man to have concurrently held the offices of Prime Minister and Commander-in-Chief of the British Army. For 10 points, name this politician, who was given a dukedom a year before he ended the Napoleonic Wars with a victory at Waterloo.
ANSWER: Duke of **Wellington** [or Arthur **Wellesley**, Duke of Wellington]

003-10-24-01117

2. This state was home to Lonnie Smith, a black man who successfully sued for the ability to vote in the Democratic primary. Another Supreme Court case held that this state's anti-sodomy law was invalid and overturned *Bowers v. Hardwick.* In addition to the *Lawrence* case, this state was also home to the 1984 Republican National Convention at which Gregory Lee Johnson burned an American flag. For 10 points, Henry Wade, sued by "Jane Roe" over this state's anti-abortion law, was the Dallas County District Attorney in what state?
ANSWER: **Texas**

003-10-24-01118

3. In this language, the sound corresponding to "h" is rendered by a breath mark above the first vowel. This language uses acute, grave, and circumflex accents above vowels to denote different musical tones. Its word for sea can be rendered as either *thalatta* or *thalassa*. This language's Koine [COY-nay] dialect is used for its version of the New Testament. This language's primary dialects include Attic and Homeric. For 10 points, name this language, whose alphabet contains the letters alpha and beta.
ANSWER: Ancient **Greek** [or **Hellenike**]

080-10-24-01119

4. His surgical skills were said to be so precise that he could insert a catheter into a femoral artery without anesthesia and produce no pain. This researcher used that technique on a procedure that maintains blood flow to a pouch which is isolated from the influence of food. He used that pouch to show how secretions from digestive glands facilitate digestion, as well as in an experiment where he caused those glands to secrete fluid without introducing any food. For 10 points, name this man whose experiments with dogs showed that ringing a bell could cause salivation, establishing the basics of classical conditioning.
ANSWER: Ivan Petrovich **Pavlov**

019-10-24-01120

5. One idea proposed by this theorist is the spectacle, or *opsis*. He also discussed the idea of simulated representation, which he referred to by a term later used to title a book by Erich Auerbach, *mimesis* (mim-EE-sis). He also identified the *anagnorisis* (aa-nag-nor-EE-sis), or moment of recognition, and the *peripeteia* (per-uh-pit-EY-uh), or reversal of circumstances, as elements of drama. Other elements include *hamartia* (hah-MARSH-uh), a character's tragic flaw, and *catharsis*. For 10 points, name this ancient Greek philosopher who analyzed drama in his *Poetics*.
ANSWER: **Aristotle**

024-10-24-01121

6. A man in this country known as the "general of the streets" was appointed in 2010 as Minister of Youth. That man, Charles Blé Goudé (BLAY goo-DAY), was appointed despite the difference in opinion between this country's Electoral Commission and Constitutional Council about a 2010 presidential election. The internationally recognized winner of that election, Alassane Ouattara (ahl-a-SAN wah-TAR-a), has protested the awarding of the election in this country to the incumbent president. For 10 points, name this West African country currently led by Laurent Gbagbo (gih-BAHG-bo).
ANSWER: Republic of **Cote d'Ivoire** [or **Ivory Coast**; or Republique de **Cote d'Ivoire**]

7. This man names a problem which asks how many integer pairs are contained within a circle of radius r. A function equal to the integral of e to the negative x squared is his namesake error function. He also names one of Maxwell's equations that shows that magnetic monopoles do not exist. A method of getting a matrix in reduced row echelon form was developed by both Wilhelm Jordan and this man. This scientist developed a law which relates the electric flux to the enclosed charge. For 10 points, what German scientist names a type of statistical distribution known as the bell curve?
ANSWER: Carl Friedrich **Gauss**

8. After World War II, this man was sent to China to try to reach an agreement between Communist and Nationalist forces. One program created by this man was announced during a speech at Harvard and led to the creation of the OECD. This man was chief of staff of the U.S. army during World War II. He developed a program which was a follow up to the U.S. policy of supplying Turkey and Greece with economic aid. For 10 points, name this Secretary of State under Harry Truman who names a plan that delivered American humanitarian aid to Europe following World War II.
ANSWER: George Catlett **Marshall**

9. A more advanced form of this quantity is symbolized J and is called the density of this. In one case that density is equal to the permittivity of free space times the time derivative of the electric field. That case was introduced by Maxwell and is called the displacement of this quantity. One law states that its sum about at a junction is zero. It is measured by an ammeter (AM-ee-ter) and is equal to voltage divided by resistance according to Ohm's Law. This quantity is measured in amperes. For 10 points, name this rate of charge, which can be viewed as direct or alternating.
ANSWER: **current** [or **current** density]

10. Holy Roman Emperor Sigismund presided over this meeting, which produced a proclamation of papal infallibility called *Haec santa*. This meeting was a follow up to the previous Council of Pisa and was called by supporters of Anti-Pope John XXIII. Pope Gregory XII abdicated during this meeting, which sought to end a church divide started by the Avignon Papacy. Pope Martin V was elected during this meeting, which also saw a Bohemian heretic burned at the stake. For 10 points, name this church council of the early 1400's that executed Jan Hus (yawn HOOS) and ended the Western Schism.
ANSWER: Council of **Constance**

11. This Greek deity is frequently referred to as Kore (KOR-ay). The attempt by Pirithous (PEER-ith-oos) and Thesus to marry this woman led to their feet being coiled with snakes. One incident involving this woman led to the creation of the Sirens; that incident started with this woman picking flowers on the plain of Enna. This woman's consumption of pomegranate seeds bound her to her captor for one third of each year, explaining the origins of winter. For 10 points, name this woman abducted by Hades and made Queen of the underworld, the daughter of Demeter.
ANSWER: **Persephone**

12. This politician's appointment in 2002 to a vacant Senate seat led to that power being removed from the governor in this politician's state. In 2010, this incumbent Senator failed to gain a nomination on either the Republican or Libertarian ticket for the upcoming election. The Republican nomination went to Joe Miller, who received support in that race against this politician from the Tea Party movement and Sarah Palin. For 10 points, name this Senator whose father used to be governor of Alaska and who won a 2010 election as a write-in candidate.
ANSWER: Lisa Ann **Murkowski**

13. The b parameter in the Van der Waals equation represents a correction factor for this quantity. The Gay-Lussac law is valid when this quantity is held constant. In thermodynamics, work is equal to the negative integral of pressure times the change in this quantity. This quantity is held constant in isochoric (ICE-oh-KOR-ic) processes, and most versions of the ideal gas law have the left side equal to pressure times this quantity. For 10 points, name this quantity that can be measured in liters.
ANSWER: **volume**

14. The remolding action of polycomb proteins prevents this process and the homeodomain is found in "factors" of it. This process often ends with the addition of a poly(A) tail. The removal of exons, in a process called splicing, also occurs at the end of this process. Retroviruses such as HIV are named for their ability to perform this process in reverse. The product of this process is subsequently shipped off to the ribosome. For 10 points, name this biological process in which a DNA sequence is used to create a sequence of messenger RNA.
ANSWER: **transcription**

15. In this work, Katerina Ivanovna (EE-vah-NAHV-na) throws a banquet for her husband, who stumbles into a police station after drunkenly running in front of a carriage and dies in the arms of his daughter Sonia. A side plot in this work concerns the pedophile Svidrigaylov (svid-rah-GUY-lov), who, like Pyotr Luzhin, courts the main character's sister Dounia (DOON-yuh). However, Dounia ends up with Razumikhin (rah-zoo-MIK-in) at the end of the novel. For 10 points, name this Fyodor Dostoevsky novel about Raskolnikov's murder of an old moneylender.
ANSWER: *Crime and Punishment* [or *Prestuplenye i Nakazanye*]

1. When performing the Born-Haber cycle for sodium chloride, the steps solely involving chlorine are the breaking of the chlorine-chlorine bond and a process whose energy gain is equal to this quantity. For nitrogen, this quantity is close to zero; that is a result of Hund's rule since nitrogen has a single electron in each of the three P orbital subshells. The largest values for this quantity are found in the halogens, since they are one electron short of forming a complete octet. For 10 points, name this quantity equal to the amount of energy given off when a neutral atom gains an electron.
ANSWER: **electron affinity**

064-10-24-01132

2. This character wears a red hunting hat that he bought after losing the fencing team's foils, and wonders where the ducks in Central Park go in the winter. Carl recommends that this character see a psychiatrist, to whom he tells "the first thing you'll probably want to know is where I was born" and rails against "phonies." Still not over the death of his brother Allie, he decides to become a deaf-mute hermit, but rejects his sister Phoebe's wish to run away with him. For 10 points, name this main character of *The Catcher in the Rye*.
ANSWER: Holden **Caulfield** [or **Holden** Caulfield]

003-10-24-01133

3. The hypothesis that this structure consists of two separate parts was put forth by Inge Lehmann. Some scientists believe that it rotates at a different speed than the rest of the Earth. S-waves cannot travel through one part of this structure. Convention in one part of this structure creates a magnetic field which deflects the solar wind. That part of this structure consists of nickel and iron and lies beneath the mantle. For 10 points, name this innermost layer of the Earth.
ANSWER: **core**

024-10-24-01134

4. In a poem by this man, Mary and Warren discuss an unreliable farm hand named Silas. Another poem by this man, published in *North of Boston,* describes apple trees that will never "eat the cones" of pine trees. In one poem, this man described the world ending in either fire or ice while another work states that "good fences make good neighbors." This poet of "Mending Wall" wrote a work in which the speaker chose a path that was "grassy and wanted wear," noting that he chose the one "less traveled by." For 10 points, name this American poet of "The Road Not Taken."
ANSWER: Robert **Frost**

064-10-24-01135

5. When these entities are extremely weak, their strength is often measure using a device called a SQUID. NMR spectroscopy involves chemical shift when a sample is placed in one of these entities. A current that is perpendicular to one of those entities produces a potential difference known as the Hall Effect. According to Ampere's law their strength is proportional to the electrical current. Their strength, which is a measured in a unit called Teslas, can be determined using the Biot-Savart law. For 10 points, name this type of vector field caused by moving electric charges.
ANSWER: **magnetic field**

064-10-24-01136

What nation has been in the international spotlight since the November 23rd deaths of four of its citizens near Yonphyong Island?
ANSWER: **South Korea** [or **Republic of Korea**; do not accept or prompt on "Korea"]

064-10-24-01137

This is a calculation question. Solve for x in x + 10 = 2 x - 25.
ANSWER: x = **35**