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

1. American journalist Amy Goodman was beaten while soldiers of this country carried out the Santa Cruz Massacre. This country's communist party, the PKI, was blamed for starting the failed 30th of September movement. This country occupied East Timor from 1975 to 1999 and was led by a president who attempted to bring "Guided Democracy" into politics. This country's "New Order" government was founded by the general Suharto, who overthrew Sukarno. For 10 points, name this island Asian country which includes Sumatra and Java.
ANSWER: **Indonesia** [Republic of **Indonesia**; or Republik **Indonesia**]

2. This country's Zastava **(zah-STAH-vuh)** corporation produced an unreliable car known domestically as the Koral. Fear of an invasion by this country caused Albania to build a network of bunkers. An accused war criminal was overthrown as president of this country by the Bulldozer Revolution in 2000. This country was ruled by Partisan leader Josip Broz Tito. For 10 points, name this onetime country led by Slobodan Milošević **(meel-OH-seh-vitch)**, which once contained Croatia, Bosnia, and Serbia.
ANSWER: **Yugoslavia** [Socialist Federal Republic of **Yugoslavia**; or Socijalistička Federativna Republika **Jugoslavija**]

3. The Cauchy-Binet **(koe-shee buh-nay)** formula asserts that these values are multiplicative for nonsquare inputs. For square inputs, this value is equal to the product of the eigenvalues. Cramer's rule involves doing this operation after column replacement. This value can be calculated using expansion by cofactors. A square matrix is said to be singular if this value is 0, which is another way of saying that the matrix does not have an inverse. For 10 points, name this value, which when calculated for a two-by-two matrix, is the difference of the products of the diagonal entries.
ANSWER: **determinant**

4. These objects were used in Peter Schumann's Domestic Resurrection Circus. A Vietnamese variety of them are shown in a waist-deep pool of water. In France they are used to tell the story of Guignol. **(geen-YO)** They are used in a form of Japanese theater popularized by Chikamatsu known as bunraku, and in British Punch and Judy shows. Another form of these objects are manipulated using control bars from above, via strings. For 10 points, name these objects exemplified by marionettes and ventriloquist's dummies.
ANSWER: **puppet**s

5. This project barred the use of margin notes following controversy over a similar effort in Geneva, and it barred the use of the word "congregation" in place of "church." This project drew on the earlier work of Matthew Parker and Miles Coverdale, and it was planned at the Hampton Court Conference. This project was named for the new Stuart monarch and produced the "Authorized Version" of the Church of England. For 10 points, identify this translation of the Bible which became a long-used standard among English-speaking Protestants.
ANSWER: **King James** Bible [or **King James** Version; or **KJV** or **Authorized Version** until it is read]

6. This company's architecture lab developed PCI, PCI Express, and USB. A device made by this company was afflicted by the notorious FDIV **(f div)** bug. This company was founded by two members of the Fairchild Eight, Gordon Moore and Robert Noyce. The x86 architecture was based on this company's 8086 microprocessor. A series of advertisements about this company "inside" computers made its Pentium processor a household name. For 10 points, name this company that manufactures the i3, i5, and i7 CPUs.
ANSWER: **Intel** Corporation

7. During this game, the player is offered the opportunity to "sit on the floor and feel like garbage" after sharing a sandwich with Napstablook. Depending on decisions made in this game, an evil spirit named Chara might take control of the protagonist. The climax of this game takes place in a castle belogning to Asgore Dreemurr, who in one version of the ending must be killed by Frisk and Flowey. This game begins in the Ruins, part of the monster-dominated world below the Earth. For 10 points, name this hit 2015 RPG which began as a Kickstarter project by Toby Fox.
ANSWER: ***Undertale***

8. The last leader of a group of people with this profession, Jacques de Molay, was burnt at the stake after being accused of worshipping Baphomet by Philip IV of France. An organization of people of this profession lost the Battle of the Ice to Alexander Nevsky. Groups of people with this profession were often founded to aid pilgrims travelling to the Holy Land. Members of this profession belonged to orders like the Teutonics, Hospitallers, and Templars. For 10 points, name this profession of medieval warriors, which is now an honorific bestowed by monarchs.
ANSWER: **knight**s [or **chevalier**s; prompt on **warrior**s, **sir**s or similar answers]

9. At constant pressure, the negative of the partial derivative of this quantity with respect to temperature is entropy. The change in this quantity is equal to negative the number of electrons times Faraday's constant times an electrochemical cell potential. It is equal to internal energy, plus pressure times volume, minus temperature times entropy, which is usually written as simply enthalpy minus temperature times entropy. For 10 points, identify this quantity which determines whether a reaction is spontaneous or not, and is symbolized delta G.
ANSWER: **Gibbs free energy**

10. This man, who once had the security codename "Maple 3," first became a public figure when he spoke out on avalanche safety following the death of his brother. At the age of four months, this man was toasted as "future prime minister" by Richard Nixon. This man, who has represented the riding of Papineau **(pap-in-NO)** since 2008, succeeded Michael Ignatieff and Bob Rae as the leader of the Liberal Party. In 2015, he defeated the NDP's Thomas Mulcair and incumbent Stephen Harper to take the office his father once held. For 10 points, name this prime minister of Canada.
ANSWER: **J**ustin **Trudeau** [prompt on **Trudeau**]

11. A director from this country made a film that ends with a character telling his comrade that "the farmers have won, not us," after the protagonists defeat a group of bandits. A movie from this country was remade in the United States as the western *The Magnificent Seven*. Another film from this country features a bandit, a woman, a wood cutter, and a dead man telling the same events from different perspectives, and is titled *Rashomon*. For 10 points, name this country that is the home of director Akira Kurosawa, who made films like *Seven Samurai*.
ANSWER: **Japan** [or **Nippon**]

12. This man uses the excuse of the wind to decline participating in a "gam." This character is told that he will see two hearses before he dies. He is called a "god-like" man by his employers, Bildad and Peleg, and he himself employs such men as Fedallah. As he is dragged to his death, he screams "from hell's heart, I stab at thee," and he follows employees Starbuck and Queequeg in death. The one legged head of the *Pequod*, this man's obsessive voyage is a trip that only Ishmael survives. For 10 points, name this sea captain who insanely hunts the title white whale in Herman Melville's novel *Moby Dick*.
ANSWER: **Ahab**

13. In NMR spectroscopy, the process of shimming optimizes this property of the magnetic field. In milk production, the process of emulsification maximizes this property of milk by breaking up fat globules into tiny pieces that prevents separation. Although colloids tend to be cloudy since particles within interfere with light, they still have this property due to uniformity. A solution is a special type of mixture with this property that means the two substances cannot be separated. For 10 points, identify this term that describes mixtures in a single phase, as opposed to heterogeneous mixtures.
ANSWER: **homogeneous** [or **homogeneity**; or **homogenization**]

14. This man wrote an epic poem in which the "mightiest of magicians," Pearl-Feather, is killed by the protagonist. In that poem by this man, the title character endorses the "Black-Robe" Gospel to his mother, Nokomis. This author wrote a historical poem that begins by imploring "listen my children, and you shall hear…" He penned an epic poem that begins "by the shore of Gitchee Gumee" at the wigwam of the title American Indian brave. For 10 points, name this American poet who wrote "Paul Revere's Ride" and *The Song of Hiawatha*.
ANSWER: Henry Wadsworth **Longfellow**

15. This island is home to "keranga" forests, named for their inability to grow rice. Hassanal Bolkiah **(HAH-sah-nahl BOWL-kee-ah)** rules a country on this island that is one of two remaining sultanates in the world. In 2015, an earthquake affected hikers on this island's Mount Kinabalu, which lies in its region of Sabah **(SAH-bah)**. This island is the largest by area of the Greater Sunda Islands. This island, part of which is known as Kalimantan, is home to the tiny country of Brunei **(broo-NYE)**. For 10 points, name this island north of Java, divided between Indonesia and Malaysia.
ANSWER: **Borneo**

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

1A. The movies *Fab Five*, *Sugar and Spice*, and *Bring It On* are primarily about characters engaging in what extracurricular activity?
ANSWER: **cheer**leading [or **cheer**leaders]

1B. The speaker of what Andrew Marvell poem hears "Time's winged chariot hurrying near" as he attempts to make love with his modest partner?
ANSWER: "**To His Coy Mistress**"

2A. What member of Young Bosnia assassinated Archduke Franz Ferdinand, setting off World War I?
ANSWER: Gavrilo **Princip**

2B. If I have "esrim" **(ess-REEM)** objects in Hebrew, "viginti" **(wuh-GIN-tee)** objects in Latin, or "eíkosi" **(EE-koh-say)** objects in Greek, then how many objects do I have in English?
ANSWER: **twenty**

6A. This is a 20-second calculation question. Triangles ABC and JKL are similar. If point A is at the origin, B is at (-3, 4) **(negative three comma four)**, J is at (-4, -5) **(negative four comma negative five)**, and K is at (-4, 5) **(negative four comma five)**, what is the ratio of the area of triangle JKL to the area of triangle ABC?
ANSWER: **4**

3B. This is a 20-second calculation question. What is the y-intercept of the equation given in standard form as 5x minus 6y equals 30?
ANSWER: **(0, -5)** [or **y equals negative 5**; or **y equals minus 5**; prompt on **-5**]

4A. Radiometric dating in uranium-rich rocks involves measuring the production of the 206 and 207 amu **(a m u)** isotopes of what element?
ANSWER: **lead** [or **Pb**]

4B. What railroad created the fictitious Crédit Mobilier company and built the eastern half of the first transcontinental railroad?
ANSWER: **Union Pacific** Railroad

5A. What Roman author of the *Heroides* **(hair-OH-ih-days)** and *Amores* **(ah-MOR-ays)** included several origin stories in his epic *Metamorphoses* **(met-uh-mor-FOE-zees)**?
ANSWER: **Ovid** [or Publius **Ovid**ius Naso]

5B. A mathematical proof which shows that some law holds for the number one and that if it holds for an integer *n*, it holds for *n* plus one is said to be a proof by what method?
ANSWER: mathematical **induction**

6A. What ancient Greek tragedian of *The Persians* wrote a surviving trilogy of plays about the curse placed on the House of Atreus entitled the *Oresteia* **(or-eh-STY-uh)**?
ANSWER: **Aeschylus** **(ESS-kuh-liss)**

6B. What China-allied European country, the only in the history of the world to mandate atheism, was ruled by Communist dictator Enver Hoxha **(HOH-juh)** from 1944 to 1985?
ANSWER: **Albania** [or People's Republic of **Albania**; or Republika Popullore e **Shqipërisë**; or People's Socialist Republic of Albania; or Republika Popullore Socialiste e **Shqipërisë**; or Republic of **Albania**; or Republika e **Shqipërisë**]

7A. What least populous successor state to the former Yugoslavia was offered membership in NATO in 2015?
ANSWER: **Montenegro** [or **Crna Gora**]

7B. The Comunidad Segura **(coh-moo-NEE-dahd sey-GOOR-ah)** plan has reduced the murder rate in what "Athens of South America," the capital of Colombia?
ANSWER: **Bogotá**

8A. This is a 30-second calculation question. Given a sample of 256 data points from a normal distribution, a 95% confidence interval for the mean of the distribution is (5, 11) **(five comma eleven)**. To the nearest integer, what is the sample standard deviation of the data set?
ANSWER: **24**

8B. This is a 30-second calculation question. Find all values of x on the domain 0 to 2 pi, inclusive, such that 2 cosine squared x minus 5 cosine x equals 3.
ANSWER: **2 pi over 3** and **4 pi over 3** [or **2 pi divided by 3** and **4 pi divided by 3**; do not accept answers with more or fewer than two values]

9A. What kind of isomerism describes molecules with the same formula but different three-dimensional orientation of its atoms?
ANSWER: **stereoisomer**ism [or **stereoisomers**]

9B. Agnolo Bronzino painting during what period of Italian Renaissance art followed by Baroque and characterized by its dramatic tension?
ANSWER: **Mannerism** [or word forms, such as **Mannerist**]

10A. What Greek mortal is forever condemned to roll a boulder up a hill, only to see it fall back down?
ANSWER: **Sisyphus**

10B. In what genre did the Roman authors Terence and Plautus **(PLOW-tus)** write?
ANSWER: Roman **comedy** [prompt on **plays** or equivalents; do not accept "drama"]

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

1. This person goes to the town of Joppa in order to find a way to get to Tarshish. He is last seen having the sun blaze on him after God sends a worm to chew up the plant giving him shade. This prophet refuses to obey God because he does not want the Assyrians to repent and be shown mercy. This man becomes angry when he is told to prophesy against the city of Nineveh **(NIN-eh-veh)** and ends up getting on a ship and being thrown overboard. For 10 points, name this Biblical prophet who was swallowed by a "great fish."
ANSWER: **Jonah** [or **Jonas**]

2. This poet described a phenomenon that "performs its secret ministry, unhelped by any wind" in his poem "Frost at Midnight." The title character of a long poem by this man loses his soul to Life-in-Death, who punishes him for shooting an albatross. The speaker of another poem by this author has a vision of an Abyssinian maid playing a dulcimer; the title character of that poem erects "a stately pleasure-dome" on the river Alph in Xanadu. For 10 points, name this English poet who wrote *The Rime of the Ancient Mariner* and "Kubla Khan."
ANSWER: Samuel Taylor **Coleridge**

3. This actor directed the short *Los Bandoleros*, in which his character is told by the corrupt Elvis about an upcoming shipment of gasoline. The character most frequently portrayed by this actor destroys Jakande's helicopter after parachuting into Azerbaijan, and often drives a black 1970 Dodge Charger. This actor also portrayed a Furian with excellent night vision in *Pitch Black* and appeared in two movies as Richard Riddick. For 10 points, name this actor who "lives life a quarter mile at a time" as Dom Toretto in the *Fast and the Furious* series.
ANSWER: Vin **Diesel** [or Mark **Sinclair**]

4. Clergy who refused to recognize the results of this event caused the Non-juror Schism. The target of this event later tried to reverse it at the Battle of the Boyne and allegedly dropped the Great Seal into a river while fleeing during it. The Immortal Seven orchestrated this event, which was sparked by the birth of Mary of Modena's Catholic son. After this event, a Bill of Rights was presented to the new monarchs from the House of Orange. For 10 points, name this 1688 revolution that deposed James II and brought William and Mary to power in England.
ANSWER: **Glorious Revolution** [or the Revolution of **1688** until "1688" was read; or the **Bloodless Revolution**]

5. A historic citadel built on this city's Jebel Kuda hill was demolished in 2002. The Ajyad Fortress was replaced in this city by a hotel complex which contains the world's largest clock face, the Abraj Al-Bait. This city's neighborhood of Mina consists of thousands of air-conditioned tents and the "stoning of the devil" takes place here. A structure in this city is covered with a cloth known as the Kiswah, and is circled seven times by pilgrims who attempt to touch its Black Stone. For 10 points, non-Muslims are barred from what home to the Kaaba, the site of the hajj pilgrimage?
ANSWER: **Mecca**

6. In UV-Vis **(you-vee-vis)** spectroscopy, a bathochromic shift is equivalent to this effect. In a test of general relativity, Pound and Rebka used the Mossbauer **(MOSS-bow-er)** effect to find this phenomenon in gamma rays leaving the surface of the earth. The v in Hubble's law is calculated via this effect. In this effect, the frequency of a wave is decreased and its wavelength is increased by reflecting off of an object that moves away from the source. For 10 points, name this consequence of the Doppler effect that is the opposite of blueshift.
ANSWER: **redshift** [or **Einstein shift**; prompt on **Doppler** effect; do not accept or prompt on "blueshift"]

7. This poet wrote about an alter ego whose "true Penelope was Flaubert" and who "for three years, out of key with his time…strove to resuscitate the dead art of poetry." Another of his poems reads, "The apparition of these faces in the crowd; petals on a wet, black bough." This poet wrote part of his unfinished, 120-section epic poem while imprisoned in Pisa after acting as a fascist broadcaster in Italy during World War II. For 10 points, name this modernist American poet who founded Imagism and wrote *The Cantos.*
ANSWER: Ezra **Pound**

8. Economic actors who attempt to avoid paying the costs of these things are said to be engaging in the "CC-PP game." Governments may attempt to control these things with a Pigouvian **(pig-OO-vee-un)** tax. They will be resolved privately as long as there are low transaction costs, under the Coase theorem. Examples of these things include the noise and pollution produced by industrial activity. For 10 points, give this term for unwanted consequences of economic activity which primarily affect someone other than the activity's beneficiary and can be "negative."
ANSWER: negative **externalities** [or **externality**]

9. When this quantity is assumed to be negligible, the Navier-Stokes equations can be simplified to the Euler **(oiler)** equations. The boundary layer enhances the effects of this quantity which decreases in thixotropic materials at a constant rate as time increases. Velocity times a length scale can be divided by the "kinematic" form of this quantity to find the Reynold's number. This quantity, the ratio of shearing stress to the velocity gradient, remains constant in Newtonian fluids. For 10 points, name this quantity that remains zero in superfluids, the measure of a fluid's resistance to flow.
ANSWER: **viscosity**

10. In this colony, an attack on Fort St. Simons eventually led to the battle of Gully Hole Creek. The motto of this colony’s board of trustees was "not for ourselves, but for others." An attack on this colony led to the Battle of Bloody Marsh and was part of the overall War of Jenkins Ear. It was founded by the general and philanthropist James Oglethorpe. For 10 points, name this British colony founded in the Americas partially as a debtors’ haven and as a buffer state separating British America from Spanish Florida.
ANSWER: Province of **Georgia**

11. In a charging RC circuit, this quantity is proportional to e to the quantity negative time over the time constant. Voltage leads this quantity in phase in an inductor. Maxwell added a "displacement" version of this quantity to Ampère's **(ahm-peers)** law. Since the power dissipated by a resistor is proportional to the square of this quantity, it's minimized in high voltage transmission lines. Conventionally, this quantity describes the movement of positive charges, so its units are charge over time. For 10 points, name this flow of electric charge around a circuit that is measured in amperes.
ANSWER: electric **current** [or **I**]

12. This composer's reputation was revived when Felix Mendelssohn staged an abridged performance of his *St Matthew Passion*. Beginning piano students often play this composer's fifteen inventions. A movement from his Orchestral Suite No. 3 was popularized as the *Air on the G String*. Thirty movements based on a G major aria comprise his *Goldberg Variations*, while a prelude and fugue in each major and minor key are found in the first book of his *The Well-Tempered Clavier*. For 10 points, name this Baroque composer of the *Toccata and Fugue in D minor*.
ANSWER: J.S. **Bach** [or Johann Sebastian **Bach**]

13. On his way to fetch an enormous cauldron, this god is sidetracked by a fishing trip with Hymir. This god ultimately kills a builder who fails to complete a wall when his horse Svadilfari goes missing. This god rides in a chariot pulled by a pair of goats, but is fated to succumb to the poison of the Midgard Serpent. This god's most prized possession has an unusually short handle, and always returns to its owner after being thrown at enemy frost giants. That weapon is Mjolnir, **(me-YOLE-near)** a hammer. For 10 points, name this Norse god of thunder.
ANSWER: **Thor**

14. This king captured the Emperor of Cyprus and locked him up in chains made of silver because he promised not to put him in irons. Philip Augustus intervened when this king sacked Messina to save his sister Joan, who had been imprisoned by Tancred I of Sicily. This king was accused of arranging the murder of Conrad of Montferrat. Leopold V of Austria imprisoned and ransomed this king, who had previously captured Acre from Saladin. For 10 points, name this king of England whose bravery during the Third Crusade earned him the epithet "Lionheart."
ANSWER: **Richard I** [or **Richard** the **Lionheart** until "Lionheart" is read; prompt on **Richard**]

15. In a play by this man, the title character manages the estate of a university professor, whom he shoots at and misses at the end of Act Three. The principle that all elements in a narrative have to serve some function in the plot is known as this author's namesake "gun." Another play by this author ends as the title location is chopped down on the economically fading Ranevskaya **(rahn-eff-SKY-uh)** estate, while another of his plays ends with the suicide of Konstantin Treplyov **(TREP-lee-off)**. For 10 points, name this Russian playwright of *Uncle Vanya*, *The Seagull*, and *The Cherry Orchard*.
ANSWER: Anton **Chekhov** [or Anton Pavlovich **Chekhov**]

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

1. Michael Servetus and Marcello Malpighi **(mar-chell-oh mal-peeg-ee)** were the first Europeans to describe part of this system, recapitulating Ibn al-Nafis's discovery of pores in this system. This system was first completely described in the text *De motu cordis*. Galen differentiated between dark and bright fluids of this system, claiming that the liver was the source of the dark fluid. The first person to fully elucidate how this system worked was William Harvey. For 10 points, name this system in the human body in which blood flows.
ANSWER: human **circulatory** system [or cardio**vascular** system]

2. Mark Kellogg died during this event and is credited as the first AP correspondent to die in the line of duty. After this battle, an inquiry more or less cleared Marcus Reno of charges of cowardice and drunkenness. In this battle, two of Chief Gall's wives were killed. The losing commander died here and graduated last in his class at West Point in 1858. This battle was a victory for Lakota, Northern Cheyenne, and Arapaho forces led by men like Crazy Horse. For 10 points, name this June, 1876 battle in Montana in which the U.S. 7th Cavalry was wiped out.
ANSWER: Battle of the **Little Bighorn** [or **Custer's Last Stand**; or Battle of the **Greasy Grass**]

3. This composer wrote a D minor string quartet whose second movement is based on one of his earlier songs, titled "Death and the Maiden." The piano plays rapid octave G's to depict a horse's gallop at the start of this composer's "The Erlking." His posthumous collection *Swan Song* includes his namesake "Serenade," and his piano quintet includes a set of variations on the song "The Trout." This composer died after completing just two movements of his Symphony No. 8. For 10 points, name this composer of the *Unfinished* Symphony.
ANSWER: Franz **Schubert** [or Franz Peter **Schubert**]

4. In an opera by this composer, a chorus of girls sings the "Spinning Chorus" as Senta describes how she will rescue the title character's soul. The "Magic Fire Music" ends a leitmotif-heavy opera by this composer in which Loge **(LOH-guh)** traps Brünnhilde **(broon-HILL-duh)** in a ring of fire. Alberich steals a treasure that is returned to the Rhine in this composer's opera *Twilight of the Gods*, which ends with the destruction of Valhalla. For 10 points, name this composer of *The Flying Dutchman*, whose four-part *Ring* cycle includes the "Ride of the Valkyries."
ANSWER: Richard **Wagner** [or Wilhelm Richard **Wagner**]

5. A character in this novel attempts to arrange a marriage between one of her guests and the botanist William Bankes. The first section of this novel ends with Paul Rayley and Minta Doyle getting engaged at a house party. Mrs. McNab narrates the second part of this novel, which features the deaths of Andrew and Prue. In this novel, the painter Lily Briscoe visits the the Isle of Skye in an attempt to paint a portrait of Mrs. Ramsay and her son James, who longs to visit the title location. For 10 points, name this novel by Virginia Woolf.
ANSWER: ***To the Lighthouse***

In 1952, a European common market for what two commodities was created in order to make war "unthinkable [and] materially impossible"? Please name both products.
ANSWER: **coal** AND **steel** [either order is acceptable]

This is a calculation question. A square pyramid of slant height 8 inches is stacked on top of a cube of height 5 inches. What is the surface area of the resulting figure?
ANSWER: **205** square inches