1. One formula for this value initially was given as 0.744 plus a term proportional to a quantity derived from Slater's Rules. That quantity is the effective nuclear charge, and that formula was developed by Allred and Rochow. Another measure of this quantity was developed by Sanderson. Other scales for it involve the square root of the ionic resonance energy and the average of ionization energy and electron affinity. For 10 points, the Pauling and Mulliken scales measure what ability of atoms to attract electrons to themselves in a covalent bond?
ANSWER: **electronegativity**

2. This hero loses one of his sandals helping an old lady cross a river. This man's wife, Glauce (GLOWE-kay), is killed by a poisoned dress. He saves Phineas from starvation by driving away some Harpies, and passes through the clashing rocks called the Symplegades (sim-PLAY-guh-deez). Like Cadmus, he sows dragon's teeth into a field, but he defeats the warriors who sprout up. This man travels to Colchis after assembling a team that includes Orpheus, Castor and Pollux, Atalanta, and Heracles. For 10 points, name this husband of Medea and leader of the Argonauts.
ANSWER: **Jason**

3. The Mamertines were mercenaries on this island who sought aid from Carthage and then Rome, leading to the first Punic War. Peter III encouraged this island to revolt against Charles I, leading to a war named for the vespers on this island. Nicias (NISS-ee-uss) attacked the major city on this island as part of an Athenian expedition here supported by Alcibiades (AL-sib-EYE-uh-deez). Before reunification, this island was part of Naples in a kingdom named for "the two" of this place. For 10 points, name this island, the home of the Mafia and a constituent part of Italy.
ANSWER: **Sicily** [or **Sicilia**]

4. This man promised that proceeds from his autobiography *A Journey* would help injured soldiers. This man's ministry saw the Good Friday Agreement lessen tensions in Northern Ireland, and he also was in office for suicide bombings on London's public transport system. When he considered adopting the Euro as currency, a newspaper asked if he was "the most dangerous man in Britain." He was eventually replaced as Labour Party leader by Gordon Brown. For 10 points, name this British Prime Minister who brought his country into the 2003 war in Iraq.
ANSWER: Anthony Charles Lynton "Tony" **Blair**

5. In this man's most recent work, the protagonist's split personalities correspond through his diary about his life as a spy and author of *The Protocols of the Elders of Zion.* This author of *The Prague Cemetery* also wrote a novel in which Adelmo's death turns out to be a suicide, but the death of three others comes from reading the poisoned pages of Aristotle's treatise on comedy. That novel takes place in a medieval monastery visited by William of Baskerville. For 10 points, name this Italian novelist of *The Name of the Rose.*
ANSWER: Umberto **Eco**

6. The solution to the brachistochrone (BRAH-kih-stoh-crone) problem is a curve formed by rotation of this shape. The area between two of these shapes forms an annulus (AH-nuh-luhs). A triangle's midpoints, altitudes and orthocenter can be used to construct the "nine point" variant of this shape. Rotating this shape around an axis forms a torus. This shape is a conic section with an eccentricity of zero. For 10 points, name this shape that is the set of all points equidistant from the center.
ANSWER: **circle**

7. This genre titles a Latin work of sixteen poems in five books by an author who discussed how "it is difficult not to write" this genre while living in an evil city. This genre championed by Juvenal also characterizes a novel about a man who travels to Blefuscu, Brobdingnag (BROB-ding-nag), and Lilliput, and an essay which proposes eating poor Irish babies. For 10 points, name this witty genre employed by Jonathan Swift to criticize societal vices, often in a humorous manner.
ANSWER: **satire** [or obvious equivalents]

8. A dimer (DIE-murr) of a simple compound with this element as its central atom forms a high strained bond called a banana bond. Compounds containing this element are often named using the prefixes sido (SIY-doh) or arachno (uh-RACK-noh) as part of a designation called Wade's Rules. This element violates the octet rule with just six electrons, because it contains only one electron in the 2p subshell, thus making compounds with this element useful Lewis acids. For 10 points, name this metalloid element with atomic number 5.
ANSWER: **boron**

9. Many critics of this site have pointed to the case of the Tipton Three. Almost eight hundred DABs or "assessment briefs" pertaining to this place were released by WikiLeaks in 2011. The Supreme Court case *Boumediene* (BOOM-dee-enn) *v. Bush* challenged the administration of this place. It is made up of Camp Iguana, Camp Delta, and Camp X-Ray. In 2005, *Newsweek* retracted its assertion that a Qur'an was flushed here. This site has had trouble relocating some of the Uighurs (WEE-gurs) who are no longer considered "enemy combatants." For 10 points, name this American prison on Cuba.
ANSWER: **Guantanamo** Bay detention camp [or **Gitmo**]

10. One step in this pathway applies Le Chatelier's (shah-tuh-lee-AIRS) Principle by converting DHAP to G3P via isomerase (iy-SOH-meh-rayse) and quickly removing G3P to keep the reaction from equilibrium. In this pathway, the enzymes hexokinase (hecks-oh-KIE-nase) and phosphofructokinase (fahs-foh-fruck-toh-KIE-nase) convert two ATP molecules to ADP, which phosphorylates (fahs-FOR-ih-lates) a substrate molecule twice. This pathway reduces NAD+ ("N-A-D plus") to NADH, and it also forms two pyruvate (pie-ROO-vate) molecules which are turned into acetyl CoA and passed onto the Krebs cycle. For 10 points, name this energy-producing pathway which splits a glucose molecule in two.
ANSWER: **glycolysis** (glie-KAH-lih-sis)

11. This country is home to the original town of Copacabana, which is named for its patron saint. Its highest peak is the Nevado Sajama (suh-HA-muh), and it is the site of the ancient silver mining center of Potosi. Its largest city Santa Cruz sits on the banks of the Pirai river, which is near the ruins at Tiwanaku. This country shares Lake Titicaca with its neighbor Peru. It is bordered to the north by Brazil, and to the south by Chile, Paraguay, and Argentina. For 10 points, name this country with two capitals, at Sucre and La Paz.
ANSWER: **Bolivia**

12. This player's first NFL touchdown came in a preseason game against the Bengals, on a run in which he bruised his ribs diving into the endzone. In 2007, he set an NCAA record for total touchdowns with fifty-five and finished ahead of Colt Brennan and Darren McFadden in awards voting. This player's NFL feats have included a fifteen-point comeback to beat the Miami Dolphins in overtime. In a playoff game, he threw an eighty-yard touchdown to Demaryius Thomas on the first play of overtime to defeat the Pittsburgh Steelers. For 10 points, name this unorthodox quarterback for the Denver Broncos, a former Florida Gator.
ANSWER: Timothy Richard **Tebow**

13. A woman in this novel dies of snakebite after her son fails to take her inside his home while napping after cutting furze. Another character, who was once in love with the innkeeper Damon Wildeve, joins a mummers' play to see the man she eventually marries, who has plans to start a school in the area. That man becomes blind from hours of reading in dim light, ruining his wife Eustacia's hope of ever leaving Egdon Heath. For 10 points, name this Thomas Hardy novel about the homecoming of Clym Yeobright.
ANSWER: *The **Return of the Native***

14. Joseph Louis Cook was the highest ranking member of this group during the Revolutionary War. The leader of this group is called a tadodaho (TAH-doe-DAH-ho). In an attempt to increase their fur trade, this group fought the Algonquians in the Beaver Wars. During the eighteenth century, the Tuscarora tribe joined this group, that was founded by Hiawatha. The Cayuga, Oneida, and Mohawk were among the members of, for 10 points, what confederacy of Native American tribes centered in upstate New York?
ANSWER: **Iroquois** League [or **Iroquois** Confederacy; accept **Mohawk** before "tadodaho" is read]

15. In one of this author's novels, the title character is served by the tramp Thomas Marvel. In another of his books, Edward Prendick meets the Sayer of the Law, whose code forbids killing a rabbit. This author created Weena, a member of a childlike society preyed on by beings who live underground. This man wrote a novel in which the protagonist meets the Eloi and the Morlocks, while another of his novels ends with tripod-wielding Martians dying of an infection. For 10 points, name this British author of *The Time Machine* and *The War of the Worlds.*
ANSWER: Herbert George **Wells**

1A. This is a 10-second calculation question. The histogram of a data set shows 3 counts in the bin 30-39, 6 counts in the bin 40-49, 10 counts in the bin 50-59, and 7 counts in the bin 60-69. What is the minimum possible median for this data set?
ANSWER: **50**

1B. This is a 10-second calculation question. If each external angle of a regular polygon measures 24 degrees, how many sides does the polygon have?
ANSWER: **15** sides

2A. What non-synoptic Gospel starts with the sentence "In the beginning was the Word"?
ANSWER: Gospel of **John**

2B. In January 2012, the U.S. re-opened relations, after twenty years, with what Asian country, the home of Aung San Suu Kyi?
ANSWER: **Burma** [or **Myanmar**]

3A. Old Faithful is a geyser that is located in what national park, the first in the world?
ANSWER: **Yellowstone** National Park

3B. Which city's empire fought against Rome in the Punic Wars, was ruled by Dido in the *Aeneid*, and employed the generals Hannibal and Hasdrubal Barca?
ANSWER: **Carthage**

4A. This is a 20-second calculation question. Find all real and complex roots of the polynomial x^3-8.
ANSWER: **{2, -1 + i sqrt(3), -1 - i sqrt(3)}**

4B. This is a 20-second calculation question. Find the points of intersection of the curves described by the equations $y = x^2 + 2x + 7$ and $y = 3x^2 - 3x + 4$. Express all non-integers as fractions.
ANSWER: **(-1/2, 25/4) and (3,22)** [prompt on partial answer]

5A. A Winkler Test determines the concentration in solution of what element that forms a light blue, odorless, diatomic gas at standard temperature and pressure?
ANSWER: **oxygen**

5B. What father of Phobos and Deimos is the Greek analog of the Roman Mars?
ANSWER: **Ares**

6A. Name the Swedish ruler who died at the Battle of Luetzen during the Thirty Years' War.
ANSWER: **Gustavus Adolphus** [or **Gustav II Adolf**; prompt on partial answer]

6B. Name the Austrian economist who warned of the danger of tyranny in *The Road to Serfdom.*
ANSWER: Friedrich August von **Hayek**

7A. This is a 30-second calculation question. On an inaccurate signal detector, the probability of a false negative is 20% and the probability of a false positive is 5%. A signal occurs on 30% of trials. What is the probability that a signal occurred, given that the detector indicated a signal? Express your answer as a fraction in lowest terms.
ANSWER: **48/55**

7B. This is a 30-second calculation question. If x is a first-quadrant angle and sin x equals 2/3, what is sin 3x?
ANSWER: **22/27** [or **0.814**814...]

8A. What body discovered in 2005 is the largest dwarf planet in our solar system and was the impetus for the downgrading of Pluto's planet status?
ANSWER: **Eris**

8B. Name the Spanish artist who depicted a military triumph in *The Surrender of Breda* and a palace room belonging to Philip IV in *Las Meninas.*
ANSWER: Diego Rodriguez de Silva **Velazquez**

9A. This field of computer science uses three schemes to accomplish its goals: secret key algorithms, public-key algorithms and hash functions. What is this field that transforms data into an unreadable format to protect it from theft, alteration, or unauthorized access?
ANSWER: **cryptography**

9B. What villain, set to appear in *The Dark Knight Rises,* breaks Batman's back in the comic book story arc "Knightfall"?
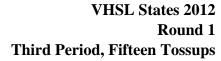ANSWER: **Bane**

10A. What physicist added a term for displacement current to Ampere's Law, which is one of this man's four equations of electromagnetism?
ANSWER: James Clerk **Maxwell**

10B. From what modern day country did the writers Hroswitha (hrahs-VEE-tuh) and Thomas Mann hail from?
ANSWER: Federal Republic of **Germany** [or Bundesrepublik **Deutschland**]

1. The progression of this disease's symptoms is traced by the Hoehn and Yahr scale. People suffering from it develop abnormal proteins called Lewy bodies. This disease affects the basal ganglia (GANG-lee-uh) and can result in bradykinesia (bray-dee-kie-NEE-see-uh). It is treated with L-DOPA because its effects are caused by the death of dopamine-secreting cells. This disease was named for an English doctor who wrote *An Essay on the Shaking Palsy*. For 10 points, name this degenerative disorder which is noted for causing movement-related symptoms, such as uncontrollable shaking.
ANSWER: **Parkinson's** disease [or **paralysis agitans**; or **parkinsonism**]

052-12-56-01117

2. The cliffs of a national park on the outskirts of this city served as a model for the setting of *The Lion King*. It is also the site of the Ngong (in-GONG) Hills, which overlook an old plantation turned into the Karen Blixen Museum. This city is also home to the massive slum Kibera. Lying just east of Lake Naivasha, it is one hundred miles to the north of Mount Kilimanjaro on its country's border with Tanzania. For 10 points, name this largest city and capital of Kenya.
ANSWER: **Nairobi**

015-12-56-01118

3. This composer provided the music to the Errol Morris documentary *The Thin Blue Line*. He provided the film score to a work subtitled *Life Out of Balance*, which is noted for its time-lapse depictions of city life. One of this man's operas has a section titled "I Feel the Earth Move" and features a series of "knee plays." That work forms the "Portrait Trilogy" along with operas about Gandhi and Akhenaten. For 10 points, name this minimalist composer of *Einstein on the Beach.*
ANSWER: Philip **Glass**

052-12-56-01119

4. The death of this poet's young brother Christopher inspired him to write a poem in which the speaker notes "a four foot box, a foot for every year" while looking at the coffin. This author of "Mid-Term Break" and the poetry collection *The Haw Lantern* wrote a poem in which his father and grandfather carry out the same action as he does with a "squat pen." This man's poem "Digging" is included in *Death of a Naturalist*. For 10 points, name this Nobel Prize-winning Irish poet who translated *Beowulf* into modern English.
ANSWER: Seamus Justin **Heaney**

140-12-56-01120

5. This artist painted a man in a straw hat seated in front of numerous ukiyo-e (YOO-kee-oh-eh) prints in his portrait of the art dealer Pere Tanguy (tan-GHEE). He wrote many letters to his brother Theo that explain the ideas behind his paintings, which include one in distorted perspective that depicts a room with a green ceiling and a pool table at the center. While in an asylum, this artist of *The Night Cafe* painted a swirling sky above the village of Saint-Remy. For 10 points, name this Dutch artist of *The Starry Night*, who cut off his own ear.
ANSWER: Vincent **Van Gogh**

080-12-56-01121

6. This novel is introduced in a foreword written by the psychiatrist John Ray, Jr. Its protagonist falls in love with Annabel Leigh, who dies of typhus. In this novel, the protagonist's wife is killed by a car after reading the protagonist's diary. The title character of this novel is kidnapped from a hospital by the playwright Clare Quilty, who is hunted down and shot by the protagonist. That protagonist marries Charlotte Haze out of desire for her daughter Dolores. For 10 points, name this novel about the pedophile Humbert Humbert, by Vladimir Nabokov.
ANSWER: *Lolita*

7. The day before one character on this show starts a new job, he is given a fedora and whip just like Indiana Jones's. Another character in this show has a life-size Stormtrooper in his apartment, and another had hits on the Canadian pop charts with the songs "Sandcastles in the Sand" and "Let's Go To The Mall." Those characters on this show are friends with the married couple Lily and Marshall Eriksen, who live with a man who's future voice is provided by Bob Saget. For 10 points, name this CBS comedy which often features the game "Have you met Ted?" being played at MacLaren's Pub.
ANSWER: *How I Met Your Mother*

8. This character drank herself into a stupor on the night before her wedding after receiving a letter from her lover, a lieutenant serving overseas. This character introduces her cousin to a golfer who cheated in her first tournament, named Jordan Baker. This character's lover is shot in his pool after she runs over Myrtle Wilson driving that man's car. For 10 points, name this cousin of Nick Carraway and wife of Tom Buchanan, the title character's lover in F. Scott Fitzgerald's *The Great Gatsby*.
ANSWER: **Daisy** Buchanan [prompt on **Buchanan**]

9. When writing this language, letters such as "tsade" and "khaf" have special "sofit" forms which only appear at the ends of words.An early artifact in this language may be the Gezer calendar. The Soviet Union banned this language as "reactionary," and it was secretly taught there by the "Refuseniks." Increased interest in its study occurred during the *Haskalah* period. A dialect of it is named for the religious text called the Mishnah. For 10 points, name this language, which along with Arabic, is the official language of Israel.
ANSWER: **Hebrew** [or **Ivrit**; do not accept "Yiddish"]

10. This Greek letter refers to the three lightest mesons known. This letter represents a quantity that is equal to the products of the gas constant, absolute temperature, molarity, and the van't Hoff (vahnt OFF) factor in the Morse equation. In addition to representing osmotic pressure and a type of bond found in double and triple bonds, this letter also represents a constant used to find the volume of a sphere. For 10 points, name this Greek letter, which represents a transcendental number approximated as 22/7 or 3.14.
ANSWER: **pi** [do not accept "phi"]

11. This author wrote a work that ends with a prayer to be spared a fate "on the reef of Norman's Woe." That poem by this man is about an ill-fated captain who ties his daughter to a mast and is titled "The Wreck of the Hesperus." He wrote a work about John Alden, who woos Priscilla, the love of Miles Standish. He wrote an epic about an Indian who loves Minnehaha, and another of his poems begins, "Listen my children and you shall hear" about the title character. For 10 points, name this poet who wrote *The Song of Hiawatha* and "Paul Revere's Ride."
ANSWER: Henry Wadsworth **Longfellow**

12. With Helmholtz, this man names an instability that develops when two layers of air are moving at different speeds. This man used his mirror galvanometer and siphon recorder to help lay the transatlantic telegraph cables. With the namesake of an energy unit, he co-names an effect in which the expansion of a gas without production of work or heat transfer is accompanied by a change in temperature. For 10 points, identify this namesake of a temperature scale approximately 273 degrees above that of the Celsius scale.
ANSWER: Lord **Kelvin** [or William **Thomson**; or Baron **Kelvin**]

13. *The Gypsy Baron* is among the operettas of one man with this first and last name. *Long Live the Hungarians* and *Tritsch-Tratsch* are two polkas by a man with this name. Another man with this first and last name wrote a piece named for a field marshal in which the audience claps during the chorus; that piece is the *Radetzky March* (ra-DEHTS-ki). A man with this first and last name composed *Tales from the Vienna Woods* and *The Blue Danube*. For 10 points, give this shared name of father and son composers, the younger of whom composed *Die Fledermaus* ("FLAY"-der-"mouse") and was known as the "Waltz King."
ANSWER: **Johann Strauss**

14. During this event, Admiral Cockburn's forces targeted the *National Intelligencer* newspaper. This event occurred after General Robert Ross won the battle of Bladensburg. It resulted in one man being forced to live in the Octagon House. An apocryphal story states that prior to this event, a Gilbert Stuart painting of George Washington was saved by Dolley Madison. For 10 points, name this incident in the War of 1812 in which the British torched the American capital.
ANSWER: **burning of Washington**, D.C. [or **burning of the White House** or equivalent answers; prompt on **War of 1812** before "Bladensburg" is read]

15. One serotype of this organism can produce a toxin similar to the one secreted by organisms of genus *Shigella* (shih-GEH-luh). The Meselson-Stahl experiment used these organisms, while the lac operon was first discovered within it. Classified as an enteric (en-TEH-rick) since it is found within the human intestines, strains of this organism such as O157:H7 are known to cause foodborne illnesses. This gram-negative, rod-shaped species is attacked by the lambda phage. For 10 points, name this species of bacteria often found in undercooked ground beef.
ANSWER: *E*scherichia *coli*

1. One of this author's novels ends in Shalimar, Virginia, with a climactic showdown between Guitar Baines and Milkman Dead the Third. Another of her novels is narrated by Claudia MacTeer, who describes the way Cholly abuses his daughter Pecola Breedlove. This author of *Song of Solomon* and *The Bluest Eye* was the last American to win the Nobel in literature. In another of her novels, Sethe kills her daughter after escaping slavery. For 10 points, name this African American author of *Beloved*.
ANSWER: Toni **Morrison** [or Chloe Anthony **Wofford**]

015-12-56-01132

2. Before this battle, its site where it was fought was captured by Benjamin Milam in the Siege of Bejar. South Carolina native James Bonham served as a messenger during this battle. The commander of one side at this battle was William Travis, who drew a famous line in the sand. Other casualties at this battle included knife-inventor James Bowie and frontiersman Davy Crockett. For 10 points, name this battle from the War of Texan Independence in which Santa Ana overwhelmed a San Antonio mission.
ANSWER: Battle of the **Alamo**

015-12-56-01133

3. Faraday cages distribute this quantity to cancel external fields. The electric flux density through a closed surface is proportional to this quantity according to Gauss' (GOWSS-ES) law. It is found squared in the numerator of Coloumb's (KOO-loms) law. This quantity was measured in an experiment that balanced gravity and buoyancy. That experiment determined the elementary value of this quantity and was conducted by Robert Millikan with oil drops. For 10 points, name this quantity symbolized Q and equal to -1.6 times 10 to the -19 for electrons.
ANSWER: electric **charge**

105-12-56-01134

4. This playwright wrote about the god Aroni, the Dead Man, and the Dead Woman in his play *A Dance of the Forests.* In another play, the Bale of Ilujinle, Baroka, competes with the schoolteacher Lakunle for Sidi's hand in marriage. The colonialist Simon Pilkings attempts to stop a ritual suicide in a play by this author that features Elesin as the title character. For 10 points, name this Nigerian playwright of *The Lion and the Jewel* and *Death and the King's Horseman.*
ANSWER: Wole **Soyinka** [or Akinwande Oluwole **Soyinka**]

127-12-56-01135

5. Unrest during this man's administration led to a series of "long hot summers." A close election won by this man earned him the nickname "Landslide." This man's social reforms were grouped under the banner of creating a "Great Society," and those reforms included fighting a "war on poverty" and the passage the Voting Rights Act and the Civil Rights Act of 1964. For 10 points, name this President who on November 22, 1963 became the only president sworn in aboard Air Force One.
ANSWER: **L**yndon Baines **Johnson** [or **LBJ**; prompt on **Johnson**]

002-12-56-01136

What country's modern writers included playrights Sean O'Casey and Brendan Behan and novelist Flann O'Brien?
ANSWER: Republic of **Ireland**

002-12-56-01137

This is a calculation question. What is the sample variance of the set of three numbers {a - b, a, a + b}, in terms of a and b?

ANSWER: **$\underline{b^2}$**