



VHSL Scholastic Bowl  
Regional Tournament 2015  
Round 6  
First Period, Fifteen Tossups

1. Despite standing a few feet away from him at a Reagan Day dinner, this man said that he didn't know who Trent Franks was. This man overcame a massive deficit to beat Charlie Crist in a three-way race in 2010. The family of this ex-Mormon fled the dictatorship of Fulgencio Batista (fool-HEN-see-oh bah-TEE-stuh). His delivery of the Republican response to the 2013 State of the Union address marked the first time the response was given in both English and Spanish. For 10 points, name this junior Senator from Florida, a Cuban-American.

ANSWER: Marco Rubio

2. The longest poem in this collection includes descriptions of the battle between the *Bonhomme Richard* and the *Serapis* and of the Goliad Massacre. This poetry collection includes "The Sleepers" and a poem beginning, "Flood-tide below me! I watch you face to face." The poet sounds his "barbaric yawp" in the final lines of this collection's longest poem, *Song of Myself*. For 10 points, name this major poetry collection by Walt Whitman.

ANSWER: Leaves of Grass

3. This hero is tricked into sleeping with a woman whom he rescues from a chamber filled with boiling water. This hero defeats the Copper Knight in order to claim a castle called the Dolorous Guard. In order to befriend this knight, Galehaut (GAH-lee-oat) decides to surrender his entire army. This knight's affair with Elaine of Corbenic produces his son Galahad. This knight's lengthy affair with Queen Guinevere brings about the fall of King Arthur. For 10 points, name this greatest of the Knights of the Round Table.

ANSWER: Lancelot du Lac

4. This scientist names fluids that have a constant viscosity regardless of applied stress. This scientist eliminated the chromatic aberration of refracting telescopes by building the first good telescope that used mirrors. His telescope work was based on his experiments with light, published in *Opticks*, which included splitting white light with a prism. A law developed by him states that force equals mass times acceleration. For 10 points, name this English physicist who developed three laws of motion.

ANSWER: Isaac Newton

5. In this book, an archer shoots an arrow through the eye of a floating metal fish without looking at it, winning the hand of the beautiful Draupadi (droh-POW-dee). After Yudhisthira (yoo-diss-TEE-ruh) loses his wealth in a dice game in this poem, two factions fight the Battle of Kurukshetra (KOO-ruk-SHAY-trah). It describes the clash between the Kauravas (kuh-RAH-vuhz) and Pandavas (PAHN-dah-vahz). For 10 points, name this Indian epic that includes the Krishna's statement of faith, the *Bhagavad Gita* (BAH-guh-vahd-GEE-tuh).

ANSWER: Mahabharata [do not prompt on "Bhagavad Gita"]

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6. The Mugwumps defected in support of this party's Presidential candidate. Opponents tagged its candidates with the slogan "Rum, Romanism and rebellion." In their 1896 convention, a speaker argued for a bimetallic monetary system, concluding "you shall not crucify mankind upon a cross of gold." The Populists were largely absorbed by this party after the nomination of William Jennings Bryan. For 10 points, name this party which nominated Grover Cleveland and Woodrow Wilson for President.

ANSWER: **Democratic** Party

7. Fmet ("F"-met) is used at the start of this process, which involves formation of a polysome and is initiated by an anti-sequence pairing with the Shine-Dalgarno sequence. Enzymes break an ester bond in 23S rRNA at the A and P sites before three release factors terminate this process by recognizing nonsense codons. This process begins with the AUG ("A-U-G") start codon and consists of tRNAs adding amino acids to a growing peptide chain. For 10 points, name this cytoplasmic process in which 70S ribosomes decode mRNA transcripts to make proteins.

ANSWER: prokaryotic **translation** [prompt on **protein synthesis**; do not accept "transcription"]

8. The Brusilov Offensive took many of the German reinforcements that were requested for this battle. This battle included the first use of tanks during World War I at Flers-Courcelette (FLEH coo-suh-LET). The German focus on this battle allowed the French to turn the tide at Verdun. This battle ended with the most substantial allied territorial gains since the Battle of the Marne. The British lost 58,000 troops on the first day of this battle. For 10 points, name this 1916 World War I battle fought along a river in France, which had over one million casualties.

ANSWER: First Battle of the **Somme**

9. The pressure drop across an interface is twice this quantity times the mean curvature. This quantity is usually measured in dynes per centimeter. A force balance between three phases proves that as this quantity increases, the contact angle goes to 90 degrees. If this quantity is sufficiently high, and diameter is small, then liquids will rise against gravity through small capillaries. A high value of this quantity causes beads of water to form on hydrophobic surfaces. For 10 points, name this phenomenon which allows water striders to walk across ponds.

ANSWER: **surface tension** [or **surface energy**]

10. This book is the basis for Nathaniel Hawthorne's story "The Celestial Railroad." This book's protagonist fights the demonic monster Apollyon (AA-pol-yon). This book describes the journey past the Slough of Despond and the town of Vanity Fair undertaken by the title character, Christian. For 10 points, name this allegorical prose narrative written by John Bunyan.

ANSWER: *The* **Pilgrim's Progress**

11. A twentieth-century revival of this instrument was spearheaded by Wanda Landowska. This instrument could only play loud and soft dynamics, but nothing in between. The fifth Brandenburg Concerto includes a lengthy cadenza (cuh-DEN-zuh) for this instrument. 555 sonatas were written for this instrument by Domenico Scarlatti. J.S. Bach wrote an aria and a set of thirty variations for this instrument in a collection named for Gottlieb Goldberg. For 10 points, name this Baroque instrument, which, like the clavichord, was a predecessor of the piano.

ANSWER: **harpsichord**

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12. During a siege in this war, the zoo elephants Castor and Pollux were eaten and Leon Gambetta escaped in a hot air balloon. A government established after this war was destroyed during the “Bloody Week” by Patrice MacMahon. This war was ended by the Treaty of Frankfurt and instigated by a forged telegram known as the Ems Dispatch. During this war, an emperor was captured at the Battle of Sedan. For 10 points, name this war instigated by Otto von Bismarck against a country led by Napoleon III.

ANSWER: **Franco-Prussian** War [or **Franco-German** War]

13. In a play by this author, a chorus of old women douse with water a chorus of old men carrying torches. This playwright wrote about the construction of Cloudcuckooland and the interception of prayers to the gods by the title animals in his play *The Birds*. He also wrote about the women of Sparta and Athens going on a sex strike to end the Peloponnesian War. For 10 points, name this comic Greek playwright of *The Frogs* and *Lysistrata*.

ANSWER: **Aristophanes**

14. Boats named “abras” are used to travel between areas of this city, whose main thoroughfare was named for former president Sheikh Zayed. This city is home to the Miracle Garden, the world’s largest flower garden. A group of artificial islands off the coast of this city are shaped to resemble a world map. A “seven-star” hotel shaped like a sail can be found off this city’s Jumeirah (joo-MARE-uh) Beach. In 2010, the tallest building in the world, the Burj Khalifa, opened in this city. For 10 points, name this most populous city in the United Arab Emirates.

ANSWER: **Dubai**

15. Many of this character’s video games take place in the town of Station Square. A recurring level in this character’s video games is the Casino Night Zone. He’s not Solid Snake, but this character makes a crossover appearance in *Super Smash Brothers: Brawl*. This character teams up with Knuckles and Tails in a competition to collect power-up rings and race through game levels. For 10 points, name this character, a blue hedgehog who appears in a series of video games produced by Sega.

ANSWER: **Sonic** the Hedgehog



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Round 6  
Directed Round

1A. What law states that if the statement, “if P, then Q” is true, then the statement “if not Q, then not P” is also true?

ANSWER: law of the **contrapositive** [or law of **contraposition**]

1B. What Uralic language, the second most-spoken after Hungarian, is referred to as “Suomi” (SWOH-mee) by native speakers and is closely related to Estonian?

ANSWER: **Finnish**

2A. What Shakespeare character cries, “Out, damned spot!” as she sleepwalks out of guilt for persuading her husband to assassinate King Duncan?

ANSWER: **Lady Macbeth** [do not prompt on “Macbeth”]

2B. In what Indian city were 146 British troops held in cramped prisons during its namesake “Black Hole” incident?

ANSWER: **Calcutta** [or **Kolkata**]

3A. This is a 20-second calculation question. The probability of event A occurring is 0.2. The probability of event B occurring, given that event A occurs, is 0.4. If A and B are independent events, what is the probability that, given that event B occurred, event A occurred?

ANSWER: **0.2** [or **1/5**]

3B. This is a 20-second calculation question. Triangles ABC and DEF are congruent. Triangle ABC has vertices at (2,1), (3,8), and (4,1). Two of the vertices of triangle DEF are at (-3,6) and (-1,6). What are the two possible locations of the third vertex of triangle DEF?

ANSWER: **(-2,13)** and **(-2,-1)**

4A. What German philosopher authored *Monadology*, coined the phrase “the best of all possible worlds,” and invented calculus?

ANSWER: Gottfried Wilhelm **Leibniz**

4B. Name the component of cells that contains the non-nuclear organelles and largely consists of a gelatinous fluid called cytosol (SAI-tuh-sahl).

ANSWER: **cytoplasm**

5A. What defensive chess move is the only move that involves moving two pieces, the king and the rook, at the same time?

ANSWER: **castling** [or word forms]

5B. Light is produced from sources termed “K,” “F,” and “E” in what region of hot plasma surrounding the sun, which is hundreds of times hotter than the photosphere?

ANSWER: **corona**

6A. What disorder, in which the spine is abnormally curved, helped to identify a skeleton found under a parking lot as King Richard III?

ANSWER: **scoliosis** [do not accept “hunchback”]

6B. Name the 1521 theological gathering at which Martin Luther said “here I stand, I can do no other,” before being taken to Wartburg (VORT-burg) by Prince Frederick.

ANSWER: **Diet of Worms**

7A. What treaty ended the Mexican-American War by ceding southwest possessions to the United States?

ANSWER: Treaty of **Guadalupe Hidalgo**

7B. What Italian artist and promoter of “metaphysical art” showed three mannequins inspired by Greek mythology in *The Disquieting Muses* and a girl rolling a hoop in *Mystery and Melancholy of a Street*?

ANSWER: Giorgio **de Chirico**

8A. This is a 30-second calculation question. Find all solutions to the quadratic equation  $x^2 + 6x = 7x + 12$ .

ANSWER:  $x$  equals **4** and **-3** [or {**4, -3**}]

8B. This is a 30-second calculation question. What is the tangent of the arcsecant of 2?

ANSWER: square **root** of **3** [or **radical 3**]

9A. What material was used to build a massive collection of sculptures of Qin Shi Huangdi’s (CHEE shin wong-DEE’s) army in Xi’an (SHEE-ahn), China?

ANSWER: **terracotta** [or **Terracotta** Army; or **Terracotta** Warriors]

9B. What Czech author wrote *The Book of Laughter and Forgetting* and *The Unbearable Lightness of Being*?

ANSWER: Milan **Kundera**

10A. What process determines poetic meter by searching for stressed syllables and counting feet?

ANSWER: **scansion**

10B. What poet, who described an “old yellow pair” in “The Bean Eaters,” also wrote “We Real Cool” and became the first African-American to win the Pulitzer Prize?

ANSWER: Gwendolyn **Brooks**



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Third Period, Fifteen Tossups

1. The optimal rate of these things is the inverse elasticity of demand if the lump-sum type is unavailable. Arthur Pigou (pig-OO) suggested using these things to make producers internalize negative externalities such as carbon dioxide. The Laffer curve illustrates that beyond a certain rate, increasing these things will lead to falling revenue. When these things are at the same nominal rate for people regardless of income, they are termed “regressive.” For 10 points, name these things that are levied to raise government revenue.

ANSWER: taxes

2. A large observatory can be found in this island’s city of Arecibo (AH-ruh-SEE-boh). The Mona Passage separates this island from a larger one to its west. This island is home to the coqui (coh-KEE), a frog named for its mating call, which can be found in its El Yunque (YOON-kay) National Forest. The city of Mayagüez (MAI-uh-GWEZ) can be found on this island’s west coast. This island is located east of Hispaniola. For 10 points, name this Spanish-speaking territory of the United States in the Caribbean.

ANSWER: Puerto Rico [Commonwealth of Puerto Rico]

3. The negative dot product of dipole moment and electric field gives this quantity for an electric dipole. Force is defined as the negative position derivative of this quantity. This quantity for gravity is defined at infinity as zero. For a spring, this quantity is proportional to displacement squared, while its gravitational form is mass times g times height. For 10 points, identify this term for stored energy, that is contrasted with kinetic energy.

ANSWER: potential energy

4. During one of these events, protesters clashed with police in the Tompkins Square Riot. One of these events began after Levi Woodbury issued an order opposing wildcat currency. The Bland-Allison Act responded to one of these events by replacing a law called the “Crime of ‘73.” One of these events was partly caused by the creation of pet banks and the issue of the Specie Circular. That one of these events occurred in 1837 during Martin van Buren’s presidency. For 10 points, give this term for financial crises in nineteenth-century America.

ANSWER: panics [prompt on recessions]

5. In 2013, this artist released an album called *Christmas Kisses* which featured the original track “Snow in California.” This artist filmed a music video in an abandoned mansion for her song “Love Me Harder.” This singer says that she has her “head in the clouds” and “no weight” on her shoulders; in the chorus to another of her songs, she says “this is the part when I say I don’t want ya, I’m stronger than I’ve been before.” For 10 points, the 2014 album *My Everything* includes the songs “Break Free” and “Problem” by what cat-ears-wearing former Disney star?

ANSWER: Ariana Grande [or Ariana Grande-Butera]

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6. In this novella, Juan Tomas and Apolonia provide a haven for their family members, who are refused help by the Doctor. The central family of this novella owns a prized canoe that is destroyed as their house is burning down. The title object of this novella is discovered as the protagonist is searching for a way to pay for medical treatment of Coyotito's (co-yo-TEE-toh's) scorpion sting. For 10 points, name this John Steinbeck novella in which Kino finds the title object while diving.

ANSWER: *The Pearl*

7. This person thwarted a man who killed people by catapulting them using the force of bended pine trees. He joined with Pirithous (PEER-uh-thoos) to carry off daughters of Zeus. This man's father killed himself after seeing black sails furled on this man's returning ship. In his early career, he slew such bandits as Sciron (SKY-ron) and Procrustes (pruh-CRUS-teez). This man was given a ball of thread by Ariadne, which allowed him to navigate the Labyrinth and fight a half-man, half-bull monster. For 10 points, name this Greek hero who slew the Minotaur.

ANSWER: Theseus

8. Henry Knighton's account of this event describes the burning of the Savoy Palace, and John Gower's *Vox Clamantis* (VOCKS cluh-MAHN-tiss) lamented the evil of this event's participants. During this event, the lyric "When Adam delved and Eve span, who was then the gentleman" was popularized by the priest John Ball. The Mayor of London, William Walworth, murdered the leader of this event during a meeting at Smithfield. For 10 points, name this rebellion led by Wat Tyler, which was an uprising of laborers during the reign of Richard II.

ANSWER: Peasants' Revolt [or Wat Tyler's Rebellion until "Wat Tyler" is read; or Great Rising; do not accept "Peasants' War"]

9. In a painting by this artist, images of a sky, a forest, and a fire are separated by an irregularly-shaped frame. This artist included images on canvases that are continuous with the landscapes behind them in many paintings, including *Euclidean* (yoo-KLID-ee-un) *Walks* and *The Human Condition*. A train juts from a fireplace in this artist's painting *Time Transfixed*. In an image by this artist, a green apple obscures the face of a man in a bowler hat. For 10 points, name this Belgian surrealist who painted the words "this is not a pipe" below an image of a pipe.

ANSWER: René Magritte [René François Ghislain Magritte]

10. An emperor of this dynasty praised Islam in the *Hundred-Word Eulogy*. The founder of this empire took the title "Hongwu" after winning the Battle of Lake Poyang (POH-yong) and allying with the Red Turbans. During this dynasty, seven treasure voyages under the eunuch admiral Zheng He (jung HA) were sponsored by the Yongle (YONG-lay) emperor. The Forbidden City was constructed during this dynasty. For 10 points, name this Chinese dynasty which succeeded the Mongol Yuan (WON) dynasty and was followed by the Qing (CHING) dynasty.

ANSWER: Ming dynasty

11. Bayesian versions of these constructs are termed “credible” ones. The coverage probability quantifies the chance that one of these constructs includes a parameter of interest. If the population is normally distributed and has a known standard deviation, adding and subtracting 1.96 times that standard deviation over square root of n gives a ninety-five percent one of these things for the mean. For 10 points, name this statistical estimate of two values that the population mean or other parameter lies between.

ANSWER: **confidence interval** [or **CI**; or **confidence sets**]

12. A third movement marked “Allegro agitato” (ah-gee-TAH-toh) ends this composer’s only piano concerto, which is in F major. This man composed a set of variations on “I Got Rhythm,” a standard that he wrote with his lyricist brother Ira. This composer included parts for four taxi horns and used blues music to depict homesickness in the tone poem *An American in Paris*. In another piece by this composer, a solo clarinet opens with a trill and ascending glissando (glih-SAHN-doh). For 10 points, name this composer of *An American in Paris* and *Rhapsody in Blue*.

ANSWER: George **Gershwin**

13. The absence of this stimulus in certain cells results in a steady inward sodium current due to high levels of cGMP. Upon exposure to this stimulus, special pairs in the reaction center transfer an electron to pheophytin (FEE-oh-FITE-in). DNA damage from this stimulus is reduced when it activates melanin production. Its presence stimulates a structural change in vitamin A in rods and cones. Pigments in PSII (“P-S-2”) absorb this radiation at 680 nanometers, which excites electrons in chlorophyll. For 10 points, name this stimulus used by plants during photosynthesis.

ANSWER: **light** [or **UV** radiation; or visible **light**; or **photons**; prompt on reasonable partial answers such as the **sun shining**]

14. A character in this novel is a clerk who lives in a replica of a castle with his father known as the “Aged Parent.” A villain in this book, Compeyson (COM-pee-sun), abandoned a woman at the altar, prompting her to keep all the clocks in Satis House stopped at twenty minutes to nine. Its main character is raised by a blacksmith named Joe Gargery. The protagonist of this novel believes his benefactor is the spinster Miss Havisham, but it is actually a convict named Abel Magwitch. For 10 points, name this Charles Dickens novel about an orphan named Pip.

ANSWER: **Great Expectations**

15. A tangent to this curve will always bisect an angle created by joining the point of contact to its two definitional points. It is normally specified as the locus of points such that the distance from the points to the focus is equal to the distance from the points to the directrix. This curve models the flight of any object under the influence of gravity, and it is the only conic section whose graph can be a function. For 10 points, name this curve that graphs a function of the form  $y$  equals  $x$  squared.

ANSWER: **parabolas**



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Round 6  
Tiebreaker/replacement questions

1. This city's Union Terminal was converted to the Museum Center in 1990. Its former L&N Railroad Bridge to Newport is now the pedestrian-and-bicycle-only "Purple People Bridge." A Macedonian immigrant in this city, Thomas Kiradjieff (keer-AA-jif), developed a distinctive style of chili served over spaghetti. Italianate architecture is preserved in its historic Over-the-Rhine neighborhood. For 10 points, identify this city nicknamed the Queen City, which is found across the river from Kentucky in southwestern Ohio.

ANSWER: Cincinnati

2. In this novel, one character's opinion of another changes after she hears him praised by his servant Mrs. Reynolds upon visiting his estate of Pemberley. In this novel, the protagonist's older sister Jane marries the wealthy Mr. Bingley, whereas the protagonist eventually agrees to marry the even wealthier Mr. Darcy. For 10 points, name this novel about Elizabeth Bennet by Jane Austen.

ANSWER: *Pride and Prejudice*

3. This country's salt-rich Lake Natron is a breeding ground for flamingos. It's not Indonesia, but this country is home to two islands nicknamed for their production of spices, one of which is Mafia Island. The Leakey family conducted archaeological research at this country's Olduvai Gorge. This country, which moved its capital inland from Dar es Salaam (DAAR-es-sah-LAHM) to Dodoma, is home to Kilimanjaro, the highest point in Africa. For 10 points, name this African country formed from the unification of Tanganyika (tan-gan-YEE-kuh) and Zanzibar.

ANSWER: Tanzania [United Republic of Tanzania]

4. At a meeting called by this man, Macedonia was returned to the Ottoman Empire as part of a series of moves that undid the Treaty of San Stefano. In a speech to a budget committee, this politician declared that "the great questions of the time will not be resolved by speeches and majority decisions, but by iron and blood." This politician called the Congress of Berlin and engineered the unification of Germany. For 10 points, identify this German statesman who was nicknamed the "Iron Chancellor."

ANSWER: Otto von Bismarck [Otto Eduard Leopold, Prince of Bismarck, Duke of Lauenburg]

5. Optimally, the feed to this process should occur at the intersection of the rectifying and stripping sections. This process is done to air at extremely cold temperatures in the most common method of purifying oxygen. The reflux ratio quantifies how much of the overhead is returned to the fractionating column during this process. This technique is ineffective at separating azeotropes (EY-zee-uh-tropes), which is why it only produces ethanol that is 96% pure. For 10 points, name this purification technique in which a liquid is boiled and condensed.

ANSWER: **distillation** [or word forms; or fractional **distillation**; or cryogenic **distillation**; or air **distillation**; prompt on **boiling** or word forms]

What 1893 reform law established that civil service positions must be awarded through merit-based exams instead of patronage?

ANSWER: **Pendleton** Civil Service Reform Act

This is a calculation question. What is the domain of the function  $f$  of  $x$  equals square root of quantity negative  $x$  squared minus  $4x$  minus  $3$ ?

ANSWER:  $x$  is **between -3 and -1**, inclusive [or **[-3,-1]**]