**2016 VHSL Conferences - Round 07 - First Period, Fifteen Tossups**

1. A disorder caused by these agents was investigated by Carlton Gajdusek **(GUY-du-shek)** and is kuru. When cadavers with these agents were used as human growth hormone donors, an outbreak of Creutzfeldt-Jakob **(KROYTZ-felt YAK-ub)** occurred decades later. They're the causative agents of bovine spongiform **(SPUN-juh-form)** encephalopathy **(en-SEF-uh-LAW-puth-ee)**, which led to restrictions on beef exports. For 10 points, name these deformed proteins that cause mad cow disease.
ANSWER: **prion**s

2. This leader's autobiography is *Long Walk to Freedom*. With Joe Slovo and Walter Sisulu, he co-founded the militant group known as "Spear of the Nation." This man served 27 years in prison after the Rivonia Trial, largely at Robben Island. Known for wearing colorful silk shirts called "Madiba shirts," this man won the 1993 Nobel Peace Prize for working with F.W. de Klerk to transition a country out of apartheid. For 10 points, name this first black President of South Africa.
ANSWER: Nelson **Mandela** [or Nelson Rolihlahla **Mandela**]

3. This man designed the Laurentian Library for Pope Clement VII. A baby Jesus climbs on his mother's shoulder while being held by Saint Joseph in this artist's *Doni* **(doe-nee)** *Tondo*. Based on a description from the Vulgate Bible, this man included a horned Moses in his tomb for Pope Julius II. He depicted Adam and God reaching out to touch each other's fingers in the *Creation of Adam*. For 10 points, name this Italian High Renaissance artist who painted the ceiling of the Sistine Chapel.
ANSWER: **Michelangelo** [or **Michelangelo** di Lodovico Buonarroti Simoni]

4. The Duke of Saint-Simon documented this king's strict schedule. The Treaty of Ryswick **(ryes-vek)** made peace between this monarch and the League of Augsburg. The Fronde **(froen-duh)** revolts occurred during this king's childhood, when Cardinal Mazarin ran the government. This king's finance minister was Jean-Baptiste Colbert **(cohl-behr)**. He declared "I am the state" and developed a lavish court at Versailles **(vehr-sigh)**. For 10 points, name this "Sun King," an absolute monarch of France.
ANSWER: **Louis XIV** [or **Louis the Great**; or **Louis the Sun King**; or **Louis le Grand**; or **Louis le Roi Soleil**; prompt on **Louis**]

5. A villain in this novel wears a glove filled with Vaseline. A character in it reminds another about "the girl in Weed," which explains why they are off to Soledad. A black character in this novel, Crooks, wants to join Candy and others in acquiring a farm. A character in this novel longs to "take care of the rabbits," but accidentally kills Curley's wife. It ends with George shooting his mentally impaired friend, Lennie. For 10 points, name this John Steinbeck novel about two poor farm workers.
ANSWER: ***Of Mice and Men***

6. This country lost the Battle of Nordlingen two years after defeating Count Tilly. After converting to Catholicism, a queen of this country named Christina moved to Rome. Axel Oxenstierna **(ooksen-stair-nah)** advised a monarch from this country who won the Battle of Breitenfeld **(bright-en-feld)**. During the Thirty Year's War, it was led by a member of the Vasa dynasty known as the "Lion of the North." For 10 points, name this country that Gustavus Adolphus ruled from Stockholm.
ANSWER: **Sweden** [or **Sverige**]

7. This TV show addressed the "black site" police scandal through a storyline about Jacob Rickter. A storyline on this show involved Louis Canning, who has a muscular disorder, sending his wife to work as a "spy" at a rival firm. Many of its cases hinge on the work of private investigator Kalinda Sharma. This show begins when Alicia Florrick returns to work as an attorney after her husband is imprisoned. For 10 points, name this CBS show set in Chicago and starring Julianna Marguilies as a loyal spouse.
ANSWER: *The* ***Good Wife***

8. After an election in this country, which is facing twenty-five percent inflation, controversy erupted over where a ceremonial baton and sash would be transferred. The Cambiemos **(cah-bee-EY-mos)** coalition, led by the Republican Proposal Party, won this country's first "ballotage" runoff, in which this country voted against Daniel Scioli and rebuked "Kirchnerism," selecting Mauricio Macri for president. For 10 points, name this country where Christina Fernandez's Peronist party was defeated.
ANSWER: **Argentina** [or **Argentine Republic**; or Republica **Argentina**]

9. The iso-electric point is the value for this quantity where a protein has zero net charge. Histidine **(hiss-tuh-dean)** will deprotonate when this quantity is above 6.5. A decrease in this quantity corresponds to an increase in the number of hydronium ions. Phenolphthalein **(fee-null-thay-lean)**, which turns pink when it's above 8, is an indicator used to measure this quantity in titrations. For 10 points, name this quantity that is above 7 for bases solution, an indicator of how acidic a solution is.
ANSWER: **pH**

10. This inventor of the mechanical calculator advocated the Jansenist position in his *Provincial Letters*. In his collection of thoughts called Pensées **(PON-say)**, this man put forth an argument that Voltaire dismissed by saying "an imam could reason thus." He said that, because the potential reward of believing in God is infinite, it is always rational to do so. For 10 points, name this French philosopher and mathematician with a namesake "wager" argument.
ANSWER: Blaise **Pascal**

11. This man wrote that he "put away childish things" in a passage that also claims "now we see in a mirror, dimly." In another book, he wrote that a particular feeling "does not envy…is not provoked." That passage by this man describes how "love never fails" and is often read at weddings. He's credited with writing the books of Philemon **(fill-LAY-mon)** and First and Second Timothy. For 10 points, name this apostle who wrote many epistles, including Ephesians **(eh-FEEZ-ee-ans)** and Romans.
ANSWER: **Paul** [or **Saul of Tarsus**; prompt on **Saul**]

12. This river is the central member of the Three Parallel Rivers in Yunnan province. The mythical phaya naga supposedly lives in this river and is the source of its namesake reddish "lights." The Tonlé **(tone-lay)** Sap connects to this river at Phnom Penh **(puh-nom penn)**. Vientiane **(vee-EN-tee-AHN)** is on the banks of this river, which forms the border between Thailand and Laos. For 10 points, name this river in Southeast Asia whose namesake delta is near Ho Chi Minh City in south Vietnam.
ANSWER: **Mekong** River

13. The Minkowski **(min-KAWF-skee)** norm of a relativistic version of this quantity gives a quantity equal to the square of the proper mass times a multiple of the speed of light. The operator for this quantity is minus i h-bar del and is conjugate to position, meaning it and position appear together in a version of Heisenberg's uncertainty principle. This quantity is conserved in both inelastic and elastic collisions. For 10 points, name this quantity equal to mass times velocity.
ANSWER: linear **momentum**

14. This author claimed that the state "buys and sells men, women, and children" in explaining why he did not wish to pay a poll tax. This author began a book by noting his desire "to live deliberately, to front only the essential facts of life." He urged his readers to "simplify, simplify" in a chronicle of his two years living near a pond by Concord. This author lived on land provided to him by his best friend Ralph Waldo Emerson. For 10 points, name this transcendentalist author who wrote *Walden*.
ANSWER: Henry David **Thoreau**

15. A device designed to use this phenomenon was designed by Michelson. Standing waves form when a wave reflects and produces nodes and antinodes due to this effect. Noise-cancelling headphones rely on this effect, so they produce a wave one-half cycle out of phase with ambient noise. In this phenomenon, amplitudes of waves in the same location are summed by the law of superposition. For 10 points, name this interaction between waves that comes in constructive and destructive types.
ANSWER: **interference**

 **2016 VHSL Conferences - Round 07 - Directed Period**

1A. What union leader and organizer of the Pullman Strike was a five-time candidate for the presidency on the Socialist Party ticket between 1900 to 1920?
ANSWER: Eugene Victor **Debs**

1B. What African-American woman wrote the poetry collection *Annie Allen* and the poem "We Real Cool"?
ANSWER: Gwendolyn **Brooks**

2A. In an iconic scene from Alfred Hitchcock's *North by Northwest*, the Cary Grant-played main character is attacked by what type of vehicle while he is waiting on a deserted country road?
ANSWER: **plane** [or **crop duster**]

2B. In a Hilary Putnam thought experiment, what body part is placed in a "vat" and electrically manipulated to produce a simulated reality?
ANSWER: **brain** in a vat

3A. This is a 20-second calculation question. How many solutions exist to the system of equations given by: 4x plus 2y equals 17, and y equals 24 minus 2x?
ANSWER: **0**

3B. This is a 20-second calculation question. If a right triangle has integer side lengths and a hypotenuse of 13 units, what is the area of the triangle?
ANSWER: **30** units

4A. What is the name of the pores in leaves open to allow air to enter the plant and release water vapor through transpiration?
ANSWER: **stoma**ta

4B. In what 1980 arcade game does the player move a yellow character through a maze, eating dots and avoiding ghosts?
ANSWER: ***Pac-Man***

5A. The French first person adjectives "mon," "ma," "mes" **(MAZE)**, "notre," and "nos" are named because they indicate what property?
ANSWER: **possession** [or **possessive** adjectives; or adjectifs **possessif**s; prompt on similar concepts such as **ownership**]

5B. Dean Moriarty and Sal Paradise appear in what novel by Jack Kerouac?
ANSWER: ***On the Road***

6A. In November 2015, what state voted down a marijuana legalization initiative that was criticized for planning to create a monopoly for wealthy donors?
ANSWER: **Ohio**

6B. What Gunter Grass **(goon-ter grahss)** novel describes the life of the dwarf Oskar Matzerath **(ohse-car madz-er-ahd)**, who refuses to grow up past the age of three and can shatter glass with his voice?
ANSWER: *The* ***Tin Drum*** [or *Die* ***Blechtrommel***]

7A. What poetic stanza has rhyme schemes such as "Sicilian" and "unwreathed," and was used to write Omar Khayyam's **(kie-YAHMS)** *Rubaiyat* **(ROO-bye-yaht)**?
ANSWER: **quatrain**

7B. The Azadi **(ah-zahd-ee)** and Milad **(mee-lod)** Towers may be found in what city near Mount Damavand, which was the seat of the Pahlavi Dynasty and now hosts the Supreme Leader Ali Khamenei?
ANSWER: **Tehran**

8A. This is a 30-second calculation question. A sphere of radius r has its surface area, in square units, equal to its volume, in cubic units. What is its surface area?
ANSWER: **36 pi** square units

8B. This is a 30-second calculation question. Albert, Bill, and Charlie are playing darts. If Albert has a 50% chance of hitting a bulls-eye, Bill has a 60% chance, and Charlie has a 90% chance, what is the probability that only Charlie hits a bulls-eye?
ANSWER: **18** percent [or **0.18**; or **9/50**]

9A. Asser wrote a comprehensive biography of what victor at the Battle of Ashdown, the only English king with the epithet "the Great"?
ANSWER: **Alfred** the Great

9B. Ethan Allen and the Green Mountain Boys were from what "reluctant republic" that became America's fourteenth state?
ANSWER: **Vermont**

10A. The sigma summation symbol is normally used to represent what items that are the sum of all the terms of a sequence?
ANSWER: **series** [or finite **series**; or infinite **series**]

10B. What radiation, which lies between the radio and infrared spectrums, also names a form of thermal background radiation that permeates space?
ANSWER: **microwave**

 **2016 VHSL Conferences - Round 07 - Third Period, Fifteen Tossups**

1. Titian painted one of these people with his grandsons Alessandro and Ottavio Farnese **(far-NAZE-ee)**. One of these artistic subjects described his portrait as "all too real," and that depiction inspired a series of works including *Head VI*, which depicted this figure with a purple cape and with an expression of agony. Francis Bacon painted a "screaming" series of them based on Diego Velasquez's portrait of Innocent X. For 10 points, name these people who lead the Roman Catholic Church.
ANSWER: **pope**s

2. The discoverer of these two objects named a crater on the larger of these objects for his wife's maiden name, Stickney. These two objects were discovered by Asaph Hall. Because the larger of these two objects orbits faster than its planet rotates, it's undergoing tidal deceleration and will eventually be torn apart to form a planetary ring. They're thought to be bodies captured from the asteroid belt, since their planet is the closest to the asteroid belt. For 10 points, name these two natural satellites of Mars.
ANSWER: **Phobos** and **Deimos** [or **moons** of **Mars** until "Mars" is read]

3. In the last stanza of this poem, the speaker says that "the moon never beams, without bringing me dreams" of his beloved, and "the stars never rise, but I feel" her "bright eyes." In this poem, the angels "not half so happy in heaven" send a wind "out of the cloud by night, chilling and killing" the title character. This poem describes a time "many and many a year ago, in a kingdom by the sea," where the speaker lived with the title maiden. For 10 points, name this poem by Edgar Allan Poe.
ANSWER: "**Annabel Lee**"

4. This player is the only person to win the Heisman Trophy, win the national championship, and become the first pick in the NFL draft within a twelve-month period. This quarterback broke Otto Graham's record for passing yards in a debut game. In 2014, he only missed one game after flipping his car. Despite being a quarterback, he is behind only Marshawn Lynch and Adrian Peterson in rushing touchdowns over the last five seasons. For 10 points, name this player for the Carolina Panthers.
ANSWER: Cam **Newton** [Cameron Jerrell **Newton**]

5. This poet asked, "What is divinity if it can come only in silent shadows and in dreams?" in a poem that describes "complacencies of the peignoir **(pih-nwahr)**, and late coffee and oranges in a sunny chair." The speaker of another of his poems affirms, "Let be be finale of seem," after requesting that the muscular "roller of big cigars" whip the "concupiscent curds" of the title food for a funeral. For 10 points, name this American poet of "Sunday Morning" and "The Emperor of Ice-Cream."
ANSWER: Wallace **Stevens**

6. This country signed the YYA treaty with the neighbor it fought against in the Continuation War. Gerald Ford signed a set of 1975 accords named for this country's capital, which were intended to protect human rights in the USSR. Baron Mannerheim named a line that was the site of fighting between this country and its eastern neighbor during the Winter War. This European country speaks a non-Indo-European language. For 10 points, name this Scandinavian country with capital at Helsinki.
ANSWER: **Finland**

7. This man proposed a Hegel-based theory of development that he called genetic epistemology **(uh-pist-uh-MAHL-uh-gee)**. This man used balls of clay reshaped after weighing, and liquid poured from a short and wide glass to a tall and skinny glass, to test "conservation." This man theorized that object permanence is developed during the sensorimotor stage, which is followed by the preoperational stage. For 10 points, name this Swiss child development psychologist.
ANSWER: Jean **Piaget** **(jon pee-ah-JAY, but accept phonetic pronunciations)**

8. The death of this composer's friend and mentor Robert Schumann **(shoe-mahn)** and the death of his mother, a decade later, inspired him to write a requiem that sets Lutheran texts rather than the traditional liturgy. In his *First Symphony,* this composer of the *German Requiem* used a theme similar to the "Ode to Joy", leading to it being dubbed "Beethoven's Tenth." For 10 points, name this German composer of the *Hungarian Dances* and a namesake lullaby.
ANSWER: Johannes **Brahms** **(yo-hahn-uhs brahms)**

9. The first known compound to have a member from this group of elements was created using platinum hexafluoride. The third most abundant element in the Earth's atmosphere is part of this group. This group's symbols are used to abbreviate electronic configurations. Their ionization energies are always the highest of their row because their valence electrons fulfill the octet rule. For 10 points, name this group of unreactive elements whose members include helium and argon.
ANSWER: **noble gases** [or group **18**]

10. Medieval altarpieces often depict this animal being mystically "adored." In Revelation 5:6, it first appears to have been killed but then ascends a throne. This animal is mentioned in John 1:29 as "taking away the sin of the world," and this animal is used in the Latin metaphor "Agnus dei" **(ahn-YOUS DAY-ee)** for Jesus. Hymns mention being "washed in the blood" of this animal, and Jesus is often called the one "of god." For 10 points, name this animal that is contrasted with the lion.
ANSWER: **lamb** [prompt on **sheep**]

11. Because this country was home to the ancestor of all apple species, its largest city's name means "full of apples." Since its independence, this country has been ruled by Nursultan Nazarbayev **(noor-sool-TAHN nah-zahr-BYE-ev)**. The Baikonur **(BYE-kuh-noor)** Cosmodrome lies within this country's borders. With a smaller southern neighbor, this country shares the Aral Sea. For 10 points, Russia's longest border is with what Central Asian country with capital at Astana?
ANSWER: **Kazakhstan** [Republic of **Kazakhstan**]

12. One of these laws can be derived by noting the equivalence of one-half distance times change in arc length and angular momentum over twice the mass. Another of these laws can be expressed via the constant four pi squared over big G times M1 plus M2. The second of these laws sets the three-halves power of distance proportional to period. The first one states that the sun is at the focal point of an ellipse. For 10 points, name this set of three astronomical laws that describes the orbits of planets.
ANSWER: **Kepler**'s laws of planetary motion

13. A character created by this author attempts to seduce Emily in the guise of "The Complete Man." In another novel by this author of *Antic Hay*, the poet Denis Stone lusts after Anne while visiting a party at an estate owned by Henry Wimbush. In a novel by this author, the Bokanovsky **(boe-kuhn-off-skee)** Process is used to create several classes of clones in The World State, which is led by the Controller Mustapha Mond. For 10 points, name this author of *Crome Yellow* and *Brave New World*.
ANSWER: Aldous **Huxley**

14. During this event, Samuel Brannan ran an equipment monopoly and became his state's first millionaire. Joaquin **(wah-KEEN)** Murrieta, a vigilante during this time period, was the inspiration for the character of Zorro. Levi Strauss first sold denim to participants in this event. This period began after a discovery near Coloma at Sutter's Mill. For 10 points, name this event that attracted prospective miners to California in the mid-19th century.
ANSWER: California **gold rush** [or 1849 **gold rush**]

15. A man in this political office appointed the corrupt Bernard Kerik to high positions. That man who held this post said, in February 2015, that he didn't believe "the president loves America." A man in this office pushed Bill Bratton to use "broken windows" theory to begin a crackdown on crime. Another man in this post banned the sale of large sweetened drinks. For 10 points, name this position held by Rudy Giuliani during the 9/11 attacks, the leader of the largest city in the United States.
ANSWER: **Mayor** of the City of **New York**

 **2016 VHSL Conferences - Round 07 - Tiebreaker Questions**

1. The marooned Roberto della Griva is the protagonist of this author's novel *The Island of the Day Before*. Another novel by this author is divided into ten sections based on the Sefiroth, and describes the invention of "The Plan" by the publishing employees Belbo and Casaubon. Jorge of Burgos burns down a library at the end of another novel by this author, which follows William of Baskerville and Adso of Melk's attempts to solve a series of murders in an abbey. For 10 points, name this Italian author of *Foucault's Pendulum* and *The Name of the Rose*.
ANSWER: Umberto **Eco**

2. In the complex plane, this operation's roots are separated by 120 degrees, forming an equilateral triangle. This operation's results are a pair of complex conjugate roots and a principal root that is real, even if the input is negative. Doubling the volume of a unit cube requires constructing sides that have a length of this operation applied to the number two. It can be represented as an exponent of one-third. For 10 points, name this operation one would perform to find *x* for the equation *y* to the third equals *x*, and which yields two when applied to the number eight.
ANSWER: **cube root** [or taking the **one-third power** until "one-third" is read; do not accept "cube"]

3. This man was opposed by Ami Perrin's Libertines, who nonetheless joined him in condemning the anti-trinitarian Michael Servetus to be burnt at the stake. Twelve elders made up the Consistory which this man's ordinances created to punish dancing and card-playing. This man argued that God has preordained the saving and damnation of every human in his *Institutes of the Christian Religion*. He ran a theocratic city in a country also home to Ulrich Zwingli's Zurich. For 10 points, name this founder of a namesake Protestant sect and ruler of Geneva.
ANSWER: John **Calvin** [or Jean **Chauvin**]

4. A member of this group spends his entire life hunting a monster called the Questing Beast. Another member of this group accidentally consumes a love potion while ferrying Iseult to her wedding. After one of its heroes obtains a treasure guarded by the Fisher King, he is permitted to sit at the Siege Perilous. Various members of this group quest for the Holy Grail, but the only one to succeed is Percival or, in later myths, Lancelot's son Galahad. For 10 points, name this group of chivalrous men who dine at a circular piece of furniture.
ANSWER: the **Knights of the Round Table**

5. This city is home to a major manufacturer of cinetheodolites, the Askania Watchworks. Peter Eisenman designed a memorial consisting of a grid of concrete slabs in this city. The Tempodrom is found in the Kreuzberg neighborhood of this city, where much new construction has sprung up around the Potsdamer Platz. The Brandenburg Gate is a prominent symbol of this city, which hired Norman Foster to refurbish its Reichstag building in the 1990s. For 10 points, name this second most populous city in the European Union, the capital of Germany.
ANSWER: **Berlin**

What shape of trajectory is formed by an object with a constant velocity in one direction and constant acceleration in the perpendicular direction, as in projectile motion?
ANSWER: **parabola** [or **parabolic**]

This is a calculation question. There are a number of chickens and cows living on my farm. Every chicken has two legs and every cow has four. If there are 100 total animals on my farm, and 250 total legs, how many chickens do I own?
ANSWER: **75** chickens