1. This man painted a seated Pope looking on as the titular emperor crowns himself in front of his wife Josephine in his work *The Coronation of Napoleon*. In another of his works, a man in red holds a cup of hemlock to the titular philosopher sitting on a bed. This artist's depictions of classical themes include *The Intervention of the Sabine Women* and one in which a man holds three swords up as the titular brothers pledge to fight to the death. *The Death of Socrates* was painted by, for 10 points, what French painter of *The Oath of the Horatii*?
ANSWER: Jacques Louis **David** (dah-VEED)

015-10-20-01101

2. Elements in this object's atmosphere selectively absorb its radiation to create Fraunhofer lines in its spectrum. The Van Allen belts are compressed by particles of charged ions emitted by this object. This star's surface, the photosphere, is not as hot as its chromosphere and its massive corona, which is only visible during a total eclipse. For 10 points, name this star that provides heat and light for Earth.
ANSWER: the **Sun**

004-10-20-01102

3. The Batanes and Babuyan Islands are located in a strait north of this nation, whose center is governed by the Visaya administrative region. Containing such rivers as the Pasig and Cagayan, its highest point, Mt. Apo, is located on its second largest island. A better-known peak, however, is a volcano whose 1991 eruption was the second largest of the 20th century. Most its population lives on the islands of Mindinao and Luzon, which contains the aforementioned Mt. Pinatubo. For 10 points, name this Asian nation with its capital at Manila.
ANSWER: Republic of the **Philippines**

083-10-20-01103

4. Antimony pentafluoride is a part of the magic one. The Hammett function measures the strength of these. The log of their disassociation constant plus the log of the reduced form over the original makes up the right side of the Henderson-Hasselbalch equation. According to Lewis these are electron pair acceptors, while according to Brønsted, these are proton donors. For 10 points, name these chemicals such as HCL that lower the pH of a solution.
ANSWER: **acid**s

001-10-20-01104

5. Sprigs of hemlock distinguished participants of this event, four of whom died while attempting to attack an arsenal guarded by William Shepard's forces. Earlier, its participants, who were known as Regulators, had stopped several court hearings, including one in Springfield. Its aftermath saw John Hancock become Governor. This event demonstrated the weakness of the Articles of Confederation, leading to the drafting of the Constitution. For 10 points, name this 1786 rebellion of poor Massachusetts debtors led by its namesake farmer.
ANSWER: **Shays'** Rebellion [or Daniel **Shays's** Rebellion]

083-10-20-01105

6. The words "ba" and "bei" mark this construction in Mandarin Chinese. In French, one forms this construction using forms of "etre" plus a participle. In Latin, the endings normally used for this construction are the only ones available to deponent verbs. English sentences containing this verb pattern include "the dog was fed" and "the house is being built." For 10 points, identify this grammatical voice, the opposite of the active.
ANSWER: **passive** voice

7. During this man's presidency, a group of Canadian rebels declared a republic on Navy Island. That was part of a conflict during his presidency that took place along the Maine-New Brunswick border. This man dealt with the Caroline Affair while in office. This President was originally a leading member of the Albany Regency. The Aroostook War occurred during his presidency. This man's predecessor's feud with the Second Bank of the United States led to the Panic of 1837. For 10 points, name this President who succeeded Andrew Jackson.
ANSWER: Martin **Van Buren**

8. This organization suffered one scandal when its leader called Gillian Duffy a "bigoted woman." It was briefly led by Harriet Harman until a closely contested election between Ed Balls and a pair of brothers, Ed and David Miliband. This party suffered a major defeat when Nick Clegg and the Liberal Democrats formed a coalition with David Cameron to defeat its leader Gordon Brown. For 10 points, name this British party which has been led by Tony Blair and rivals the Conservatives.
ANSWER: **Labour** Party

9. These molecules can be hydrolyzed from the condensation of an aldehyde and ammonium chloride with potassium cyanide. Visualized on a Ramachandran Plot, these products of the Strecker Synthesis can contain sulfur, such as the one produced by the start codon AUG that is considered essential. Consisting of a carboxylic acid group and a namesake group, they form peptide bonds. Exemplified by methionine (me-THAY-uh-neen) and glycine (GLAHY-seen), for 10 points, name these "building blocks" of proteins.
ANSWER: **amino acid**s

10. This element extracted in the Frasch process is bonded to a hydrogen atom in a functional group once called a mercaptan. In nature, this element is most commonly found in an eight atom ring. This element is only found in the amino acids methionine and cysteine; in cysteine this element forms a type of bridge that links polypeptide chains. A compound containing this element bonded to two hydrogen atoms is notable for smelling like rotten eggs. For 10 points, name this element found below oxygen on the periodic table with chemical symbol S.
ANSWER: **sulfur**

11. On a *Daily Show* segment, Aasif Mandvi explored the divisions between the north and south of this state. A former senator from this state called an ice cream store manager a "smartass." Bill Maher threatened to release a video a week of one resident of this state after Mike Castle lost in its Republican Senate primary. That resident of this state released a recent campaign ad beginning "I am not a witch." For 10 points, name this home of Christine O'Donnell and Joe Biden.
ANSWER: **Delaware**

12. In this author's only novel, the protagonist has a failed relationship with a U.N. interpreter named Constantin. One poem by this author describes the title figure as "a man in black with a Meinkampf look," while another poem tells of the speaker's annoyance at receiving flowers while in the hospital. She wrote poems like "Daddy" and "Tulips" and a novel about the New York City experiences of Esther Greenwood. For 10 points, name this American author of the poetry collection *Ariel* who published *The Bell Jar* before committing suicide.
ANSWER: Sylvia **Plath**

13. The Weierstrass function is notable since it lacks this quantity at all of its points. This quantity is zero at a critical point and finding the partial form of this quantity is used when calculating the gradient. The mean value theorem concerns the value of this quantity between two points a and b and this quantity is sometimes found using the chain rule. At f(a) ["F of A"], this quantity is equal to the limit as h goes to the zero of f(h+a)-f(a) all over h. For 10 points, name this quantity which describes the rate of change of a function.
ANSWER: **derivative**

14. The "eye" type of this characteristic occurs when two words look like they have this property but in reality don't. The most common type occurs at the very end of a line and is known as the "tail" variety. Depending on what syllable they occur on, they can be classified as dactylic, feminine, or masculine. Assonance refers to their occurrence among vowels and imperfect ones are known as the "slant" variety. For ten points, name this term for a repetition of sounds in two or more words, such as in "hat" and "cat."
ANSWER: **rhyme**

15. In this work, De Lacey is forced into exile after engineering the escape of a Turkish man. At another point, the title character is nursed back to health by Robert Clerval. This novel opens with correspondence involving an Arctic explorer named Captain Robert Walton. Later, we learn that the title scientist had used materials from dissecting rooms and slaughterhouses to create a being eight feet tall. "The Modern Prometheus" is the subtitle of, for 10 points, what story about a scientist creating a monstrous life form, a work by Mary Shelley?
ANSWER: *Frankenstein*

1A. What author wrote of the World War One experiences of Paul Baumer in *All Quiet on the Western Front*?
ANSWER: Erich Maria **Remarque**

1B. To what group of hooved mammals do horses, llamas and pigs belong to?
ANSWER: **ungulate**s

2A. What Jewish holiday celebrates the efforts of Esther and Mordecai to stop the evil Haman?
ANSWER: **Purim**

2B. What ironclad ship fought the Confederate *Merrimack* at the Battle of Hampton Roads during the Civil War?
ANSWER: USS ***Monitor***

3A. This is a 10-second calculation question. If 2x+17=4x+1, what is the value of x?
ANSWER: **8**

3B. This is a 10-second calculation question. If x^2-7x+12.25 = 0, what is a positive solution for x?
ANSWER: **3.5**

4A. What programming language developed by Sun Microsystems in 1995 is known for its online applications known as its namesake "applet"?
ANSWER: **Java**

4B. What board game developed in Germany involves players attempting to a build a colony on a hexagonal tiled map?
ANSWER: *The **Settlers of Catan***

5A. This is a 20-second computation question. Marion wants to get an A in his statistics class, and getting an A requires a minimum of a 90 in the class. Midterms and homework are weighted 30% each, and he has an 84 and 92 on them respectively. If the final is the remaining 40% of his grade, what minimum score must he get on it to receive an A in the class?
ANSWER: **93** [accept **93** %]

5B. This is a 20-second calculation question. Suppose in a parking lot there are 10 cars and 4 trucks. All cars are grey while half of the trucks are grey and half are white. If a grey vehicle is observed leaving the lot, what is the probability that it is a truck?
ANSWER: **1/6**

6A. The northern part of Okefenokee is in what state home to cities like Macon and Savannah.?
ANSWER: **Georgia**

6B. What Egyptian god of darkness and chaos killed and chopped up his brother Osiris?
ANSWER: **Set**h

7A. This is a 30-second computation question. If the surface area of a right circular cone is 24 pi and the radius and height are both integers, what is the volume of the cone in terms of pi?
ANSWER: **12** pi

7B. This is a 30-second computation question. What trigonometric function squared is equal to cosine to the fourth theta plus 3 sine to the fourth theta minus 2 sine squared theta?
ANSWER: **cosine of 2 theta** [or **cosine 2 theta**; or **cos 2 theta**]

8A. What Italian composer wrote *L'Orfeo* and *The Coronation of Poppea*, some of the earliest known operas?
ANSWER: Claudio **Monteverdi**

8B. What Indian prime minister was assassinated in 1984 by Sikh bodyguards following Operation Blue Star?
ANSWER: **I**ndira **Gandhi** [prompt on **Gandhi**]

9A. In 1223, Louis VIII became the first king to be coronated at which cathedral northeast of Paris, the traditional site of French coronations until the nineteenth century?
ANSWER: **Reims** Cathedral

9B. What color does litmus paper turn when placed in basic solution?
ANSWER: **blue**

10A. What third James Bond film to star Sean Connery features villains like Oddjob and involves a plot to detonate a bomb in Fort Knox?
ANSWER: *Goldfinger*

10B. Usually associated with Neo-Impressionism, what painting style creates a scene out of dots of paint and was practiced by Georges Seurat?
ANSWER: **pointillism**

1. This work sees a man named Calandrino tricked into thinking he is pregnant. Another part of this work sees Friar Alberto pretend to be the archangel Gabriel so he can sleep with a woman. The term *brigata* refers to the ten main characters of this work such as Pampinea and Dioneo, who lock themselves in a cathedral and each tell a story a day for ten days to pass time during the Black Plague. For 10 points, name this Renaissance short story collection by Italian author Giovanni Boccaccio.
ANSWER: *The **Decameron***

079-10-20-01117

2. This man wrote a novel about Sierva Maria, a young girl whom the local convent believes to be possessed. This author of *Of Love and Other Demons* also wrote a book where the main character weds Juvenal but secretly loves Florentino, and a novel about Colonel Aureliano and the rest of the Buendia family, who live in Macondo. For 10 points, name this "magical realist," the Colombian author of *Love In the Time of Cholera* and *One Hundred Years Of Solitude*.
ANSWER: Gabriel José **García Márquez**

082-10-20-01118

3. A former NHL team from this state saw the death of one of its players, Bill Masterson, as the result of an on-ice injury. That team, which became the Dallas Stars in 1993, was the North Stars. A baseball team from this state features the catcher Joe Mauer. The Los Angeles Lakers get their name from this state's nickname. In 2009, Brett Favre (FARV) joined an NFL team from this state. For 10 points, name this state which is home to baseball's Twins and football's Vikings.
ANSWER: **Minnesota**

024-10-20-01119

4. The oxidation of one of these compounds with a Jones reagent yields carboxylic acid, and they are the product of the reaction of a ketone with a Grignard reagent. Esters are formed via a reaction of carboxylic acid and this compound in a process named for Fischer. Consisting of a hydroxyl group bonded to a carbon atom, they are given the formula R-OH. For 10 points, name this class of compounds exemplified by methanol and ethanol, the latter of which is found in hand sanitizer and beer.
ANSWER: **alcohol**s

079-10-20-01120

5. A version of this instrument created for the *Ring Cycle* is known as the "Wagner" type and combines it with the French horn. This instrument replaced the ophicleide in the modern orchestra and its virtuosos include Harvey Phillips and Tommy Johnson. It was invented by Wieprecht and Moritz and is closely related to the euphonium and an instrument which sometimes replaces it in marching bands, the sousaphone. For 10 points, name this lowest pitched and largest of the brass instruments.
ANSWER: **tuba**

015-10-20-01121

6. The narrator of this poem acknowledges that "we are not now that strength which in the old days moved earth and heaven." That narrator of this poem also hopes to "touch the Happy Isles," because he is tired of meting and doling "unequal laws unto a savage race." This poem ends with a pledge made by "heroic hearts, made weak by time and fate" to "strive, to seek, to find, and not to yield." For 10 points, name this Tennyson poem about the aging King of Ithaca, which is titled after the Latin name of its speaker, Odysseus.
ANSWER: "**Ulysses**"

7. This battle saw fighting at a farmhouse at Hougoumount and at the village of Plancenoit. The tide of this battle was turned following the arrival of Prussian forces under Gebhard von Blücher (BLUE-ker). This battle occurred at the end of the Hundred Days' after one side's commander had escaped exile from Elba. After defeat at this battle by the Duke of Wellington, that man was exiled again to St. Helena. For 10 points, name this decisive 1815 defeat in Belgium for Napoleon.
ANSWER: Battle of **Waterloo**

8. Oak Ridge National Laboratory has a facility for to generate these particles by spallation. The s and r processes in stars involve the capture of these particles. This particle was discovered by James Chadwick. They consist of two down and one up quark. Fast and thermal ones collide with nuclei to trigger a nuclear fission event. Isotopes of an element differ in the number of these. For 10 points, name these particles that along with protons are found in the nucleus.
ANSWER: **neutron**

9. This author wrote an elegy to Samuel Cooper, as well as an elegy on the death of her father addressed to Mary Moorhead. One poem by this author begins "'Twas mercy brought me from my Pagan land," and expresses appreciation at being taught Christianity. She was able to publish her writing after a group of the leading citizens of Boston interrogated her to confirm that she was able to write poems despite not being white. For 10 points, name this eighteenth century female African-American poet.
ANSWER: Phillis **Wheatley**

10. With Pierre Duhem, this man names an equation describing the change in chemical potential. He also stated that the number of degrees of freedom is equal to the number of components minus the number of phases plus two. The change in one quantity named for this man defines reactions as endergonic or exergonic. That quantity, whose change is less than zero for a spontaneous reaction , is equal to the enthalpy minus the entropy times the temperature. For 10 points, name this American scientist who names a form of free energy symbolized G.
ANSWER: Josiah Willard **Gibbs**

11. Lewis Terman developed one method of determining this value. Hernstein and Murray's *The Bell Curve* refers to the distribution of this measurement while Stephen Gould's *The Mismeasure of Man* describes inaccuracies in it. According to the Flynn effect, this measurement has been on the rise. This measurement can be determined with the Stanford-Binet test and those with a high value can join Mensa. For 10 points, name this measurement of a person's intelligence.
ANSWER: **intelligence quotient** or **IQ**

12. This law is apparently contradicted by the Poincaré recurrence theorem. The Gibbs paradox deals with apparent violations of this law. Rudolf Clausius stated this law as saying that heat cannot spontaneously flow from a cold body to a hotter body. A hypothetical creature which can separate fast molecules and slow molecules, Maxwell's demon, would violate this law. For 10 points, name this law which says that the entropy of an insulated system never decreases.
ANSWER: **second law of thermodynamics**

13. Queen Elizabeth I and the Tudor dynasty are represented with this device in an epic poem about Britomart and the Recrosse Knight by Edmund Spenser called *The Faerie Queen*. It is employed in a novella in which Boxer serves Napoleon the pig. That work, *Animal Farm*, uses it to represent Stalinism, while John Bunyan's *Pilgrim's Progress* uses this device to represent journey of a Christian. For 10 points, give this term for an extended metaphor used to symbolize an outside idea, entity, or message, such as Plato's one about a cave.
ANSWER: **allegory** [accept word forms]

14. Leber hereditary optic neuropathy is caused by mutations associated with these organelle. This organelle is home to an protein with F0 and F1 subunits. Coenzyme Q and cytochrome c are other proteins important in the function of this organelle. The structure of this organelles include a matrix and cristae, while another of its important constructs is the electron transport chain. The Krebs cycle occurs in it, producing much of the cell's ATP. For 10 points, name this power houses of the cell that performs cellular respiration.
ANSWER: **mitochondria** [or **mitochondrion**]

15. This quantity is thought to change as a result of the substitution and income effects according to the Slutsky Identity, which relates its Marshallian and Hicksian types. Its namesake law is violated by Giffen Goods, which unexpectedly exhibit it. It is expressed as a downward slope when graphed against price since it usually decreases as price increases. Defined as the ability and willingness of people to buy a good, for 10 points, name this quantity that, in a competitive market, must keep up with supply.
ANSWER: **demand**

1. The narrator of this story tells the reader that "what you mistake for madness is but over-acuteness of the senses. This story's narrator is provoked to attack a man because of his "vulture" blue eye. At the climax of this short story, the narrator is unsuspected by the police, but his perception of an increasingly loud sound resembling a watch wrapped in cotton causes him to break down and confess. For 10 points, name this horror story by Edgar Allan Poe whose narrator hears the title body part beating under the floorboards.
ANSWER: "The **Tell-Tale Heart**"

064-10-20-01132

2. Near the end of this novella, the crying of a baby is mistaken for a coyote, which results in that baby's death. That character, Coyotito, is earlier stung by a scorpion, but does not receive medical aid because his family is poor. Other characters in this work include Juana, who attempts to throw the title object into the sea, and the protagonist Kino, whose attempts to sell the title object bring his family misery instead of wealth. For 10 points, name this novella by John Steinbeck in which Kino finds the title object inside of a large oyster.
ANSWER: *The **Pearl***

083-10-20-01133

3. The Caps and the Hats were two political factions during this country's Age of Liberty, which saw a privy council lead by Arvid Horn control the monarchy. That time period followed a war in which this country won battles at Gadebusch and Narva, but lost at Poltava. By the Treaty of Kiel, Denmark give this country control of its western neighbor. This country's House of Vasa included such rulers as Queen Christina and another nicknamed the "Lion of the North," Gustavus Adolphus. For 10 points, name this Scandinavian country with a capital city at Stockholm.
ANSWER: Kingdom of **Sweden** [or Konungariket **Sverige**]

083-10-20-01134

4. This man pardoned the instigators of Fries' rebellion. He served as the first ambassador to the U.K. and the Netherlands. As president, he oversaw the Quasi War with France and appointed the "Midnight Judges," partially sparking the case of *Marbury v. Madison*. This last Federalist president signed the Alien and Sedition Acts and served as the first vice-president of the U.S.. For 10 points, name this husband of Abigail and father of John Quincy, the second president of the United States.
ANSWER: John **Adams**

015-10-20-01135

5. The ratio of the inertial force to this force is known as the Rossby number. The interaction of pressure gradients with this force causes geostrophic motion. It can be seen in the deflection of an object due to the Earth's rotation, and causes the rotation of hurricanes. It is especially prevalent in low-pressure systems, in which the centrifugal force has little effect. For 10 points, name this force which is commonly supposed to affect the direction of rotation of water in a toilet.
ANSWER: **Coriolis** force

024-10-20-01136

This is a 10-second computation question. Solve $5x+2=6x+1$ for x.
ANSWER: $x=\underline{1}$

024-10-20-01137