1. In one of this composer's ballets, the Lilac Fairy softens a curse placed by Carabosse, causing Princess Aurora to sleep for a century. In another of his ballets, the evil Von Rothbart curses Odette to transform into a swan every day, causing her to drown herself along with her lover Siegfried. A third of his ballets contains the "Dance of the Sugar Plum Fairy," and begins with Herr Drosselmeyer giving the title toy to Clara. For 10 points, name this Russian composer of *The Sleeping Beauty*, *Swan Lake*, and *The Nutcracker*.
ANSWER: Pyotr Ilyich **Tchaikovsky**

040-10-18-07101

2. The second part of this battle is also known as the Battle of Bemis Heights. The first part of this engagement occurred at John Freeman's farm. Benedict Arnold suffered injuries to his leg at this battle. John Burgoyne was the British commander here and Horatio Gates was the American commander at this battle in New York. After this battle, France agreed to give military assistance to America. For 10 points, name this fall of 1777 American victory in the Revolutionary War that was a major turning point in the war.
ANSWER: Battle of **Saratoga**

001-10-18-07102

3. The Dirac delta function is designed such that when it is subject to this procedure, the result is 1, and one theorem that relates two types of this operation is called Green's theorem. Differential equations are often solved by performing this type of operation, and an approximation of this operation is obtained by performing a Riemann sum. For 10 points, name this operation that according to the Fundamental Theorem of Calculus is the opposite of a derivative.
ANSWER: **integral**

081-10-18-07103

4. In this work's longest chapter, which includes Thomas Carew's poem "The Pretensions of Poverty," its author describes in great detail the cost and building supplies of his home. It notes that if someone is out of step with his companions it is because he hears a "different drummer," and it describes the author's solitude in radically reduced conditions. Subtitled "Life in the Woods," for 10 points, what is this work by Henry David Thoreau named for the pond near which he stayed?
ANSWER: *Walden*

084-10-18-07104

5. One sculpture of this figure was designed by Mateo Alonso and was brought to its current location by Angela Oliveira Cezar de Costa as an emblem of peace between two nations. Another sculpture of this figure was executed by Paul Landowski; that piece lies on the Corcovado Mountain in the harbor of Rio de Janeiro. Michelangelo sculpted this figure clothed in a sash and holding onto the instrument of his death, a cross. For 10 points, name this religious figure who has been sculpted as "the Redeemer."
ANSWER: **Jesus** Christ [or Jesus **Christ**; or clear-knowledge equivalents]

040-10-18-07105

6. The protest singer Phil Ochs claimed that he was a "singing" practitioner of this discipline. The article "The Kentucky Derby is Decadent and Depraved" was described as a work of the "gonzo" variety of this discipline, which was popularized by Hunter S. Thompson. The "yellow" version of this discipline was practiced by William Randolph Hearst and Joseph Pulitzer in the lead-up to the Spanish-American War. For 10 points, name this discipline that involves investigating and reporting, whose practitioners include Bob Woodward and Carl Bernstein.
ANSWER: **journalism** [prompt on reasonable equivalents]

7. The central issue in this case involved whether the appellate could petition for a writ of mandamus. That appellate in this case was one of the "Midnight Judges" whose appointment was withheld by the Secretary of State. In writing the opinion to this 1803 court case, John Marshall found the Judiciary Act unconstitutional, which established the practice of judicial review by the Supreme Court. For 10 points, name this case that involved the future fourth President of the United States.
ANSWER: *__Marbury__ vs. __Madison__* [accept in either order]

8. This man wrote a three volume epic poem about history from the Old Testament to the 19th century entitled *The Legend of the Centuries*. In a play by this man, the tutor Ruy Gomez poisons Dona Sol and the title bandit. That play by this man is *Hernani*. This man also wrote a novel that includes the innkeepers the Thénardiers, who mistreat Cosette. That novel also focuses on Inspector Javert's pursuit of Jean Valjean. For 10 points, name this French author of *Les Misérables*.
ANSWER: Victor-Marie Connard **Hugo**

9. This ruler had a summer residence in Potsdam built for him called Sanssouci Palace (san-SUE-see). This monarch ushered in an era of modernization after winning the Silesian Wars and helping to oversee the First Partition of Poland. This man disregarded the Pragmatic Sanction when he chose to initiate fighting in the War of the Austrian Succession against Maria Theresa. For 10 points, name this enlightened despot from the Hohenzollern line, a Prussian king who was succeeded by Frederick William II.
ANSWER: **Frederick the Great** [or **Frederick II** of Prussia; or **Friedrich der Grosse**; or **Friedrich II**; or **Old Fritz**; or **Alte Fritz**; prompt on **Frederick**; prompt on **Friedrich**]

10. One figure in this myth system is called Danu, while a goddess associated with horses is named Macha. Another figure in this myth system is Goll mac Morna, who killed the father of a prominent figure who burned his thumb while cooking the salmon of knowledge. That figure is from the Fenian cycle, while the villain of the Ulster cycle is named Medb and led the Cattle Raid of Cooley. For 10 points, name this myth system whose heroes include Fin MacCool and CuChulainn.
ANSWER: **Irish** myth

11. The energy density of this field is given by the equation one-half the permittivity times the absolute value of the field vector squared. In contrast to bipolar-junction transistors, field-effect transistors use this field to control the conductivity of the channels in the semiconducting material. The SI units of this field are newtons per coulomb. When this field moves, it produces a magnetic field. For 10 points, name this field, characterized by the effect it has on charged particles.
ANSWER: **electric field**

12. The western portion of this state features such landmarks as Horse Thief Canyon and the sphinx-like Monument Rocks. This state once included the endpoint of the Chisholm Trail, which brought cattle to its railroad depots at Dodge City and Abilene. Many corporations are headquartered in Overland Park, part of a metroplex centered on two cities named for this state. For 10 points, name this home of Wichita and Topeka, which is found to the west of Missouri and south of Nebraska.
ANSWER: **Kansas**

13. The extraction process for this element requires grinding it up and leeching with sulfuric acid, converting its dioxide into a trioxide. Afterwards, it is enriched by adding elemental fluorine to form its hexafluoride, which is then converted back into the dioxide for conversion into the pellets for its best known use. Available from the pitchblende, this element converts into thorium and potassium in the Earth's core and contains the radioactive 238 isotope. For 10 points, identify this actinide used in nuclear power plants, symbolized U.
ANSWER: **uranium** [accept **U** prior to mention]

14. After the main character in this work runs away from the Grinby and Murdstone warehouse, Betsy Trotwood becomes his guardian. The title character of this work befriends Tommy Traddles and James Steerforth at the boarding school he is sent to, Salem House. He also befriends Peggotty and Wilkins Micawber. For 10 points, name this novel about a young boy who is despised by Uriah Heep, written by Charles Dickens.
ANSWER: *The Personal History, Adventures, Experience and Observation of **David Copperfield** the Younger of Blunderstone Rookery (which he never meant to publish on any account)*

15. Aristophanes parodied this technique in Euripides's method of entering the stage in his own play *Thesmophoriazusae*. It is used in the story "The Three Apples" from the *Arabian Nights*. More classical examples of this device occur in the Euripides plays *Alcestis* and *Medea*; in the latter play, the title character is whisked away from the wrath of Jacob to safety in a sudden and contradictory move. For 10 points, name this technique in which a "God from the machine" changes the outcome of a dramatic work.
ANSWER: **Deus ex Machina** (accept **God from the machine** before mentioned)

HSAPQ
High School Academic Pyramid Questions

1A. Name this frontiersman who explored Kentucky and blazed the Wilderness Trail past the Cumberland Gap.
ANSWER: Daniel **Boone**

1B. Name the novel written by Herman Hesse about Joseph Knecht and his journey to become Magister Ludi, the "master" of the titular intellectual game.
ANSWER: *The **Glass Bead Game*** [or *Das **Glasperlenspiel***]

2A. What surprise team led the National League West for most of the 2010 season thanks to star first baseman Adrian Gonzalez and a rotation featuring Mat Latos?
ANSWER: San Diego **Padres** [or **San Diego** Padres]

2B. Identify the New York location that is the site of Daniel Liebeskind's planned "Freedom Tower" and is proximate to the proposed site for a controversial mosque.
ANSWER: **Ground Zero** [or former **World Trade Center Site** or other equivalents]

3A. This is a 10-second calculation question. If x varies directly with y, and x = 10 when y = 20, find x when y = 50.
ANSWER: **25**

3B. This is a 10-second calculation question. Find the roots of the equation $x^2 - 6x + 8 = 0$.
ANSWER: **x = 2** and **x = 4**

4A. Cirrhosis is a disease of what site of gluconeogenesis and largest organ in the body?
ANSWER: **liver**

4B. In Latin, which noun case is most often used to denote a direct object?
ANSWER: **accusative** case [or casus **accusativus**]

5A. This is a 20-second calculation question. Find the area of an isosceles triangle with legs of length 10 and a base of length 12.
ANSWER: **48**

5B. This is a 20-second calculation question. A bag contains 3 red marbles, 4 blue marbles, and 5 white marbles. What is the probability that a randomly selected marble is blue?
ANSWER: **1/3** [or **1:3**]

6A. This philosopher dedicated his *Nicomachean Ethics* to his son and tutored Alexander the Great after having learned under Plato.
ANSWER: **Aristotle**

6B. Name the Bret Harte short story in which Kentuck, John Oakhurst, and other miners raise Cherokee Sal's son. Oakhurst would later appear in Harte's "The Outcasts of Poker Flat."
ANSWER: "The **Luck of Roaring Camp**"

7A. This is a 30-second calculation question. The mean of the data set {48, 56, 63, x} is 57. Find x.
ANSWER: **61**

7B. This is a 30-second calculation question. Find the smallest positive value of x for which 2 * sine of 2x - 1 = 0.
ANSWER: **15** degrees or **pi/12** radians

8A. What five membered body ruled over France from 1795 until its overthrow by Napoleon?
ANSWER: Executive **Directory** [or **Directoire** exécutif]

8B. What name is given to the extremely high wispy clouds that generally indicate fair weather?
ANSWER: **cirrus** clouds

9A. In what movie does Shooter McGavin harass Adam Sandler's character, a hockey player turned golfer?
ANSWER: *Happy Gilmore*

9B. What law states that the voltage across two points on a conductor is equal to the current between those points times the resistance between those points?
ANSWER: **Ohm**'s Law

10A. What empire was ruled from Cuzco before being conquered by Francisco Pizarro?
ANSWER: **Inca**n Empire

10B. This city lies on fourteen islands and is where Lake Mälaren joins the Baltic Sea. Identify this city which has a made a "Jumbo Hostel" out of a Boeing 747 and is the capital of Sweden.
ANSWER: **Stockholm**

1. In one play by this author, the sight of the protagonist stoking a coal ship causes Mildred Douglas to faint. In addition to that play about Yank, who dies in the hands of a zoo animal, this author wrote a trilogy in which Orin, Adam Brant, and Lavinia act out themes similar to the *Oresteia*. This author of *The Hairy Ape* wrote a play in which Mary's addiction to morphine paralyzes the Tyrone family. For 10 points, name this American playwright of *Mourning Becomes Electra* and *Long Day's Journey Into Night*.
ANSWER: Eugene Gladstone **O'Neill**

026-10-18-07117

2. One element in this family was originally isolated by heating clevite, while the first isolated element in this family was discovered when Lord Rayleigh and William Ramsay noted that a sample of pure nitrogen air was too heavy to be just nitrogen. Neil Bartlett was the first chemist to make a compound containing one of these elements, which had previously been thought to be "inert." For 10 points, name this family of elements that includes xenon, argon, krypton, and helium, which is found at the extreme right of the periodic table.
ANSWER: **noble gas**es [or **inert gas**es before mentioned; or Group **VIIIA** (eight-A); or Group **18**; prompt on Group **0**]

003-10-18-07118

3. A version of this game marketed towards young children uses a funfair theme. This game has a "Here and Now: Edition" while house rules often involve earning 686 dollars for rolling snake eyes. This game's mascot is known as Rich Uncle Pennybags. This game includes the water works and electric company utilities along with spaces named for Atlantic City locations like "Park Place" and "Boardwalk". For 10 points, name this board game of Parker Brothers which involves building houses and hotels on different properties.
ANSWER: **Monopoly**

064-10-18-07119

4. The first ruler of this house was the son of Metropolitan Filaret. This family eventually merged with the Holstein-Gottorp line. This family came to power after the downfall of the Rurik line, which had fallen apart during the Time of Troubles. This dynasty was ended when the royal family was killed at Yekaterinberg. For 10 points, name this line of royals started by Michael and ended after Nicholas II's death, which ruled Russia until the 1917 revolution led to founding of the Soviet Union.
ANSWER: House of **Romanov**

026-10-18-07120

5. Binary coding based on these values depends on Zeckendorf's theorem, which states that any integer can be written as the sum of any one or more of them. Euclid's algorithm for finding a greatest common divisor has a worst-case runtime when consecutive values of this type are inputted. A namesake type of heap uses these numbers in its runtime analysis. The ratio of consecutive numbers of this type approaches the golden ratio. For 10 points, name these numbers, which comprise a sequence that begins 1, 1, 2, 3, 5, and are named for an Italian mathematician.
ANSWER: **Fibonacci** numbers [or **Fibonacci** sequence]

026-10-18-07121

6. One work by this artist is situated across from a Donato Montorfano work and is located at Santa Maria delle Grazie. Another of his works depicts Cecilia Gallerani holding a small white mammal, while another of his works is a drawing based on proportions of a Roman architect. In addition to creating *Lady with an Ermine* and the *Vitruvian Man*, he also completed a portrait of Lisa Gherardini which is sometimes called "La Gioconda." For 10 points, name this Italian artist best known for his paintings *The Last Supper* and the *Mona Lisa*.

ANSWER: **Leonardo** **da Vinci** [accept either]

7. In this work, the House of the Interpreter matches the description of a rectory where the author once sought counsel from John Gifford. At one point in this work, the pillar of salt that used to be Lot's wife is found in the Valley of Ease. Pliable abandons the main character at the Slough of Despond. The companion of the protagonist, Faithful, is killed when he refuses to purchase the wares of Vanity Fair. This work follows Christian's travels down the King's Highway. For 10 points, name this religious allegory by John Bunyan.

ANSWER: *Pilgrim's Progress*

8. This organ produces a tetrapeptide, which bonds to macrophage receptors, and is known as tuftsin. The sinusoids of one portion of this organ contain blood and a reserve of monocytes which can be utilized in the case of hemorrhagic shock. The other major portion of this organ contains Malphigian corpsules and synthesizes antibodies. Located in the abdominal region and consisting of red and white pulp, for 10 points, name this organ part of the lymphatic system that helps to filter and clean the blood.

ANSWER: **spleen**

9. In this author's work, *An Image of Africa*, he attacks the author of the *Heart of Darkness*, calling Joseph Conrad "a bloody racist." He wrote a novel in which the priest Ezeulu clashes with T. K. Winterbottom, *Arrow of God*. Another of this man's novels takes its title from the Yeats poem "The Second Coming," and is about a yam farmer named Okonkwo who lives in Umuofia. For 10 points, name this Nigerian author of *Things Fall Apart*.

ANSWER: Chinua **Achebe**

10. The Toom-Cook and Karatsuba algorithms do this operation. In a field, all but one of the elements have an inverse for this operation. A capital pi is used to denote repeatedly doing this over an index. This operation on matrices is non-commutative and requires that the number of columns in the first matrix equals the number of rows in the second. Repeatedly doing this is called exponentiation. For 10 points, name this operation that when applied to two and three yields six.

ANSWER: **multiplication** [or **product**; accept word forms like **multiply**]

11. This work was the source of William Shakespeare and John Fletcher's *Two Noble Kinsmen*. One character in this work discusses her five marriages, the fifth to Jankyn. The final section of this work, which features the Knight and Wife of Bath, is narrated by the Parson. This work's Prologue describes how the characters meet at the Tabard Inn en route to the titular pilgrimage site, and agree to engage in a storytelling contest. For 10 points, name this Middle English collection of tales by Geoffrey Chaucer.

ANSWER: The **Canterbury Tales** (accept "The Knight's Tale" before "her five marriages")

12. One battle in this war was fought between forces commanded by Stephen Van Rensselaer and Isaac Brock and was called the Battle of Queenston Heights. The bloodiest battle of this war saw participation by Jacob Brown and Gordon Drummond, as well as Winfield Scott, and was Lundy's Lane. Another engagement in this war saw the razing of Washington, D.C., including the burning of the White House. This war was ended by the Treaty of Ghent. For 10 points, name this war that ended in 1815 and began in its namesake year.
ANSWER: War of **1812**

13. This author's short stories include one about doctor who offers water from the Fountain of Youth and another based off John Bunyan's *Pilgrim's Progress*. This author of "Dr. Heidegger's Experiment" and "The Celestial Railroad" also wrote many stories set in Puritan New England, including "Young Goodman Brown." He also wrote a novel featuring such characters as the minister Dimmesdale, Roger Chillingworth, and Hester Prynne. For 10 points, name this American author of *The Scarlet Letter*.
ANSWER: Nathaniel **Hawthorne**

14. At this play's end, one character blows out some candles to the narration of her sibling, who reveals that he has moved away from his family. One pivotal scene sees a figurine of a unicorn lose its horn while a "gentleman caller" named Jim is dancing with the emotionally backwards daughter of Amanda. That woman, Laura, then laments how the unicorn looks just like all the other figurines that comprise the namesake collection of animals. For 10 points, name this play by Tennessee Williams.
ANSWER: *The **Glass Menagerie***

15. In one story, this god disguises himself as the farmhand Bolverk in a successful attempt to retrieve the Mead of Poetry. This god sits atop the "high place" of Hlidskjalf, and that which he cannot see is recalled to him by his two ever-circling ravens, Hugin and Munin. This god, who hung from the world tree on the spear Gungnir to earn mastery of the runes, will be swallowed whole by the wolf Fenrir at Ragnarok. For 10 points, name this one-eyed chief god of the Norse pantheon.
ANSWER: **Odin** [or **Wodinaz**]

1. One candidate in this nation's 2010 presidential election authorized the sale of Nossa Caixa (CAI-shuh) Bank in 2008. Besides Jose Serra, another candidate in this country's upcoming election is of Bulgarian descent and was once a guerilla in the VAR Palmares organization. That woman is Dilma Rousseff. This nation is currently led by a man who has served as president since 2003 and initiated the anti-hunger Fome Zero project. For 10 points, name this country where President Lula da Silva governs a large Portuguese-speaking population.
ANSWER: **Brazil**

030-10-18-07132

2. One important function of this organelle is the post-translational modification of protein cores to make GAG complexes. This organelle can target molecules for the lysosomes by adding a mannose-six-phosphate tag. This organelle, which is composed of stacked cisternae, has the primay function of processing and packaging proteins and lipids. For 10 points, name this cell organelle named for an Italian scientist.
ANSWER: **Golgi** apparatus [accept "body" or "complex" or equivalents for "apparatus"]

026-10-18-07133

3. The toxin associated with this disease causes G proteins to be constitutively active, and sufferers of cystic fibrosis may be less prone to this disease. One famous outbreak of this disease was preceded by outbreaks in Newcastle and Gateshead, and occurred in the Soho district. That epidemic of this disease is named after Broad Street, and was a case study in epidemiology as investigated by John Snow. For 10 points, name this disease that the aforementioned doctor discovered was transmitted by contaminated water.
ANSWER: **cholera**

081-10-18-07134

4. One branch of this religion that includes the concept of sunyata, or emptiness, follows a set of scriptures known as the "three baskets", and its Four Noble Truths claim that life is suffering. Devotees attempt to follow the Middle Way and the Eightfold Path. It is divided into Theravada and Mahayana branches, the latter of which emphasizes bodhisattvas, as well as including the Japanese Zen tradition. For 10 points, name this religion in which adherents attempt to break the cycle of samsara and achieve nirvana.
ANSWER: **Buddhism**

082-10-18-07135

5. One of this man's works, which features a character whose initials are HCE, begins and ends with two halves of the same sentence, and introduced the word "quark" to the English language. Another of his works begins with a "moocow" coming down the road to meet a "baby tuckoo." That baby, Stephen Dedalus, also appears in his massive novel about one day, 16 June 1904, in the life of Leopold Bloom. For 10 points, name this author of *Finnegans Wake*, *A Portrait of the Artist As a Young Man*, and *Ulysses*.
ANSWER: James Augustine Aloysius **Joyce**

082-10-18-07136