



VHSL Scholastic Bowl
Regional Tournament 2015
Round 8
First Period, Fifteen Tossups

1. A ruler of these people used a weapon that was dug up by a herdsman and called the Sword of Mars by the chronicler Priscus. The Hephthalite (HEF-thuh-lite) empire was founded by the “White” branch of these people. These people were defeated by Flavius Aetius (eye-EE-tee-us) on the Catalaunian plain in the Battle of Chalons (shuh-LAHN). A king of these people killed his brother Bleda, allegedly died of a nosebleed, and was turned back on a campaign by Leo I. For 10 points, name this tribe once led by the “Scourge of God,” Attila.

ANSWER: Huns [or Hunnic people; or Xiongnu]

2. The Shwedagon (shuh-WED-uh-gon) Pagoda in Burma is covered in this substance. A landmark named for this substance in Amritsar (AHM-reet-sahr) was the target of Operation Blue Star, ordered by Indira Gandhi. Mansa Musa donated large amounts of this substance during his hajj, deflating its value. A mythical city sought for its abundance of this substance is El Dorado. For 10 points, name this metal which led many to travel to the Yukon and California on namesake “rushes.”

ANSWER: gold

3. Devices appearing in this novel include earplug radios called Seashells and a stomach-pumping device called the “electronic-eyed snake,” which is used after Mildred overdoses on sleeping pills. After he quits his job, a character in this novel is tracked by a device that detects his sweat called the Mechanical Hound. This dystopian novel centering on Guy Montag begins, “It was a pleasure to burn.” For 10 points, name this novel titled after the temperature at which paper catches fire, by Ray Bradbury.

ANSWER: Fahrenheit 451

4. Both the electric field inside a conductor and the magnetic flux through a closed surface are equal to this value. The sum of voltage around a closed loop equals this value, according to Kirchhoff’s loop rule. The work done on an object undergoing centripetal acceleration equals this value, since the force acts perpendicularly to the velocity. Once a falling object reaches terminal velocity, the net force on the object equals this number. For 10 points, name this number that is the electric charge of a neutron and the kinetic energy of an object at rest.

ANSWER: zero

5. A character in this play nonsensically rambles about the “Acacacademy of Anthropopometry.” That character in this play is later involved in a hectic hat-switching scene. In this play, Lucky is bound to a rope leash held by his master, Pozzo, who goes blind between this play’s two acts. The backdrop of this play is a single tree where Vladimir and Estragon contemplate suicide as they anticipate the arrival of the title character. For 10 points, name this absurdist play by Samuel Beckett.

ANSWER: Waiting for Godot

6. This man was the only player to play on the U.S. basketball team in both the 2000 and 2008 Summer Olympics. This player holds the record for most career regular season triple-doubles, and he won his only NBA championship in 2011, as a member of the Dallas Mavericks. As coach of the Brooklyn Nets, this man was fined fifty thousand dollars for forcing a stoppage in play by having one of his players knock a cup of soda from his hand. For 10 points, name this current coach of the Milwaukee Bucks, a longtime star at point guard for the Nets.

ANSWER: Jason Kidd [Jason Frederick Kidd]

7. The executive order Reorganization Plan No. 3 first proposed this agency, and William D. Ruckelshaus was its first administrator. Its Title V (five) operating permits were established in a set of 1990 amendments. It administers the WaterSense and EnergyStar programs. Its current head, Gina McCarthy, is not part of the Cabinet despite being Cabinet-rank. Massachusetts successfully sued this agency, established in 1970, forcing it to regulate greenhouse gases under the Clean Air Act. For 10 points, name this executive department that fights pollution.

ANSWER: EPA [or Environmental Protection Agency]

8. Molar heat capacities are usually expressed as prefactors multiplying this quantity. This value multiplies temperature in both the van der Waals (VAN der Waals) and virial equations of state. It appears in the denominator of the exponential of the Arrhenius (uh-REE-nee-uss) equation. This constant is the molar equivalent to Boltzmann’s constant, and, in SI units, it equals 8.314 Joules per Kelvin mole. In general, it is the ratio between pressure times volume and number of moles times temperature. For 10 points, name this constant symbolized R.

ANSWER: ideal gas constant [or R until it is read]

9. Elites on this island lived in stone-and-thatch houses known as hare paenga (HAH-ray pai-EN-guh), and its local tongue is closely related to Mangarevan (mong-guh-RE-vun). In *Collapse*, Jared Diamond speculated that this island’s residents resorted to cannibalism after deforesting this island. This island, owned by Chile, is home to ocean-facing pedestals known as ahu (AH-hoo). For 10 points, name this South Pacific island known to its inhabitants as Rapa Nui (RAH-puh NOO-ee), best known for its “moai” (MOE-ai), which are monumental stone heads.

ANSWER: Easter Island [or Rapa Nui until it is read; or Isla de Pascua]

10. The Wolffian duct degrades in the absence of this hormone during embryogenesis (EMB-ree-oh-JEN-uh-siss). This hormone is secreted by Leydig (LAI-dig) cells and loses a carbon when aromatase (ah-ROE-muh-tayz) converts it into estradiol (est-ruh-DAI-ol). Increased acne and impotence due to hypogonadism can occur after use of drugs that mimic this hormone, such as anabolic steroids. This hormone's increase in puberty corresponds to growth of the Adam's apple and facial hair. For 10 points, name this sex hormone secreted mainly by the testicles.

ANSWER: **testosterone**

11. This event takes place after a man walks along a street called the Via Dolorosa. During that march, a woman named Veronica gave the man at the center of this event a veil to wipe his forehead. While this event takes place, a man cries out "My God, my God, why have you forsaken me?" and talks to two thieves next to him suffering the same fate. This event occurs after a man is asked if he is "King of the Jews" by Pontius Pilate. For 10 points, name this event in all four Gospels in which the Son of God is seemingly executed by the Romans.

ANSWER: **Crucifixion** of Jesus Christ

12. This function applied to a complex number is also called its modulus or its norm. Though not the square, this function of quantity x plus y is always less than or equal to this function of x plus this function of y , by the Triangle Inequality. This function can be written as the positive square root of the square of a real number, or as a real number times its sign. The graph of this function of x forms an upward-facing v . For 10 points, give this function that indicates how far a number is from zero.

ANSWER: **absolute value**

13. This man conducted door-to-door interviews in the Seventh Ward for a book written while an "assistant in sociology" at the University of Pennsylvania. He introduced the idea of "double consciousness" in another book, which stated "the problem of the twentieth century is the problem of the color line." This author of *The Philadelphia Negro* advocated for the "talented tenth" in his criticism of his rival's Atlanta Compromise. For 10 points, name this co-founder of the NAACP who feuded with Booker T. Washington and wrote *The Souls of Black Folk*.

ANSWER: W. E. B. **DuBois** [William Edward Burghardt **DuBois**]

14. In a painting by this artist, a thin cloud separates St. Thomas holding a girdle over an empty tomb from angels playing music as Jesus crowns Mary. The Christ child receives carnations, John the Baptist holds a tiny cross, and the Holy Family plays with a goldfinch in some of this artist's many Madonnas. His best known painting is part of the Stanza della Segnatura (STAHN-zuh deh-LA sen-YAH-toh-OOR-uh), and has as its centerpiece an upward-pointing Plato next to a downward-pointing Aristotle. For 10 points, name this artist of *The School of Athens*.

ANSWER: **Raphael** [or **Raffaello** Sanzio da Urbino]

15. Ernst Beckmann invented the differential type of these devices. In psychrometry, a sock is wrapped around the wet-bulb type of these objects. A stir rod and one of these objects are inserted through the top of a Styrofoam cup in constant-pressure calorimetry. Galileo's original conception of this device made use of changing density. Alcohol is used in these devices nowadays, rather than Daniel Fahrenheit's original design using mercury. For 10 points, name these devices that measure temperature.

ANSWER: **thermometers**



VHSL Scholastic Bowl
Regional Tournament 2014
Round 8
Directed Round

1A. Yaroslav the Wise ruled a large federation from what city, which is now the capital of Ukraine?

ANSWER: Kiev

1B. What Zynga game, released in 2009, is similar to Scrabble and features 104 letter tiles and a different arrangement of bonus squares?

ANSWER: Words With Friends

2A. The fifth revision of what markup language implements a new raster-based feature called canvas and makes embedding multimedia easier with its video and audio elements?

ANSWER: XHTML [or HyperText Markup Language]

2B. What mood is used to express hypothetical actions such as desires and possibilities, as in the Spanish sentence “espero que nieve,” (ess-PAY-roh kay nee-AY-vay) meaning “I hope it snows?”

ANSWER: subjunctive mood [or modo subjuntivo]

3A. This is a 20-second calculation question. In triangle ABC, point A is at the origin, point B is at (6, 3), and point C is at (3, 9). Triangle ADE is similar to triangle ABC, point D is at (-8, 4), and point E has a positive y-coordinate. What are the coordinates of point E?

ANSWER: (-4, 12)

3B. This is a 20-second calculation question. Given that one cubic centimeter equals one milliliter, how much water is left in a 500 milliliter water bottle after it is used to completely fill up a square pyramidal vase with height 10 centimeters and base side length 6 centimeters?

ANSWER: 380 milliliters [or 380 cubic centimeters]

4A. What term describes newly-coined words or expressions that have not yet made it into mainstream usage?

ANSWER: neologisms [or neolexia]

4B. The Mach number describes the ratio between the velocity of a body and the velocity of what phenomenon?

ANSWER: sound

5A. Henry Fleming is the protagonist of what Civil War novel by Stephen Crane?

ANSWER: *The Red Badge of Courage*

5B. What mayor of the District of Columbia was caught on videotape smoking crack cocaine in a 1990 FBI sting operation?

ANSWER: Marion **Barry** [Marion Shepilov **Barry**, Jr.]

6A. What is the correlation coefficient if there is perfect negative correlation between two variables?

ANSWER: **-1**

6B. What deformed son of Sycorax (SICK-or-acks) is enslaved by the sorcerer Prospero in Shakespeare's *The Tempest*?

ANSWER: **Caliban**

7A. Name the region of Czechoslovakia which Germany demanded to annex in 1938, prompting the crisis which led to the signing of the Munich Agreement.

ANSWER: **Sudetenland**

7B. What Catholic British author wrote *The End of the Affair* and *The Power and the Glory*?

ANSWER: Graham **Greene** [Henry Graham **Greene**]

8A. This is a 30-second calculation question. Find all values x on the interval from 0 to 2π , inclusive, such that $2 \sin^2 x + 5 \sin x - 3 = 0$.

ANSWER: **$\pi/6$ and $5\pi/6$** [do not accept answers with more or fewer than two values]

8B. This is a 30-second calculation question. A polynomial in x has complex roots $3 + 5i$ and $3 - 5i$. What is the polynomial?

ANSWER: **$x^2 - 6x + 34$**

9A. What Swiss-French architect included the Open Hand Monument in his design for Chandigarh (SHAHN-duh-gahr), India, and epitomized the International Style with his Villa Savoye (vee-LAH sahv-WAH)?

ANSWER: **Le Corbusier** [or Charles-Edouard **Jeanneret**-Gris]

9B. Name the organization owned by Richard Branson whose Spaceship Two crashed during a test flight over the Mojave (moh-HAH-vay) Desert in October 2014.

ANSWER: **Virgin** Galactic

10A. The Hindu deity Shiva kills Kama, the god of love, using what substance represented by the two-headed god Agni?

ANSWER: **fire** [or equivalents such as **flames**]

10B. What staple crop in tropical areas, also known as manioc (MAN-yoc), comes in a bitter variety that must be soaked for days to prevent konzo, a paralytic condition caused by chronic cyanide poisoning?

ANSWER: **cassava**



VHSL Scholastic Bowl
Regional Tournament 2014
Round 8
Third Period, Fifteen Tossups

1. A character on this show rents a pirated copy of *The French Lieutenant's Woman* to make his mistress cry. A teenager on this series is mistaken for Sally by her "Aunt Helen." A family on this show is murdered in a hotel room in Alexandria. A character on this show leads a second life as Clark in order to collect information from Martha, who works in Stan Beeman's department in the FBI. For 10 points, name this FX show centering on the Jennings, a pair of Cold War-era KGB agents secretly living in the U.S.

ANSWER: *The Americans*

2. Ketoacidosis (KEE-toh-aa-sid-OH-sis) can induce the Kussmaul (KOO-small) type of this activity, which is partly regulated by changes in blood pH and partial pressure. The internal intercostals are important in the forced version of this mechanism, which can be measured with a spirometer. This process is suspended in apnea. A part of this process marked by relaxation of the diaphragm results in the expulsion of carbon dioxide from the airways. For 10 points, name this process that includes exhaling air from the lungs.

ANSWER: **breathing** [or **respiration**; or **ventilation**; or **exhaling** until it is read; or word forms; prompt on **inhaling**; prompt on **expiration**; do not accept or prompt on "cellular respiration"]

3. In February 2014, this man became the oldest pro soccer player in his country, after his signing by the Sport Boys. In July 2013, this politician's plane was grounded in Austria after suspicions arose that Edward Snowden was on board. This man dedicated his 2014 re-election to Hugo Chavez and Fidel Castro, and began his third term, enabled by a 2009 constitutional change. For 10 points, name this politician, the leader of the Movement Toward Socialism, who has been the President of Bolivia since 2006.

ANSWER: Evo **Morales** [Juan Evo **Morales** Ayma]

4. This composer arranged Baroque melodies by Giovanni Pergolesi for a ballet based on the commedia dell'arte (cuh-MAY-dee-uh-del-ART-ey). He used a chord consisting of overlapping C major and F sharp major triads in another ballet. A high bassoon solo opens a ballet by this composer which ends with the "Sacrificial Dance," during which a chosen girl dances herself to death. For 10 points, name this Russian composer of *Pulcinella* (pull-chin-ELL-uh) and *Petroushka* (pe-TROOSH-kuh) who caused a riot with the 1913 premiere of *The Rite of Spring*.

ANSWER: Igor **Stravinsky** [or Igor Fyodorovich **Stravinsky**]

5. In a novel by this author, Karl Rossman moves to New York; in another of his novels, a land surveyor finds himself unable to enter the title building. In a short story by this author, criminals have sentences engraved on their backs by a torture machine. This author of the unfinished novels *America* and *The Castle* also wrote about the death of Josef K. in *The Trial*. A short story by this author begins when Gregor Samsa awakens to find he has transformed into a large insect. For 10 points, name this Czech-German author of “The Metamorphosis.”

ANSWER: Franz **Kafka**

6. In polar coordinates, these objects include the graphs of the functions “ r equals cosine of theta” and “ r equals a ” where “ a ” is a constant; the latter function produces one of these centered at the origin. The maximum number of these two-dimensional objects that can touch a central one of them is the kissing number. These conic sections are formed when the intersecting plane is parallel to the cone’s base, and their eccentricity is zero. If both foci of an ellipse are the same point, this special case of an ellipse is formed. For 10 points, name these round shapes.

ANSWER: **circles** [prompt on **ellipses** until it is read]

7. This author wrote about an inventor who is killed by his own chess-playing robot in the short story “Moxon’s Master.” He defined a lawyer as “one skilled in the circumvention of the law” in his satirical *The Devil’s Dictionary*. His most famous story describes the death by hanging of the Confederate sympathizer Peyton Farquhar at the title structure. For 10 points, name this American author of “An Occurrence at Owl Creek Bridge.”

ANSWER: Ambrose **Bierce**

8. This composer described a traveler that passes by a linden tree promising peace in the fifth section of his song cycle *Winterreise* (VIN-tur-eye-suh). This composer depicted a father carrying his son home on a horse in the lied (leed) “Erlkonig” (AIRL-kah-nig). He wrote a set of variations on the “Die Forelle” (dee fuh-REL) for his piano quintet. This composer died before he could complete his eighth symphony. For 10 points, name this Austrian composer of the *Trout Quintet* and the *Unfinished Symphony*.

ANSWER: Franz **Schubert** [Franz Peter **Schubert**]

9. George Bush allegedly greeted this man with the word “yo” at the 2006 G8 summit. In August 2004, Adam Price of the Plaid Cymru (PLIDE CAM-ree) announced plans to impeach this leader. This politician described Princess Diana as “the people’s princess” during a speech after her death. An alleged deal between this man and Gordon Brown allowed him to become his party’s leader in 1994. For 10 points, name this British Prime Minister, whose “third way” style of governance helped him become the longest-serving Labour Party PM from 1997 to 2007.

ANSWER: Tony **Blair** [Anthony Charles Lynton **Blair**]

10. This country’s primary export is electricity from projects such as the Tala (TAH-luh) and Chuka (CHOO-kuh) hydropower plants along the Raidak (RAI-dock) River. Its national language, Dzongkha (JONG-kuh), is closely related to Sikkimese (sik-im-ESE), and it articulated a policy based on Vajrayana (VAHJ-rai-AH-nuh) Buddhism of maximizing “gross national happiness” under Jigme Wangchuk (JIG-may WONG-chuk), its Dragon King. For 10 points, name this Himalayan monarchy whose capital is Thimphu (tim-POO).

ANSWER: **Bhutan** [Kingdom of **Bhutan**]

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This is Round 8 of 8 total rounds in the VHSL Regional Tournament 2015 question set.

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11. In one of this man's plays, a precocious thirteen-year-old asks "what is carnal embrace?" to her tutor at Sidley Park. This author of *Travesties* created Septimus Hodge and Thomasina Coverly in his play *Arcadia*. He wrote another play in which a title character wins ninety-two coin flips in a row before meeting Claudius and Gertrude. For 10 points, name this British playwright of *Rosencrantz and Guildenstern Are Dead*.

ANSWER: Tom **Stoppard** [or Tomas **Straussler**]

12. This non-Roman person implemented the Law of Suspects and set price limits with the Law of the Maximum. This man appeared wearing a toga on top a man-made mountain during a festival for his Cult of the Supreme Being. This leader, nicknamed "The Incorruptible," was executed during the Thermidorian Reaction. He destroyed groups including the Girondists (jir-AHN-dists) and the Dantonists as head of the Committee of Public Safety. For 10 points, name this French revolutionary who led the Reign of Terror.

ANSWER: Maximilien **Robespierre** [Maximilien Francois Marie Isidore de **Robespierre**]

13. A great sanctuary on Samothrace (SAA-moh-threys) was dedicated to mysterious underworld deities thought to be offspring of this god, the Cabeiri (cah-BARE-ee). Heracles killed a fire-breathing son of this god named Cacus. This god gave his assistant Cedalion (keh-DALE-yun) as a guide to the blind Orion, and he was crippled when he landed on Lemnos (LEM-nahss) after being thrown from Olympus. This god created Harmonia's necklace and crafted Pandora. For 10 points, name this Greek god of fire and the forge.

ANSWER: **Hephaestus** [or **Vulcan** or **Mulciber** until "Greek" is read]

14. A leader of this group, D.C. Stephenson, was disgraced after murdering a female schoolteacher. William J. Simmons revived this group's popularity with a dramatic rally at Stone Mountain. The 1924 Democratic National Convention could not agree about condemning this organization and became known as its "bake." It gained popularity again after the release of the film *The Birth of a Nation*, and Nathan Bedford Forrest was this group's first Grand Wizard. For 10 points, name this white supremacist group which wears white robes and burns crosses.

ANSWER: **KKK** [or **Ku Klux Klan**]

15. A relativistic form of this phenomenon is named for Llewelyn Thomas. In a magnetic field, the magnetic moments of charged particles exhibit the Larmor type of this phenomenon, which is utilized in NMR spectroscopy. Nutation (noo-TAY-shun) can sometimes occur simultaneously with this phenomenon. This phenomenon is described by the change of the first Euler (OI-ler) angle. External torques can induce this phenomenon in gyroscopes. For 10 points, name this shift in an object's axis of rotation.

ANSWER: **precession**



VHSL Scholastic Bowl
Regional Tournament 2014
Round 8
Tiebreaker/replacement questions

1. A king of this group allowed the hostage Cloelia to leave with his camp with some male children. This group's artwork includes the Sarcophagus of the Couples and the Chimera of Arezzo (ah-RET-zoh). They were once ruled by Lars Porsenna and lost the Battle of Veii (VEY-ee). This civilization replaced the earlier Villanovan culture and called itself Tyrrhenia (tai-REH-nee-uh) after its mythical founder. For 10 points, name this Italian civilization which was supplanted by the Romans.

ANSWER: Etruscans [or Etrusci; or Rasenna; or Tyrrhenia until it is read]

2. This quantity, not potential energy, decreases when you stretch a rubber band, making the rubber heat up. The net change in this quantity is zero only for reversible processes. The Clausius theorem defines this variable as heat over temperature. Boltzmann's constant relates this quantity, microscopically, to the logarithm of the number of available microstates. The change in this quantity for the universe is always positive in any process, according to the laws of thermodynamics. For 10 points, name this quantity, symbolized S, that represents disorder.

ANSWER: entropy [or S until it is read]

3. In a novel by this author, a millionaire who lives in a castle overlooking Hollywood encounters the two hundred-year-old Fifth Earl of Gonister in his search for immortality. Henry Foster and Thomas "Tomakin" give a tour at the beginning of another novel by this author, in which Lenina Crowe fails to seduce John the Savage, who was born outside the World State and its five castes. For 10 points, name this English author of the dystopian novel *Brave New World*.

ANSWER: Aldous Huxley [Aldous Leonard Huxley]

4. This man composed a symphonic poem depicting Hercules in women's clothing spinning wool for the queen Omphale (OM-fuh-lay). The last movement of this composer's third symphony features an organ, nicknaming the symphony the "Organ Symphony." He used a solo violin with its E string tuned down a half step to represent death in his piece *Danse Macabre* (muh-COB), which he quoted in a suite in which a cello melody represents the graceful movement of a swan. For 10 points, name this French composer of *Carnival of the Animals*.

ANSWER: Camille Saint-Saens [Charles-Camille Saint-Saens]

5. One of these things considers how many powers of two divide each side of the equation p-squared equals 2 times q-squared. Kenneth Appel and Wolfgang Haken generated one with the help of a computer to solve the four color problem. Euclid demonstrated there were infinitely many primes with one of these things "by contradiction." For 10 points, what term is given to a series of arguments that establish the truth of a mathematical statement?

ANSWER: mathematical proofs

What fundamental force is mediated by the W and Z bosons, and causes beta decay?

ANSWER: **weak** force

This is a calculation question. You randomly select 25 widgets from a given lot and find that the mean weight of the sample is 3 pounds and the standard deviation is 0.8 pounds. Compute the t-statistic used to test whether the mean weight of all of the widgets in the lot is greater than 2 pounds.

ANSWER: $t = \underline{6.25}$ [or $t = \underline{25/4}$]