1. This region is home to an endangered monkey called Kirk's red colobus. This home to the trader Tippu Tip fought the shortest war in history against the British Empire. The Sultanate of this region made its city of Malindi a hub for the Arab slave trade. The islands of Pemba and Unguja make up this region, which, along with Mafia Island, makes up the Spice Islands. For 10 points, name this archipelago off the coast of Africa that, along with Tanganyika, makes up the country of Tanzania.
ANSWER: **Zanzibar**

080-13-90-12101

2. A forested ring called the Town Belt surrounds this country's city of Dunedin. Tourists in this country can visit the glowworm-illuminated stalactites at the Waitomo Caves. The Southern Alps run through this country and contain Mount Cook. Controlling the Campbell and Chatham Islands, this country contains the city of Auckland and is divided into North Island and South Island. For 10 points, name this home to the Maori, located southeast of Australia.
ANSWER: **New Zealand**

080-13-90-12102

3. The smallest non-cyclic group has this many elements and is named after Felix Klein. Ptolemy's theorem relates diagonals to edge lengths in cyclic polygons with this many sides. All regular polyhedra which are their own dual have this many faces. Kenneth Appel and Wolfgang Haken were helped by a computer in proving that every planar graph can be colored with at most this many colors. Hypercubes exist in this many dimensions. For 10 points, identify this number of vertices in a square.
ANSWER: **four**

233-13-90-12103

4. This phenomenon gives rise to orthologous genes. Adaptive radiation is a particularly rapid form of this process. Polyploidy is a common mechanism of one type of this process, in which the products remain in the same geographic location, while another form of this phenomenon results from the formation of a geographic barrier. For 10 points, name this process which comes in sympatric and allopatric forms, in which a population divides into two or more groups that can no longer mate with each other.
ANSWER: **speciation** [prompt on "evolution", accept more specific answers like **sympatric speciation** before mention]

048-13-90-12104

5. This author created the character of Mrs. Dubose, an old woman who is addicted to morphine. She set a book in the "tired old town" of Maycomb, Alabama. This author used her childhood friend Truman Capote as the inspiration for the character of Dill, the friend of the tomboy Scout, in her most famous novel. She created the character of southern lawyer Atticus Finch. For 10 points, name this author of *To Kill a Mockingbird*.
ANSWER: Nelle Harper **Lee**

052-13-90-12105

6. Air campaigns during this war included Linebacker II and Operation Rolling Thunder. The Case-Church Amendment ended American involvement in this war, which saw the first combat use of "Huey" helicopters. Walter Cronkite had a pessimistic view of this war after the Tet Offensive. The defoliant Agent Orange was used during this war. For 10 points, name this war in which the United States failed to defeat a country led by Ho Chi Minh.
ANSWER: **Vietnam** War

153-13-90-12106

7. Excimers commonly consist of dimers of these substances, which can be accurately described by the Lennard-Jones potential. These elements, which have local maxima on a chart of atomic number and ionization potential and may have slightly negative electron affinities, can be used to shorten the electron configuration, and they always have 8 electrons in the outer shell. For 10 points, name these substances that include Xenon, Argon, and Helium, an unreactive group on the periodic table.
ANSWER: **noble gas**es [or **inert** gases]

048-13-90-12107

8. This city contained a large population of "metics," or resident aliens. Citizens of this city put bronze disks, either solid or containing a hole, in an urn to decide whether a fellow citizen was guilty. Residents of this city piled up pottery shards inscribed with the names of politicians to decide if a politician would be exiled for 10 years in a ritual called "ostracism." For 10 points, name this democratic city-state of ancient Greece.
ANSWER: **Athens** [or **Athenai**]

080-13-90-12108

9. During a reconnaissance mission, this man discovered a path during the Battle of Cerro Gordo that allowed Winfield Scott to flank General Santa Anna in the Mexican War. This man put down the raid on Harper's Ferry, and he stated, "....I have lost my right arm," upon hearing of Stonewall Jackson's death at Chancellorsville. For 10 points, name this commander of the Army of Northern Virginia during the Civil War, who lost at the Battle of Gettysburg and surrendered to Grant at Appomatox Courthouse.
ANSWER: Robert Edward **Lee**

030-13-90-12109

10. This poet attacked his contemporary Colley Cibber by making him the king of dunces in his mock epic *The Dunciad.* He coined the sayings, "To err is human, to forgive divine," and "A little learning is a dangerous thing" in another poem. In his most famous poem, the Baron climactically cuts off a piece of Belinda's hair. For 10 points, name this satirical Augustan poet of *An Essay on Criticism* and *The Rape of the Lock.*
ANSWER: Alexander **Pope**

014-13-90-12110

11. In a book by this author, the title character fights against Gamzat and Shamil. This author wrote a novel whose protagonist likes to rest his feet on Gerasim's shoulders. In another of his works, a character cries out when Frou-Frou falls during a horse race. This author of *Hadji Murad* and *The Death of Ivan Ilyich* wrote a novel in which Levin marries Kitty, and the title character kills herself by jumping under a train. For 10 points, name this Russian author of *Anna Karenina*.
ANSWER: Leo **Tolstoy** [or Lev Nikolayevich **Tolstoy**]

232-13-90-12111

12. In non-human mammals, the GULO enzyme is able to synthesize this substance. This substance is used as a cofactor for dopamine beta-hydroxylase, which is required for the synthesis of norepinephrine. It serves as a cofactor for the hydroxylation of proline, which is key to collagen synthesis. A deficiency of this vitamin causes a disease in which mucuous membranes bleed, called scurvy. It is also known as ascorbic acid. For 10 points, name this vitamin found in citrus fruits.
ANSWER: vitamin **C** [accept **ascorbate** or **ascorbic acid** before mention]

13. This literary character hires two men whose eyes he describes as crying millstones, rather than "foolish tears". This man is repeatedly told to "despair and die!" by a series of ghosts who visit him shortly after he orders James Tyrrell to kill his nephews, Richard and Edward, who he had locked in the Tower of London. At the beginning of the play, this character laments that "now is the winter of our discontent", and he later offers "my kingdom for a horse" before dying at Bosworth Field. For 10 points, name this hunchbacked title king of a Shakespeare play.
ANSWER: **Richard III** [prompt on **Richard**; prompt on **Richard** of York; prompt on **Richard** Plantagenet]

14. Winston Churchill sought British hegemony over this country by signing the "percentages agreement" with Joseph Stalin. The Truman Doctrine promised economic aid for this country and Turkey to resist communist insurgencies. Its Prime Minister, Antonis Samaras, has struggled to deal with a 26.8% unemployment rate without leaving the Euro. For 10 points, name this Balkan nation currently in shambles from the massive austerity imposed by other countries in the Eurozone.
ANSWER: **Greece**

15. This function approaches a constant times n over e to the nth power, according to Stirling's approximation for it. This function is generalized to non-integer inputs by the gamma function. The formula for n choose k is this function of n divided by this function of k times this function of n minus k. Many Maclaurin series, including that of e to the x, use this function in the denominator. For 10 points, identify this function which gives the product of the first n integers and is denoted by an exclamation mark.
ANSWER: **factorial** function [or **exclamation** mark or point until it is read]

1A. What golf course was designed by Bobby Jones and is the site of the Masters every year?
ANSWER: **Augusta** National Golf Course

1B. What mountain range covers much of northern Arkansas and southern Missouri?
ANSWER: **Ozark** Mountains/Plateau

2A. What psychologist wrote *The Lucifer Effect* and studied the psychology of prisons in the Stanford Prison Experiment?
ANSWER: Philip **Zimbardo**

2B. Name the data structure that consists of a group of nodes with two fields: one for data, and one for the address of the next node.
ANSWER: **linked list**

3A. This is a 20-second calculation question. How many real roots does the polynomial "*x* cubed minus 1" have?
ANSWER: **1**

3B. This is a 20-second calculation question. If a normal distribution has a mean of 15 and a standard deviation of 3, what is the probability, to the nearest percentage point, that a single number taken from this distribution is greater than 18?
ANSWER: **16%** [or **16/100**; or **4/25**]

4A. What first sacrament of the Catholic Church is responsible for washing away original sin?
ANSWER: **baptism**

4B. Name the author who wrote about Tana, the Japanese servant to Gloria and Anthony Patch, in his novel *The Beautiful and Damned,* and about Amory Blaine in *This Side of Paradise.*
ANSWER: F. Scott **Fitzgerald** [or Francis Scott Key **Fitzgerald**]

5A. What author of *Under the Moons of Mars* created characters like John Carter and Tarzan?
ANSWER: Edgar Rice **Burroughs**

5B. What mathematical treatise by Euclid, which consists of thirteen books, outlines the postulates that underlie Euclidean geometry, such as the parallel postulate?
ANSWER: *Elements*

6A. What interrogative pronoun is wo (VOH) in German and donde (DOHN-day) in Spanish?
ANSWER: **where**

6B. What word is prefixed to stratus clouds and suffixed to cumulus clouds to denote them when they bear precipitation?
ANSWER: **nimbus** [or **nimbo**]

7A. What American composer wrote the incomplete *Universe Symphony* and *Three Places in New England*?
ANSWER: Charles **Ives**

7B. What American photographer took pictures of the Civil War and displayed the violence of war in his "Dead of Antietam" exhibition?
ANSWER: Matthew **Brady**

8A. What first virus to be discovered causes oddly-colored leaves on a certain cash crop?
ANSWER: **tobacco mosaic** virus [or **TMV**]

8B. Gary Gygax created what role-playing game in which a d20 is rolled when certain situations are encountered?
ANSWER: ***Dungeons and Dragons*** [or ***DnD***]

9A. This is a 30-second calculation question. By what factor does the surface area of a sphere increase if its volume is increased by a factor of 512?
ANSWER: **64**

9B. This is a 30-second calculation question. If the cosine of x equals one minus the cosine of x, and x is a first-quadrant angle, then what is x?
ANSWER: **pi over three** radians [or **one-third pi** radians; or **60** degrees]

10A. In the blood, bicarbonate and carbonic acid form what type of mixture of a weak acid and its conjugate base?
ANSWER: **buffer** solutions

10B. The D lines of what element are present in the Fraunhofer series?
ANSWER: **sodium** [or **Na**]

1. This man painted a yellow awning above a cobblestoned street in his depiction of an outdoor café terrace, and included a billiards table in the middle of a room with red walls and a green ceiling in his version of the inside of a café. This artist created several paintings of wheat fields and cypress trees. His best-known painting depicts the village of Saint-Remy under a swirling sky. For 10 points, name this painter of *Sunflowers* and *The Starry Night*.
ANSWER: Vincent **van Gogh**

190-13-90-12117

2. This poet responded to contemporary misogynist literature with his *The Legend of Good Women.* He began one poem by describing April's sweet showers piercing the drought of March to the root. He used rhyme royal stanzas in his narrative poem *Troilus and Criseyde.* Characters in his most famous work include the Pardoner, the Knight, and the Wife of Bath. For 10 points, name this medieval English poet of *The Canterbury Tales.*
ANSWER: Geoffrey **Chaucer**

014-13-90-12118

3. In one passage, this writer called poetry "The spontaneous overflow of powerful emotions recollected in tranquility." This poet described the days of "splendour in the grass" in his "Ode: Intimations of Immortality." He began a poem addressed to his sister Dorothy by noting that five years had passed since visiting the banks of the river Wye. For 10 points, name this British Romantic poet of "Tintern Abbey" who collaborated on *Lyrical Ballads* with Samuel Taylor Coleridge.
ANSWER: William **Wordsworth**

014-13-90-12119

4. This occupation is what Susan Alexander is forced into working at despite her lack of talent at the insistence of her husband Charles Foster Kane. In real life, this occupation was held by Jenny Lind, who was managed by P.T. Barnum; that woman was nicknamed the "Swedish Nightingale." Jose Carreras and Placido Domingo joined a third man in being stars in this field. For 10 points, name this occupation held by the late Luciano Pavarotti and the other Three Tenors, who popularly performed various arias.
ANSWER: **opera singers** [prompt on **singers**, prompt on **tenors**]

052-13-90-12120

5. This poet used an epigraph from the ballad of Sir Patrick Spence to open his poem "Dejection: An Ode." One of his poems describes a sacred river that "ran through caverns measureless to man down to a sunless sea." Another of his poems describes a wedding guest who is told by the title character about the curse resulting from the shooting of an albatross. For 10 points, name this British poet of "Kubla Khan" and "The Rime of the Ancient Mariner."
ANSWER: Samuel Taylor **Coleridge**

014-13-90-12121

6. In this book, a character becomes a clown after being drugged in an opium den by a police officer. This novel's main character is mistaken for a bank robber by Inspector Fix and he wins his bet when he realizes he forgot to adjust for crossing the International Date Line. The protagonist saves a woman from being sacrificed in India and is served by his valet Passepartout (pass-port-too). For 10 points, name this Jules Verne novel in which Phileas Fogg circumnavigates the globe.
ANSWER: *__Around the World in Eighty Days__* [or *Le __tour du monde en quatre-vingts jours__*]

7. In one show on this TV network, Max and Caroline are squatters in a Williamsburg apartment who plan to open their own cupcake business. Another series on this TV network features Abby and Ducky as members of a team led by Leroy Jethro Gibbs. This TV network that plays *2 Broke Girls* also produces a show about Caltech physicists Leonard Hofstadter and Sheldon Cooper. For 10 points, name this broadcasting company that airs the shows *NCIS* and *The Big Bang Theory*.
ANSWER: __CBS__ Broadcasting, Inc. [or __Columbia Broadcasting System__]

8. The candidate who defeated Alieta Eck in an August 2013 Republican primary for this office was previously the subject of the documentary *Anytown USA,* focusing on his election as mayor of Bogota. In the Democratic primary for this office, Sheila Oliver, Frank Pallone, and Rush Holt lost. The special election for this office will replace Frank Lautenberg, who died in June 2013. For 10 points, name this office that Steven Lonegan and Cory Booker are contending for.
ANSWER: United States __Senator__ from __New Jersey__ [prompt on __Senator__]

9. This activity appears in the title of a novel ending with the apology "Sorry I forgot to give you the mayonaise," a counterculture classic written by Richard Brautigan. This activity provides the livelihood of a man who proclaims that "a man can be destroyed, but not defeated," dreams of lions on an African beach, and enjoys the baseball prowess of Joe DiMaggio, who takes Manolin as an apprentice after 84 days without success. For 10 points, name this activity performed by Santiago in Hemingway's *The Old Man and the Sea.*
ANSWER: __fish__ing

10. Tony Zerilli claimed that this man was hit with a shovel and buried alive after vanishing from a Detroit restaurant. In 1971, Richard Nixon pardoned this man for crimes committed while serving the president of the largest American union. In that position, he managed to pass the National Master Freight Agreement. For 10 points, name this man with mob ties who throughout the 1950s and 1960s, served as president of the Teamsters.
ANSWER: James Riddle "Jimmy" __Hoffa__

11. A man who held this leadership position may have been killed on orders of Ambassador Henry Lane Wilson during the Ten Tragic Days. Another man to hold this post pursued anti-Catholic policies during the Cristero War. A later man with this title offered shelter to Leon Trotsky. The PRI controlled this office until the 2000 election of Vicente Fox. The dictatorial Porfiiro Diaz held this post for decades. For 10 points, name this North American executive office.
ANSWER: __president of Mexico__ [or __president of the United Mexican States__; accept any answer describing the elected __head of state of Mexico__; do not accept "king" or "emperor" of Mexico]

12. In September 2013, this province proposed that its new Charter of Values should ban all government employees from wearing religious symbols. Three months earlier, this province was the target of protests by Sikhs, who were singled out by a rule barring the wearing of turbans during soccer matches. This province advocates for a "distinct society" and the privileged position of the French language. For 10 points, name this Canadian province.
ANSWER: **Quebec**

13. One of these objects was created after Adonis was gored by a boar and he bled out onto the ground next to Aphrodite. Another of these objects was created after the West Wind jealously blew back a discus, killing Apollo's lover. Another mythological character transformed into one of these objects after falling in love with his own reflection and neglecting to eat. For 10 points, name this type of object into which Hyacinthus and Narcissus were transformed.
ANSWER: **flower**

14. In attempting to explain the Second Law of Thermodynamics, this scientist developed an H-theorem. This scientist's tombstone contains the inscription S equals k-log-W, which relates the amount of entropy to the possible number of microstates of a system. Naming a distribution describing a particle's speed with Maxwell, this scientist pioneered the field of statistical mechanics. For 10 points, name this scientist whose constant, symbolized k-sub-B, is equal to 1.38 times 10 to the negative 23rd power Joules per Kelvin.
ANSWER: Ludwig **Boltzmann**

15. This man killed his music master Linus after Linus tried to correct him. This figure's corpse was placed on a funeral pyre on Mt. Oeta, and he married Hebe after reconciling with Hera. After killing Megara and her children in a fit of madness, this hero was forced to become a servant of Eurysethus. This hero strangled two snakes in his cradle. For 10 points, name this strong Greek hero who seized Geryon's cattle and slew the Nemean lion as part of his twelve labors.
ANSWER: **Heracles** [or **Hercules**]

1. A blue-white screen is commonly used to separate out cells that have undergone this process, which can be helped by using electroporation. In one experiment, this process turned rough colonies into dead smooth colonies. Calcium chloride incubation will make cells amenable to this process. This Competent cells can undergo this process, which is typically most efficient for small, supercoiled plasmids. For 10 points, name this process in which bacteria take up naked DNA.
ANSWER: **transformation**

048-13-90-12132

2. During this battle, the death of Asa Pollard caused many of his comrades on the defending side to desert. The death of General Warren at this battle was the subject of a John Trumbull painting. Most of the fighting in this battle took place on Breed's Hill. The defenders at this battle were given the order "Don't fire until you can see the whites of their eyes." For 10 points, name this 1775 battle in which American forces near Boston fought near a namesake hill.
ANSWER: Battle of **Bunker Hill**

153-13-90-12133

3. This quantity is a minimum for an object when the axis chosen is through its center of mass. This quantity for an axis parallel to that axis can be found by adding mass times distance squared. For a solid sphere, this quantity is equal to two-fifths times mass times radius squared. This quantity multiplied by angular acceleration yields torque, in an analog of Newton's second law. For 10 points, identify this rotational analog of mass, symbolized I, that is named for the concept that objects resist changes in motion.
ANSWER: **moment of inertia** [or **I** until it is read]

066-13-90-12134

4. This man negotiated the Gastein Convention after maneuvering Denmark out of control of the duchies Schleswig and Holstein. This man edited a message about an encounter with a French ambassador in the Ems Dispatch. This man wanted a smaller national state as described in his "Blood and Iron" speech, and he attacked the Catholic Church as part of his Kulturkampf. For 10 points, name this "Iron Chancellor" who played a key role in Wilhelm I becoming the first emperor of a unified Germany.
ANSWER: Otto Eduard Leopold von **Bismarck**

023-13-90-12135

5. A woman with this first name dies of malaria contracted soon after she sneaks off to the Coliseum to meet Mr. Giovanelli, upsetting Frederick Winterbourne. Another woman with this first name claims that the best thing that a girl can be in this world is a "beautiful little fool." The latter woman sobs while admiring the beauty of several fancy shirts, kills Myrtle Wilson by running her over with her husband's car, and is symbolized by the green light at the end of her dock. For 10 points, give this first name of Tom Buchanan's wife, Jay Gatsby's love interest.
ANSWER: **Daisy** [accept **Daisy Miller**; accept **Daisy Buchanan**]

020-13-90-12136

What analytical technique fragments a sample into a series of ions and measures their mass-to-charge ratios?
ANSWER: **mass spec**trometry [or **mass spec**troscopy_]

This is a calculation question. What is the area of the region defined by |x|+|y|<1 ("absolute value of x plus absolute value of y is less than one)?

ANSWER: **2**