**2016 VHSL Regionals - Round 02 - First Period, Fifteen Tossups**



1. A stanza of this poem describes the "plashy brink of weedy lake," the "marge of river wide," and "where the rocking billows rise and sink on the chafed ocean's side." This poem's speaker declares, "on my heart deeply hath sunk the lesson thou hast given," and concludes by trusting that God "will lead my steps aright." This poem begins by asking the title creature, "Whither, midst falling dew…dost thou pursue thy solitary way?" For 10 points, name this poem addressed to a bird by William Cullen Bryant.  
ANSWER: "**To a Waterfowl**"

2. This property is said to occur "conditionally" if it no longer occurs when the absolute value is applied. A finite result from an improper integral shows that this property occurs in the integral test. Leibniz showed that a monotonically **(MAHN-uh-TAHN-ik-lee)** decreasing alternating series has this property. If the limit, as *n* goes to infinity, of two successive terms in a series is less than one, then one can conclude the series does this thing according to the ratio test. For 10 points, name this property possessed by series that do not sum to infinity.  
ANSWER: absolute **convergence** [or word forms, such as it **converge**s; do not accept "divergence"]

3. This politician was the target of Frank Church and Jerry Brown's "ABC" movement. He was mocked for claiming that he talked with his twelve-year-old daughter about nuclear weapons policy. This man gave the "Crisis of Confidence" speech in which he urged Americans to use carpools; that so-called "malaise" speech addressed a massive energy crisis during his presidency. It was not until he officially left office that American hostages in Iran were released. For 10 points, name this Governor of Georgia elected President of the U.S. in 1976.  
ANSWER: Jimmy **Carter** [or James Earl **Carter**, Jr.]

4. A form of this interaction was discovered in CERN's Gargamelle **(GAR-guh-MELL-uh)** bubble chamber because it created neutral currents. Cronin and Fitch showed that this interaction breaks CP-symmetry. Spontaneous symmetry breaking causes this interaction to become separated from electromagnetism. It is mediated by the exchange of the vector W and Z bosons, which causes quark and lepton flavor changes. This interaction is necessary for radioactive decay. For 10 points, name this fundamental force that is roughly one million-fold less powerful than the strong force.  
ANSWER: **weak** interaction [or **weak** nuclear force; prompt on **electroweak** force]

5. A rare unlicensed Tengen version of this game was released for the NES **(read the individual letters)**. This game's "Music A" is a folk tune called "Korobeiniki" **(KOR-eb-eh-NEE-kee)** although the NES uses "Dance of the Sugar Plum Fairy" from *The Nutcracker*. Losing this game is frequently called "topping out." The company that licenses this game sued in 2009 because of a game called "Blockles." It was designed by the Russian Alexey Pajitnov and later bundled with all North American Game Boys sold. For 10 points, name this video game that involves matching descending tiles.  
ANSWER: ***Tetris***

6. This law was tested in an apparatus involving spinning plates and a tank of water designed by James Joule. Max Born's students revised this law through the "mechanical approach," making it equivalent to the conservation of energy. It can be written as delta U equals Q minus W. This law, which prohibits perpetual motion machines of the first kind, was first formulated in 1850 by Rudolf Clausius. For 10 points, name this law of thermodynamics which states that the internal energy of a closed system is equal to heat supplied externally minus work done by the system.  
ANSWER: **first** law of thermodynamics [prompt on **conservation of energy** until it is read]

7. Two characters in this play beat up another after mistakenly hearing him exclaim "thou liest!" Another character in this play is convinced of a relative's death after hearing a mysterious song that begins, "Full fathom five, thy father lies." In this play, the drunken Stephano and Trinculo conspire to steal the magical books of a character served by the "airy spirit" Ariel. In this play, the exiled father of Miranda attempts to get revenge on his treacherous brother Antonio by shipwrecking him with the title storm. For 10 points, name this play about Prospero, one of Shakespeare's last.  
ANSWER: *The* ***Tempest***

8. This value can be set to a negative number to create a "tax on holding money." This value is one of three inputs, along with the change in GDP and Tobin's “q,” that determine the aggregate level of investment. Inflationary expectations are added to the nominal value of this quantity to determine its real value. This value, which can create a liquidity trap if set too low, is often indexed to the LIBOR **(LIE-bore)** or the Federal Reserve's federal funds rate. For 10 points, name this value representing the fee charged for borrowing money.  
ANSWER: **interest rate**s

9. A group demanding separation from this country bombed an airport florist's shop in 1977, diversions from which caused a collision that killed 583 people. The political parties Zutik and Aralar favor independence for another region of this country, but disavow the violent approach of the ETA. The largest city in another region with a strong separatist movement in this country used its regional language when hosting the 1992 Summer Olympics. For 10 points, name this country, separation from which has been the goal of the Canarians, Catalans, and Basques.   
ANSWER: **Spain** [or **Espana**]

10. At the start of the *Iliad*, this god afflicts the Greek army with a plague. He turns ravens black after hearing of Coronis's infidelity. A discus thrown by this god is manipulated into fatally striking the youth Hyacinthus. After winning a music contest, this god flays the satyr Marsyas **(MAR-see-us)** alive. This god takes over the oracle at Delphi after he slays Python. Cupid strikes this god with an arrow of lead, causing him to pursue the nymph Daphne until she turns into a laurel tree. For 10 points, name this twin brother of Artemis.  
ANSWER: **Apollo**

11. A writer described this event in a 10,000 line poem entitled *Vox Clamantis* **(cluh-MAHN-tiss)**. During this event, the Savoy Palace was burned down. Participants in this event beheaded Simon Sudbury at Tower Hill, and negotiations at Mile End were not enough to stop it from proceeding. The preaching of John Ball influenced this event, which was spurred by the introduction of several new poll taxes and was led by Wat Tyler. For 10 points, name this major 1381 uprising in England during the reign of Richard II, named for the working class people who participated in it.  
ANSWER: **Peasants**' Revolt [or the **Great Rising**; accept Wat **Tyler**'s Rebellion until "Wat Tyler" is read; do not accept "Peasants' War"]

12. This composer's Symphony No. 7 in A major includes an A minor *Allegretto* that plays at the climax of the film *The King's Speech*. The third and fourth movements of his Symphony No. 5 are played without a pause in between. His five-movement Symphony No. 6 musically depicts the countryside and is nicknamed *Pastoral*. His Symphony No. 5 begins with an ominous short-short-short-long motif that has been compared to "fate knocking at the door." For 10 points, name this composer whose ninth symphony sets to music the "Ode to Joy."  
ANSWER: Ludwig van **Beethoven**

13. This poet wrote of how "breathing figures learnt from thee to live" in a poem addressed to the painter Scipio Moorhead. This poet responded to those who would remark, "Their color is a diabolic dye," in a poem beginning, "'Twas mercy brought me from my pagan land." Her *Poems on Various Subjects, Religious and Moral* include "To His Excellency General Washington" and "On Being Brought from Africa to America." For 10 points, name this early American poet, the first published African-American woman.  
ANSWER: Phillis **Wheatley**

14. It's not Coney Island, but Luna Park is found in this city's suburb of St. Kilda. The Hoddle Grid covers this city's downtown, and it contains the largest tramway network in the world. It is home to a war memorial topped with a ziggurat and inspired by the Mausoleum of Halicarnassus **(HAL-ih-kar-NASS-us)**, the Shrine of Remembrance. The Yarra River flows through this city into Port Philip Bay. It housed its country's parliament from 1901 until a 1927 move to Canberra. For 10 points, name this capital of Victoria, the second-most populous city in Australia.  
ANSWER: **Melbourne**

15. In chemistry, the term “amalgam” refers exclusively to compounds of this element. The saturated calomel **(CAL-uh-mell)** electrode uses the equilibrium between this element and its chloride to measure pH. The pigment vermilion, produced from cinnabar, is no longer in use due to the presence of this toxic element. A commonly used unit of pressure is defined as a column of this element one millimeter high. This element and bromine are the only two liquid elements at room temperature. For 10 points, name this element with symbol Hg, often referred to as quicksilver.  
ANSWER: **mercury** [accept **Hg** until it is read]

**2016 VHSL Regionals - Round 02 - Directed Period**



1A. What modern-day country was the site of the Celtic La Tène culture and the home of a tribe known to the Romans as the Helvetii **(hell-VET-ee-“eye”)**?  
ANSWER: **Switzerland** [or **Swiss** Confederation]

1B. What word refers to unusual animals which are the subject of urban legend but are not scientifically verified to exist, such as the Loch Ness monster, Sasquatch, and jackalope?  
ANSWER: **cryptid**s

2A. In what city did a November 2015 protest over the police shooting of Jamar Clark become the target of four alleged white supremacists who opened fire on the demonstration?  
ANSWER: **Minneapolis**

2B. What measure is usually calculated as the difference in position of an object as seen from the Sun and the Earth, and which is used to define the parsec along with the arcsecond?  
ANSWER: stellar **parallax** [or annual **parallax**]

3A. This is a 20-second calculation question. If the mean of a data set is 10, and the variance is 25, what is its standard deviation?  
ANSWER: **5**

3B. This is a 20-second calculation question. An equilateral triangle has side length n inches. In terms of n, what is the area of a square with equivalent perimeter?  
ANSWER: **9 n squared over 16** [or quantity **3 n over 4, squared**]

4A. The "Kyrie" and "Gloria" are movements in what choral compositions exemplified by a J.S. Bach piece in B minor and a Giovanni Palestrina piece credited with saving polyphony **(pah-LIFF-uh-nee)**?  
ANSWER: **mass** [or **missa**]

4B. What 1884 Republican Presidential nominee, nicknamed the "Plumed Knight," was opposed by Mugwumps who voted instead for Grover Cleveland?  
ANSWER: James G. **Blaine**

5A. What Virginia geologic province lies between the Blue Ridge and Coastal Plain provinces?  
ANSWER: **Piedmont** province

5B. What member of the Beat Generation wrote *Naked Lunch*?  
ANSWER: William S. **Burroughs**

6A. In the "putting-out system" of protoindustrial England, merchants loaned raw materials to workers in what sort of small buildings, which name that type of rural industry?  
ANSWER: **cottage**s

6B. Poseidon is the patron of what animal exemplified by the swift Arion, the immortal Balius and Xanthus, and a group of four owned by the giant Diomedes?  
ANSWER: **horse** [or **mare**]

7A. The Spanish conditional tense endings "-ía" **(EE-ah)** and "-ían" **(EE-ahn)** are used for what grammatical person?  
ANSWER: **third** person

7B. What Truman Capote book recounts the murder of the Clutter family?  
ANSWER: ***In Cold Blood***

8A. This is a 30-second calculation question. If the sum of two numbers is 10, and their product is 20, what is the sum of their squares?  
ANSWER: **60**

8B. This is a 30-second calculation question. What is the secant of the second-quadrant angle whose sine is 5/7? Express your answer in simplest radical form.  
ANSWER: **negative 7 times** the square **root** of **6**, all **over 12** [or **negative 7 times rad**ical **6**, all **over 12**]

9A. What two terms, referring to type and direction, describe the image that is formed in convex and flat mirrors?  
ANSWER: **virtual** and **upright** [answers may be given in either order, but do not accept or prompt if only one answer is given]

9B. Daley Blind and Robin Van Persie scored goals for what national soccer team, which defeated Brazil to win its first-ever third place finish in the World Cup in 2014?  
ANSWER: the **Netherlands** [Kingdom of the **Netherlands**; or Koninkrijk der **Nederlanden**; or **Holland**; or Het **Nederlands** Elftal; or **Dutch** national team; prompt on **Oranje**]

10A. What country, whose Arabian Oryx Sanctuary was the first site stripped of its World Heritage status, has been ruled by Sultan Qaboos **(kah-BOOS)** since 1970?  
ANSWER: **Oman** [Sultanate of **Oman**; or Saltanat **Uman**]

10B. What Swedish author wrote about the bohemian Arvid Falk in the novel *The Red Room*, but is better known for plays like *The Ghost Sonata* and *Miss Julie*?  
ANSWER: August **Strindberg** [or Johan August **Strindberg**]

**2016 VHSL Regionals - Round 02 - Third Period, Fifteen Tossups**



1. The lamellae **(luh-MELL-ee)** of this tissue surround conduits that deliver nutrients to cells located in its lacunae **(luh-KYU-nee)**. Those conduits are found in this tissue's outer, “compact” subtype and are called haversian **(ha-VER-zhen)** canals. The matrix of this tissue is reinforced by hydroxyapatite **(high-DROX-ee-"appetite")** crystals. This tissue's "irregular" type is found in the sacrum **(SAY-crum)** and maxilla. This tissue undergoes remodeling by osteoclasts and osteoblasts. Blood cells are made in its marrow. For 10 points, name this mineralized tissue that composes the skeleton.  
ANSWER: **bone** [prompt on **connective** tissue]

2. In 2013, this automaker released a smartwatch which monitors car performance. This company, which shuffled its American management in 2015 under the "Power 88" plan, shares CEO Carlos Ghosn **(GO-zinn)** with its alliance partner Renault. This company owns the largest auto plant in the United Kingdom, where its Juke SUV is manufactured. It is the second-largest car company in Japan after Toyota. For 10 points, name this company that manufactures Frontier pickups, Leaf electric vehicles, and the mid-size Altima.  
ANSWER: **Nissan** [or **Nissan** Motor Company Ltd.; or **Nissan** Jidōsha Kabushiki-gaish]

3. George Gamow **(GAM-off)** created a model to explain this process in which the namesake particle tunnels through an electrostatic barrier. This process is used to ionize air in a class of smoke detectors. The atomic number of an element that undergoes this process is reduced by 2. This type of radiation is only dangerous if ingested and produces the most stable nucleus. For 10 points, name this form of decay that releases a helium-4 nucleus, a more massive particle than is released by beta or gamma decay.  
ANSWER: **alpha** decay

4. A member of this philosophical school wrote about the "face-to-face encounter with the Other" in books such as *Totality and Infinity*. This school of thought, which included Emmanuel Levinas **(leh-vee-NAHS)**, was also developed by a man who used a paper cutter to argue that a namesake property of this school "precedes essence," and explained "bad faith," in *Being and Nothingness*. An originator of this philosophy conceptualized the "knight of faith" in *Fear and Trembling*. For 10 points, Søren Kierkegaard was a forerunner of what school of thought exemplified by Jean-Paul Sartre?  
ANSWER: **existential**ism [or **existentialist** philosophy]

5. The protagonist of this opera is blessed by a chorus of priests in the aria "O Isis und Osiris." Near the end of this opera, the buffoonish birdcatcher Papageno is reunited with his lover. This opera's coloratura soprano declares that "Hell's vengeance boils in my heart" in the aria "Der Hölle Rache" **("dare" HURL-lah RAH-kah)**. In this opera, the murder of the magician Sarastro **(suh-RAH-stro)** is ordered by the Queen of the Night to her daughter Pamina, who is in love with Tamino. For 10 points, name this Wolfgang Amadeus Mozart opera titled for an enchanted instrument.  
ANSWER: *The* ***Magic Flute*** [or *Die* ***Zauberflöte***]

6. To memorialize this event, Johannes Gelert created an oft-vandalized statue of a uniformed man raising his hand. After this event, Louis Lingg killed himself with an explosive, and August Spies and three other men were executed. International Workers' Day is celebrated on May Day because this event took place on May 4. This event linked groups like the Knights of Labor to anarchism. For 10 points, name this 1886 event in Chicago in which seven police officers were slain when a bomb was thrown at a labor demonstration.  
ANSWER: **Haymarket** Square affair [or the **Haymarket** Square riot; or the **Haymarket** Square incident]

7. This country is home to almost all of the Rodope montane **(ROD-uh-pay mon-TAHN)** mixed forest ecoregion, and its capital is home to the Tsar Liberator equestrian monument. In 1908, this country fully absorbed the principality of Eastern Rumelia, including the city of Plovdiv. This country's city of Silistra **(“sigh”-LISS-truh)** marks the end of the portion of its border with Romania defined by the Danube. This country has a long eastern coastline on the Black Sea and a southeastern land border with Turkey. For 10 points, name this Balkan state whose capital is Sofia **(so-FEE-uh)**.  
ANSWER: **Bulgaria** [Republic of **Bulgaria**; or **Republika Bulgaria**]

8. A king of this empire was accused of having a detachable demon head and killing a "million million" people in *The Secret History*. A princess from this empire wrote the *Alexiad*, a history of the reign of her father. This empire lost the Battle of Manzikert **(MAN-zih-kurt)** to Seljuq **(SELL-juck)** Turks during the rule of Romanos IV. A king of this empire married the dancer Theodora. Constantine XI was the last ruler of this empire, which fell after the sack of Constantinople in 1453. For 10 points, name this Greek-speaking empire whose rulers included Justinian the Great.   
ANSWER: **Byzantine** Empire

9. In 2012, a star of this show claimed that bleeps are added to random words of dialogue in it to give the false impression of profanity. In the 2015 season of this show, characters chartered a hot-air balloon and visited a Japanese restaurant to complete a bucket list. In August 2015, the season 8 finale of this show depicted John Luke's marriage to Mary Kate. Phil Robertson was briefly "suspended" from this show in December 2013 for controversial comments about sin. For 10 points, name this A&E reality show about a family that makes bird calls.  
ANSWER: ***Duck Dynasty***

10. In the build-up to this Supreme Court case, a Citizens' Committee hired the legal services of Albion Tourgee **(“tour”-ZHAY)**, who had previously spent time in North Carolina as a carpetbagging politician. In his dissent in this case, John Marshall Harlan wrote that "there is no caste here" and "our Constitution is color-blind." This case involved the planned arrest of a mixed-race Louisiana native for sitting in a "whites only" railroad car. For 10 points, name this 1896 Supreme Court decision that upheld "separate but equal" segregation policies.  
ANSWER: ***Plessy*** *v. Ferguson* [or ***Ferguson*** *v. Plessy*]

11. A political theorist from this modern-day country introduced the Book of Laws and advocated harsh punishment, but was himself subjected to the “nine familial exterminations.” Violent conflict in this country led to the creation of the Hundred Schools of Thought. A philosopher from this country wrote about dreaming that he was a butterfly. The teachings of another philosopher from this country who stressed “filial piety” were collected in *The Analects*. For 10 points, name this country, the home of philosophers such as Confucius.  
ANSWER: **China** [or **Zhongguo**]

12. This poem compares a body of water to "the folds of a bright girdle furled." In this poem, "the grating roar of pebbles which the waves draw back" sounds an "eternal note of sadness." It describes "the turbid ebb and flow of human misery" in the mind of Sophocles, who "long ago heard it on the Aegean." The speaker of this poem exclaims, "Ah, love, let us be true to one another!" in its final stanza, which describes a "darkling plain" where "ignorant armies clash by night." For 10 points, name this poem set on the shore of England, written by Matthew Arnold.  
ANSWER: "**Dover Beach**"

13. A character in this opera is arrested when he disobeys his captain Zuniga's **(zoo-NEE-guzz)** orders, and later refuses his mother's wish for him to return home and marry Micaëla **(mih-KIE-luh)**. While singing the "Flower Song," a character in this opera recounts how a flower was thrown at him by a woman who sings that "Love is a rebellious bird." In this opera, Escamillo **(ess-kah-MEE-yo)** sings the "Toreador Song" as he falls in love with the title character, whom Don José stabs at a bullfight. For 10 points, name this Georges Bizet **(bee-ZAY)** opera about the title Gypsy girl.  
ANSWER: ***Carmen***

14. In a one-dimensional system, this quantity for a particle equals one-half Boltzmann's constant times temperature. Flywheels store angular momentum and the rotational form of this quantity. This quantity is not conserved in an inelastic collision, and it can be defined as one-half momentum squared over mass. The work done on an object is equal to the change in this quantity for that object. This scalar quantity is equal to one-half mass times velocity squared. For 10 points, name this type of energy possessed by objects in motion, as opposed to potential energy.  
ANSWER: **kinetic energy** [or **K**E; prompt on **energy**]

15. The addressee of this poem is compared to a "cloud of fire." The title creature of this poem is also compared to both "a high-born maiden in a palace-tower" and a "glow-worm golden in a dell of dew." The speaker of this poem instructs the title creature to "teach me half the gladness that thy brain must know" after praising its song as "better than all treasures that in books are found." This poem opens with the exclamation "Hail to thee, blithe spirit!" For 10 points, name this poem addressed to a songbird, written by Percy Shelley.  
ANSWER: "**To a Skylark**"

**2016 VHSL Regionals - Round 02 - Tiebreaker Questions**



1. A character in this play claims the protagonist is "a human being" and "so attention must be paid." It ends with a woman tragically saying "we're free and clear…we're free…", while Charley says the protagonist had to dream, as "it comes with the territory." The protagonist of this play has an affair while on the road, which ruins his oldest son's trust after it is discovered. The title character of this play ultimately commits suicide by car crash and is mourned by his sons, Happy and Biff. For 10 points, name this Arthur Miller play about Willy Loman.  
ANSWER: ***Death of a Salesman***

2. In this country, the Metaltown and Way Out West music festivals are held in Gothenburg. This country's southernmost province, Scania, is joined by the Øresund Bridge to another country's island of Zealand. The Kockums shipyard is found in this country's city of Malmö. Carolus Linnaeus worked at Uppsala University in this country, whose most populous city is home to the Vasa Museum and the annual awarding of the Nobel Prizes. For 10 points, name this home country of Ericsson and Volvo, which is governed from the Riksdag in Stockholm.  
ANSWER: **Sweden** [Kingdom of **Sweden**; or Konungariket **Sverige**]

3. In advanced mathematics, this measure is said to be a positive definite function that satisfies the triangle inequality and is called a “metric.” The Euclidean norm of a vector is equivalent to this measure. The formula for this measure is a simple restatement of the Pythagorean theorem. In the Cartesian plane, this measure's namesake formula is defined as the square root of the sum of the squares of the difference in the x coordinate and the difference in the y coordinate. For 10 points, name this measure which quantifies how far apart two points are.  
ANSWER: Euclidean **distance** [or **length**; or **magnitude**]

4. In order to rescue this hero, the centaur Chiron **(KIE-rahn)** sacrifices his immortality. This hero tricks Zeus into accepting a sacrifice of some bones wrapped in a layer of delicious animal fat. This hero is flummoxed when he finds that all of the gifts have been given to animals, saving none for humans, which leads him to commit his greatest crime. As punishment, this brother of Epimetheus **(ep-ih-MEE-thee-us)** is chained to a rock where his liver is eaten by an eagle everyday. For 10 points, name this Titan who brings fire to humanity.  
ANSWER: **Prometheus**

5. A right granted to people with this role yearly on St. George's Day was repealed during the "forbidden years." People who formerly held this role had to make "redemption payments" and participated in *mir* communities and self-governing *zemstvo* councils. The inadequacies of a reform affecting these people prompted the People's Will group to bomb a king's carriage. That king, Alexander II, carried out the emancipation of these people in 1861. For 10 points, give this term for the land-bound peasants of the Russian empire.  
ANSWER: Russian **serf**s [prompt on **peasant**s, **worker**s, or similar answers]

Which man, who called himself "Brother Number One," led Cambodia's communist Khmer Rouge?  
ANSWER: **Pol Pot** [or Saloth **Sar**]

This is a calculation question. In what numbered quadrant is secant positive and tangent negative?  
ANSWER: Quadrant **IV**