1. A peak in this mountain range is Going-to-the-Sun Mountain. Despite its name, the amusingly named "Mount Massive" is only the second highest peak in this range. Katharine Lee Bates wrote the poem "America the Beautiful" after ascending a peak in this range. Its highest peak is Mount Elbert, and it contains such national parks as Banff and Grand Teton. For 10 points, name this mountain range which includes Pike's Peak and other Colorado mountains.
ANSWER: **Rocky** Mountains [or the **Rockies**; or **Lewis** Range until it is read]

052-13-90-10101

2. One episode of this novel sees the attempted rape of the schoolteacher Fern Mullins by Cyrus Bogart, leading to charges of immorality towards Fern. The protagonist of this novel realizes that she is not in love with Guy Pollock when he states that he and she both want, "....to go back to an age of tranquility and charming manners." In this work, Carol Kennicott's attempt to stage Shaw's *Androcles and the Lion* is vetoed in a small Minnesota town. For 10 points, name this novel centering on the titular thoroughfare in the town of Gopher Prairie, a work of Sinclair Lewis.
ANSWER: ***Main Street***

030-13-90-10102

3. This coach's players on his "Untouchables" squad included Tony Delk and Antoine Walker. This man's son is currently coaching the Minnesota Gophers basketball team. When coaching the Boston Celtics, he told fans that "Larry Bird is not walking through that door." This man's title winning players included Peyton Siva and Russ Smith. For 10 points, name this coach who won the 2013 NCAA Division I basketball championship with the Louisville Cardinals.
ANSWER: Richard "Rick" **Pitino**

052-13-90-10103

4. A massive fight called the *Prioritatsstreit* over who could claim this title raged between British and German allies of the two men in contention during the early 1700s. One person who laid claim to this title justified it by pointing to his dot notation and work on fluxions and fluents. The other used as evidence his first publication and superior notation involving dx. For 10 points, identify this honorific that should go to Isaac Newton or Gottfried Leibniz, for their pioneering work in a subfield of math involving integration and differentiation.
ANSWER: **inventor** of **calculus**

233-13-90-10104

5. The Lorentz force of a particle is proportional to the electric field plus this operation performed on velocity and the magnetic field. The curl is this operation performed between a vector and its partial derivatives. Torque is equal to this operation on force and displacement. The right hand rule is useful in finding the direction of the vector that results from this operation. For 10 points, name this operation performed on vectors which returns a vector unlike the dot product.
ANSWER: **cross product** [or **vector product** before "vector"]

121-13-90-10105

6. In one work set in this state, the itenerant preacher Bessie convinces Dude to marry her by purchasing a new Ford. That work set in this state sees the burning of Jeeter Lester's home and is Erskine Caldwell's *Tobacco Road*. This state was the location of a road trip that includes the cat Pitty Sing and culminates in the murder of a family by The Misfit in Flannery O'Connor's story "A Good Man is Hard to Find." For 10 points, name this southern state that was the location of Tara in Margaret Mitchell's novel *Gone With the Wind*.
ANSWER: **Georgia**

030-13-90-10106

7. Although it is not traversal, for trees, this operation can be performed depth-first or breadth-first. The edit distance is often incorporated when performing this operation on strings. The binary type of this operation reduces an array by half on every iteration, and is performed on a sorted array. In the worst case, the naïve linear type of this operation has to compare every element in a list. For 10 points, identify this basic computer operation that attempts to find a specified item in a list.
ANSWER: **search**ing [do not accept "sorting"]

066-13-90-10107

8. In a poem about one of these locations, the speaker tells us "thy memory be as a dwelling place/for all sweet sounds and harmonies" and that it was five years since he had visited the River Wye. In one novel, the Tilneys own this type of building, which is visited by Catherine Moreland. Many famous British authors have memorials located in The Poet's Corner, a section of one of this type of building. For 10 points, name this type of religious building, one of which is found in Westminster.
ANSWER: **abbey**s

140-13-90-10108

9. One example of these devices is used to measure ligand binding constants and uses isothermal titration. Another example of these devices contains a sample pan and a reference pan and uses differential scanning. Another type contains a rigid vessel in which a reaction is ignited, allowing it to change the temperature of a water jacket - that is the bomb type. For 10 points, name these devices that can be used to measure the heat of a chemical reaction, a common example of which can be created with a coffee cup.
ANSWER: **calorimeter**

048-13-90-10109

10. After Timothy Pickering was dismissed, this man replaced him as Secretary of State for a year before being sworn into a new role right before the end of John Adams' presidency. With Charles C. Pinckney and Elbridge Gerry, this man took part in a diplomatic mission to France that became the XYZ Affair. This man initiated the process of judicial review with his decision in *Marbury v. Madison.* For 10 points, name this longest-serving Chief Justice of the Supreme Court.
ANSWER: John **Marshall**

023-13-90-10110

11. The fruiting body of one phylum of these organisms is called the basidiocarp and other phylums include Ascomycota. These organisms have a branching filamentous structure called hyphae, which is collected in mycelium. The cell wall of these organisms is made from chitin. These organisms form a symbiotic relationship with plant roots in mycorrhizae and with a photosynthetic organism, like green algae, in lichens. For 10 points, name this kingdom that includes yeasts, molds, and mushrooms.
ANSWER: **fungi** [or **fungus**]

066-13-90-10111

12. Formally, this case is taken by the prepositions meaning "on the other side," "instead," "in spite," and "during," which are "jenseits," "anstatt,""trotz," and "während." In spoken German, prepositions which take this case in writing are often paired with the dative instead. Usually, nouns whose nominative form ends with "s" or "z" will form the "s" or "es" ending in this case. For 10 points, name this German noun case used to show possession.
ANSWER: German **genitive** case [or **genitiv**]

019-13-90-10112

13. One method of doing this attaches a SmartBell to either side of the sample. The PGM IonTorrent and ABI SOLID are two other methods of performing this technique, another method of which relies on assembling long contigs. Fluorescently labelled dideoxy chemicals enabled the automation of the “Sanger” method of doing this, which was used both in a “Shotgun” effort by Celera and an NIH effort to apply this technique to humans. For 10 points, name this technique which determines the order of bases in a DNA sample.
ANSWER: DNA **sequencing**

048-13-90-10113

14. Tensions leading to this war increased when John Pym engineered the execution of the Earl of Strafford. Another cause of this war was the "Eleven Years' Tyranny." During this war, a victory at Marston Moor encouraged reforms that created the New Model Army, whose subsequent victory at the Battle of Naseby turned the tide in favor of the Roundheads against the Cavaliers. For 10 points, name this conflict that resulted in the execution of Charles I and the Protectorate of Oliver Cromwell.
ANSWER: **English Civil War**

080-13-90-10114

15. Frits Zernike and Georges Nomarski both developed methods used for this device: phase contrast and differential interference contrast. Most modern forms of one type of this device use Köhler illumination. This device was popularized by a publication of Robert Hooke that coined the term "cell". Major improvements to this device were made by Anton von Leeuwenhoek. For 10 points, identify this device that is used to magnify really small objects, like bacteria.
ANSWER: light **microscope**

066-13-90-10115

1A. What member of the Combatant Clergy Association won the 2013 elections to succeed Ahmadinejad as President of Iran?
ANSWER: Hassan **Rouhani**

1B. What Union general commanded the Army of the Potomac at battles like the Bristoe Campaign and Gettysburg?
ANSWER: George Gordon **Meade**

2A. What rhetorical device is used when a speaker addresses someone or something not present?
ANSWER: **apostrophe**

2B. Mont Blanc and the Matterhorn are two peaks of what European mountain range?
ANSWER: **Alps**

3A. This is a 20-second calculation question. At a constant flow rate, it takes 60 hours to fill a right cylindrical water tank. How long would it take to fill a conical water tank with the same base radius and twice the height?
ANSWER: **40** hours

3B. This is a 20-second calculation question. What is the value of cos(x) to the 4th power minus sin(x) to the fourth power, if x equals 15 degrees?
ANSWER: the square **root** of **3, over 2** [or **radical 3, over 2**]

4A. Photodissociation of chlorofluorocarbons depletes what molecule principally found in the stratosphere?
ANSWER: **ozone** [or **O_3**]

4B. What outermost layer of the sun is very visible during a solar eclipse?
ANSWER: **corona**

5A. Which character from American literature befriends Queequeg and is the only survivor of the *Pequod* 's doomed voyage?
ANSWER: **Ishmael**

5B. What father of Muhammad's wife Aisha is believed by Sunni Muslims to be the rightful successor to Muhammad?
ANSWER: **Abu Bakr**

6A. What Egyptian goddess of love and joy is often depicted as a cow?
ANSWER: **Hathor**

6B. What German composer evoked his imaginary alter egos Eusebius and Florestan in numerous pieces and also married Clara Wieck?
ANSWER: Robert **Schumann**

7A. What term denotes the process in which stem cells become specific cell types as well as the process of taking the derivative?
ANSWER: **differentiation**

7B. What substances, like bromothymol blue and methyl red, change color at particular pH values?
ANSWER: **indicator**

8A. In August 2013, Amazon CEO Jeff Bezos purchased what newspaper for 250 million dollars cash?
ANSWER: *The Washington* ***Post*** [or **WP**]

8B. Igor Stravinsky titled his ballet about Prince Ivan after what avian from Slavic myth?
ANSWER: The **Firebird**

9A. This is a 30-second calculation question. Find the inverse of the function "y = 2 x plus 3."
ANSWER: x equals quantity **y minus 3, over 2** [or x equals **one-half** quantity **y minus 3**; or x = **(y-3)/2**; or x equals **one-half y minus 1.5**]

9B. This is a 30-second calculation question. Using the 68-95-99.7 rule, what is the percentage of data in a normal distribution with a z-score greater than -1 and less than 3? Express your answer to two decimal places.
ANSWER: **83.85**%

10A. What 732 CE victory in France for Charles Martel established the boundary of Muslim Europe?
ANSWER: Battle of **Tours** [or Battle of **Poitiers**]

10B. What country was first led by Syngman Rhee and saw its president Park Chung-hee assassinated in 1979?
ANSWER: **South Korea**

1. This architect designed a museum in the shape of a cubic pyramid in Doha, Qatar. This man devised a plan to redesign many buildings in Oklahoma City, and he designed a flawed skyscraper that dropped window panes whenever it got windy. This architect of the Hancock Tower designed the Rock and Roll Hall of Fame in Cleveland and the East Building of the National Gallery of Art. For 10 points, name this Chinese-American architect who designed the glass pyramid at the Louvre.
ANSWER: Ieoh Ming **Pei**

227-13-90-10117

2. This artist depicted his wife, Jo, sitting at a table with a cup of coffee under two rows of lights in *Automat.* Another painting by this man shows two women sitting at a table ready to eat the title food, which is advertised by a red neon sign in the background. This man painted an advertisement for Phillies cigars on top of a building, in which three people sit around a triangular counter on a dark night. For 10 points, name this American painter of *Chop Suey* and *Nighthawks.*
ANSWER: Edward **Hopper**

227-13-90-10118

3. The hero of this literary work becomes king after Hygelac dies in battle. In this work, Unferth gives the hero a sword that turns out to be completely useless on the hero's next opponent. In one battle in this text, the hero wins by ripping off the arm of his opponent. Seamus Heaney made a famous translation of this epic poem, whose hero dies after defeating a dragon. Earlier, that hero travels to Hall Heorot and slays the monster Grendel. For 10 points, name this Old English poem about the King of the Geats.
ANSWER: ***Beowulf***

140-13-90-10119

4. This character poses as an Italian priest to take the train with his friend. He sets up a wax dummy to fool Colonel Sebastian Moran and frequently uses cocaine by injecting it in a "seven-per-cent solution." In "The Final Problem," this hero and brother of Mycroft seemingly dies after falling at Reichenbach Falls when fighting his nemesis, Professor Moriarty. For 10 points, name this partner of Dr. Watson, a brilliant detective created by Arthur Conan Doyle.
ANSWER: **Sherlock** Holmes [or Sherlock **Holmes**]

052-13-90-10120

5. This man wrote a story in which a lawyer spends fifteen years in a garden house as part of a bet with a lawyer. In a play by this writer, the author Boris Trigorin abandons the actress Nina, who is presented with the dead title bird by the infatuated Konstantin. This playwright names a concept that a gun shown in the first act must go off in the third act. For 10 points, name this Russian playwright whose works include *The Cherry Orchard* and *The Seagull*.
ANSWER: Anton Pavlovich **Chekhov**

023-13-90-10121

6. In one play, this character interprets a thunderstorm as a sign of his impending death, prompting him to give his burial site as a gift to Athens. He spends most of that play in a grove sacred to the Furies near Colonus. In an earlier play, he learns that he was adopted by Merope and Polybus, wins a fight at a crossroad by killing Laius, marries Jocasta, and solves the riddle of the Sphinx. For 10 points, name this title character of two of Sophocles's Theban plays, a Greek who unwittingly killed his father and married his mother.
ANSWER: **Oedipus** [or ***Oedipus*** *Rex*; or ***Oedipus*** *at Colonus*]

029-13-90-10122

7. During the Civil War, this man was nicknamed the "Boy General" and, with David Gregg, held off Jeb Stuart's forces on the third day of the Battle of Gettysburg. This man did not follow Alfred Terry's hammer and anvil plan when he initiated the battle that led to his death. This man led the Seventh Cavalry in that battle against people led by Crazy Horse and Sitting Bull. For 10 points, name this United States army officer whose fight at Little Bighorn is known as his "Last Stand."
ANSWER: George Armstrong **Custer**

023-13-90-10123

8. This actor played a thief who teams up with Perry van Shrike in a movie whose sections are named after Raymond Chandler stories. In another film, this actor asks, "Is it better to be feared or respected? I say, is it too much to ask for both?" This actor, who starred alongside Val Kilmer in *Kiss Kiss Bang Bang*, played a man who builds a device "in a CAVE! with a BOX OF SCRAPS!", to the consternation of Obadiah Stane. For 10 points, name this actor who starred as Tony Stark in *Iron Man.*
ANSWER: Robert **Downey**, Jr.

080-13-90-10124

9. In this work, Steelkit leads a mutiny aboard the *Town-Ho*. Fedallah the Parsee interprets a dream in this work in which he predicts that only hemp will kill one of the characters. One character in this work prays to the “little black god” named Yojo and that character saves Tashtego. Starbuck is the chief mate in this work that also sees the death of Queequeg. For 10 points, name this novel in which Ishmael sails with Captain Ahab aboard the *Pequod* in a search for a great whale, a work by Herman Melville.
ANSWER: ***Moby Dick***

030-13-90-10125

10. Upon arriving at this place, Gareth was given the name “Beaumains” and forced to work in the kitchen. This location was home to a table given as a wedding gift by Leodegrance, as well as a chair which brought instant death to all but the most virtuous. An inhabitant of this location accidentally slept with Elaine while carrying on an affair with Guinevere. For 10 points, name this location where Gawain, Lancelot, and King Arthur held court.
ANSWER: **Camelot**

190-13-90-10126

11. The appendages of animals in this phylum can be biramous or uniramous. The fluid in the circulatory system of many animals in this phylum is the hemocyanin-containing hemolymph, which is blue when oxygenated. A class in this phylum commonly uses book lungs for respiration. The exoskeleton of animals in this phylum is divided into the head, thorax and abdomen. For 10 points, identify this phylum of segmented invertebrates that includes crustaceans and arachnids.
ANSWER: **arthropod**s [or **Arthropoda**]

066-13-90-10127

12. This body of water's historical names include Girkansk, meaning "Land of Wolves." Demand for beluga caviar, primarily found in this lake, has endangered its sturgeon. The Talish and Elburz Mountains are located along the south of this body of water. The Volga River empties into this body of water after flowing through Astrakhan. For 10 points, name this largest totally-enclosed body of water on earth, a lake or sea that borders Azerbaijan, Turkmenistan, and Iran.
ANSWER: **Caspian Sea**

080-13-90-10128

13. One of these beings is the subject of a mural in Sky Haven Temple. An attack by one of them on Helgen enabled a prisoner to escape his execution. The *Dawnguard* add-on introduced a purple "legendary" variety of this creature. Paarthunax and the World-Eater Alduin are examples of these creatures, whose souls can be absorbed enabling access to powerful shouts. For 10 points, identify these creatures the protagonist of *Skyrim* was "born" to slay, which fly around and breathe fire.
ANSWER: **dragon**s [or **Dov**ah if the answerer speaks the dragon language]

233-13-90-10129

14. A potential derived from this law is added to the Hamiltonian of the QHO to distinguish it from a simple particle-in-a-box. As a differential equation, this law can be solved by setting omega equal to the square root of k over m, giving the position function equal to the sine of omega times time. Stress is proportional to strain, according to this law. It's often written with a negative sign to denote that restoring force is opposite the extension. For 10 points, name this law written F equals k x that applies to springs.
ANSWER: **Hooke**'s Law

190-13-90-10130

15. The fallibility of these things is demonstrated in the "lost in the mall" experiment, which was performed by a psychologist who often testifies as to the unreliability of these things, Elizabeth Loftus. In the 1980s, Loftus denounced the craze for "recovered" versions of these things, which fueled panic over alleged Satanic abuse. For 10 points, identify these phenomena of the human brain which can be retrieved from "short-term" or "long-term" storage.
ANSWER: **memories** [or **memory**]

019-13-90-10131

1. He wrote a poem about how the bonnet of a woman in church has a louse in it. He wrote a poem in which the title character rides away from witches at Alloway Kirk. Another of his poems says the “best laid schemes of [the title animal] and men” often go awry. One of this man’s poems doubles as lyrics for a New Years’ song. For 10 points, “Tam o’Shanter,” “To a Mouse” and “Auld Lang Syne,” were all written by what Scottish poet?
ANSWER: Robert **Burns** [or Robbie **Burns**]

153-13-90-10132

2. In pyrosequencing, the creation of this molecule by a namesake sulfurylase generates a signal by activating luciferase. The sodium-potassium pump consumes large quantities of this molecule. This molecule is created by a rotor-like protein that has an F0 base-piece and an F1 domain, which is driven by a proton gradient created by the electron transport chain. 34 molecules of it are created by the complete oxidation of glucose. For 10 points, name this primary energy currency of the cell.
ANSWER: **ATP** [or **adenosine triphosphate**]

048-13-90-10133

3. This man grew up in a house owned by Jonas Clarke, where messengers later warned him about advancing troops. This man was involved in wine smuggling with his ship, *Liberty.* In Lexington, this man and Samuel Adams learned about the advance of the British from Paul Revere. This man apocryphally claimed that a monarch would have no trouble reading his name on a document. For 10 points, name this Revolutionary leader who was the first to sign the Declaration of Independence.
ANSWER: John **Hancock**

023-13-90-10134

4. Carmichael numbers are examples of these numbers that satisfy the relation a to the n is equal to a, mod n, which is equivalent to erroneously satisfying Fermat's little theorem. Because checking for divisibility by them would be redundant, these numbers are crossed out in a sieve named for a Greek mathematician. According to the fundamental theorem of arithmetic, these numbers can be written as the product of two or more primes. For 10 points, identify these numbers which have factors other than one and themselves.
ANSWER: **composite** numbers

233-13-90-10135

5. This monarch stripped art historian Anthony Blunt of his knighthood after he was unmasked as a spy. This monarch proclaimed one year of her reign to be an "annus horribilis," in part due to a Windsor Castle fire . While this monarch was on vacation in Balmoral, Dodi Fayed and this woman's former daughter-in-law were killed after paparazzi pursued them in Paris. Margaret Thatcher and Tony Blair were two of this monarch's many Prime Ministers. For 10 points, name this British queen.
ANSWER: **Elizabeth II** [prompt on **Elizabeth**]

020-13-90-10136

What French philosopher wrote about his namesake “wager” on God’s existence in his *Pensees?* (pen-SAYS)
ANSWER: Blaise **Pascal**

This is a calculation question. If four hats of different sizes are distributed randomly to four gnomes of different ages, what is the probability that the oldest gnome will get the largest hat, the next oldest gnome will get the next largest hat, and so on?
ANSWER: **1/24**