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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 27**  **First Period, Fifteen Tossups** |

1. The narrator of this story describes his family's coat of arms as a human foot crushing a serpent. A trowel is used in this story to prove the narrator's status as a mason, and he repeatedly brings up the option of consulting Luchesi. The narrator lures a character wearing bells and a "parti-striped dress" into the vaults with the promise of the title wine. For 10 points, name this short story in which Montresor walls up the drunken Fortunado, written by Edgar Allan Poe.  
ANSWER: "The **Cask of Amontillado**"

2. This compound activates Akt to stimulate glycogenesis in the liver. The Canadians J.J.R Macleod and Frederick Banting won the Nobel Prize for isolating this hormone. The effects of this compound, which is secreted by beta cells in the islets of Langerhans, are countered by the activity of glucagon. This peptide promotes cellular uptake of glucose. For 10 points, name this hormone deficient in patients with type 1 diabetes.  
ANSWER: **insulin**

3. During this king’s reign, his son Amun-her-khepeshef led forces that captured Moab during the Third Syrian campaign. Kent Weeks discovered the tomb KV5, which is where at least four of this ruler’s sons are buried. This ruler signed the first peace treaty in history with Hattusili III. This son of Seti I and husband of Nefertari built a large temple dedicated to himself at Abu Simbel. For 10 points, name this Nineteenth Dynasty pharaoh who fought the Hittites at Kadesh.  
ANSWER: **Ramses II** [or **Ramses the Great**; or **Ramesses II**; or **Rameses the Great**; prompt on **Rameses** or **Ramesses**]

4. Both of the central subjects in this painting wear beaded necklaces with a cross on it. In this painting, a church is seen to the left of five houses, two of which are upside down. The left side of this painting shows a woman milking a goat, and another woman is upside down next to a man in black holding a scythe. The foreground of this painting shows a glowing tree held by a man with a green face. For 10 points, name this painting by Marc Chagall.  
ANSWER: ***I and the Village***

5. An island in this body of water is connected by causeway to the artificial Treasure Island, and another was known as the “Ellis Island of the West” for its former Immigration Station. In addition to Yerba Buena and Angel Island, this body of water is home to a former federal prison known as “The Rock,” and it opens out into the Pacific via the Golden Gate. For 10 points, Alcatraz is found in what heavily urbanized bay in Northern California?  
ANSWER: **San Francisco Bay**

6. In glycolysis, GAPDH causes GAP to undergo a phosphorylation and one of these reactions. Chromate compounds almost always catalyze these reactions. This type of reaction occurs at the anode in a galvanic cell. In these reactions, a namesake "number" or "state", representing an element's charge, increases. For 10 points, name these reactions in which a species loses electrons.  
ANSWER: **oxidation**s [or **oxidative** phosphorylation; prompt on **redox** reactions; prompt on **reduction-oxidation** reactions; prompt on **dehydrogenation**s; do not accept "reduction" or "reductions"]

7. This woman recorded the album *Break Up* in her musical collaboration with Pete Yorn. She played the model for the title painting in *Girl with a Pearl Earring,* and her breakout role came as Charlotte, who wanders around Tokyo in *Lost in Translation.* She appeared in *Iron Man 2* and *The Avengers* playing Natasha Romanoff, the Black Widow. For 10 points, name this ex-wife of Ryan Reynolds who played the title role in 2014’s *Lucy.*  
ANSWER: Scarlett **Johansson**

8. This person's work was made possible by C.F. Napp's creation of an experimental garden. Based on a long-running experiment, this scientist observed seven traits that occurred in one of two forms, such as flower color being purple or white and seed color being yellow or green, which led him to propose the laws of segregation and independent assortment and coin the terms "recessive" and "dominant". For 10 points, name this monk whose experiments with pea plants established the rules of heredity.  
ANSWER: Gregor **Mendel**

9. This phenomenon’s effect on growth by decreasing real interest rates is called the Mundell-Tobin effect. The Fisher equation defines nominal interest as the sum of real interest and the rate of this phenomenon. Purchasing power adjusts for this phenomenon by measuring the amount of goods that can be bought with a unit of money. Extreme levels of this phenomenon occurred in Germany after World War I and in Zimbabwe under Robert Mugabe. For 10 points, give this term that refers the prices of goods increasing.  
ANSWER: **inflation** [or **inflation** rate; or word forms; or hyper**inflation**]

10. In a novel by this author, Jacques Moran searches for the title character, *Molloy.* In a play by this man, the slave Lucky delivers an unintelligible monologue after putting on his hat. Nagg and Nell live in wastebins in this playwright’s *Endgame.* This author created Vladimir and Estragon in a play whose title character never shows up. For 10 points, name this absurdist Irish author of *Waiting for Godot.*  
ANSWER: Samuel **Beckett** [Samuel Barclay **Beckett**]

11. This man’s schools received thousands from Sears and Roebuck president Julius Rosenwald. In a speech, he once famously urged his audience to “cast down your bucket where you are.” This author of the book *Up from Slavery* urged a “go slow” approach in his Atlanta Compromise, which angered men like W.E.B. Du Bois. For 10 points, name this head of the Tuskegee Institute, an important African-American leader in the early twentieth century.  
ANSWER: Booker Taliaferro **Washington**

12. In a myth from this country, Queen Medb tries to steal a magic bull, but is opposed by the hero Cu Chulainn. This country is home to a type of fairy that, when captured, will grant three wishes exchange for his release. Those fairies also hide pots of gold at the end of rainbows. 10 points, name this European country home to the leprechaun.  
ANSWER: **Ireland**

13. This war was preceded by the Council of Piacenza and followed by the expedition of the Faint Hearted. During a siege conducted by Kerbogha during this war, Peter Bartholomew claimed to have discovered the holy lance. Bohemond of Taranto commanded troops during this war. This war began at the Council of Clermont, where a speech by Urban II was followed by a cry of "God wills it!" For 10 points, name this campaign, the first of its kind, in which a European army conquered Jerusalem.  
ANSWER: First Crusade [or First **Crusade** after "first" is read]

14. The reflection type of these objects are typically blue. Near their end of life, red giants can expel their shell to form the planetary type of these objects. A famous photograph of "elephant trunks" known as the "Pillars of Creation" was taken of the Eagle example of these objects. The first object in the Messier Catalog is one of these objects formed by a 1054 supernova and called the Crab. For 10 points, name these interstellar collections of dust and gas that are often the site of star formation.  
ANSWER: **nebula**e [or **H II region**]

15. At the beginning of the book named for this man, he arrives in the port of Joppa. God encourages this man to go to a city of 120,000 people who do not know their right hand from their left. This man becomes upset when a leaf that was bringing him shade is eaten by a worm. This character experiences trouble at sea while trying to escape to Tarshish because he refuses God’s order to go to Nineveh. For 10 points, name this Old Testament character who is swallowed by a whale.  
ANSWER: **Jonah**

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 27**  **Directed Round** |

1A. What technique of spectral analysis is typically performed on metals and involves coating a platinum wire with a metal salt and then exposing it over a Bunsen burner to observe the color that results?  
ANSWER: **flame test**

1B. What Cavalier poet wrote the line, “Stone walls do not a prison make,” in his “To Althea, from Prison”?  
ANSWER: Richard **Lovelace**

2A. What European capital features a column to Sigismund III Vasa and was the site of an anti-Nazi Ghetto Uprising in 1943?  
ANSWER: **Warsaw**

2B. What word denotes the second coordinate in an ordered pair, contrasting with the word "abscissa" for the first?  
ANSWER: **ordinate**

3A. This is a 20-second calculation question. If the mean of random variable X is 3 and the mean of independent random variable Y is 4, what is the mean of the random variable given by X-Y?  
ANSWER: **-1**

3B. This is a 20-second calculation question. What is the product of the complex numbers 3 plus 4 *i* and 5 minus 2 *i*?  
ANSWER: **23 + 14 *i***

4A. What German philosopher drew on Hindu thought to write *The World as Will and Representation?*  
ANSWER: Arthur **Schopenhauer**

4B. What mountain, the highest peak on Sicily, is the tallest active volcano in Italy?  
ANSWER: Mount **Etna** [or **Mongibello**; or **Mungibeddu**]

5A. What projection from the cell body of a neuron is often covered with a myelin sheath, which allows this structure to pass current between neurons more quickly?  
ANSWER: **axon**

5B. What headless Greek sculpture sits atop a staircase at the Louvre and shows the billowing robes of a goddess about to take flight?  
ANSWER: **Winged Victory** at Samothrace [or **Nike** of Samothrace]

6A. What city is the setting of a cycle of August Wilson plays including *Fences* and *The Piano Lesson*?  
ANSWER: **Pittsburgh**

6B. In what Euripides play is the king Pentheus ripped apart by the title followers of Dionysus for attempting to suppress their rituals?  
ANSWER: *The* ***Bacchae***

7A. What is the length of a full marathon race, to the nearest tenth of a mile?  
ANSWER: **26.2** miles

7B. The popular Costa Rican phrase “pura vida” has many colloquial meanings, but literally translates to what two-word English phrase?  
ANSWER: "**pure life**"

8A. This is a 30-second calculation question. Find the value of the expression"sine *x* plus cosine *x* quantity squared," if *x* is equal to pi over 12.  
ANSWER: **3/2** [or **1.5**; or **one and one-half**]

8B. This is a 30-second calculation question. A slice is cut out of a circular pie that has diameter 12 inches. If the slice has an area of 4 pi square inches, then what is the angle subtended by the sector cut out of the pie?  
ANSWER: **40** degrees

9A. What Greek term did Aristotle use to refer to the “turning point” or “reversal” in a plot?  
ANSWER: **peripeteia**

9B. What running mate of Walter Mondale in 1984 was the first female to be nominated for a major-party presidential ticket in American history?  
ANSWER: Geraldine **Ferraro**

10A. What papal name was held twelfth by the Pope at the start of the Holocaust and ninth by the nineteenth-century issuer of a Syllabus of Errors?  
ANSWER: **Pius** [or **Pius** IX; or **Pius** XII]

10B. Name the current dictator of Cuba, who controversially shook Barack Obama's hand at Nelson Mandela's funeral.  
ANSWER: **R**aúl **Castro** [prompt on **Castro**]

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 27**  **Third Period, Fifteen Tossups** |

1. This number of *Gymnopédies* was composed by Erik Satie. Violin concertos and piano sonatas usually have this number of movements. Ludwig van Beethoven’s symphony of this number, originally dedicated to Napoleon Bonaparte, is nicknamed "Eroica." The key of C minor has this many flats, whereas A major has this many sharps. This is the number of valves on a French horn or a trumpet. For 10 points, identify the number of musicians in a trio.  
ANSWER: **three** [or word forms]

2. One minority in this nation called for taksim, and it rejected the Annan plan in 2004. George Grivas led this nation’s EOKA in a struggle against the British and for enosis. A 1974 coup here installed Nikos Sampson, which led to an invasion by a “guarantor power” that established the Attila line and a self-declared nation recognized only by Turkey. For 10 points, name this divided Mediterranean island nation with an ethnic Greek majority and capital Nicosia.  
ANSWER: **Cyprus** [Republic of **Cyprus**]

3. A character in this novella continually says “Good morning” as he turns a lantern on and off. The narrator of this book draws a snake eating an elephant, though his drawing is consistently mistaken for a hat. The title character of this novella lives on B-612 and dreams of returning to his beloved rose after finding the narrator in the desert. For 10 points, name this novella about the small ruler of an asteroid, by Antoine de Saint-Exupery.  
ANSWER: *The* ***Little Prince*** [or *Le* ***Petit Prince***]

4. Shostakovich’s final symphony quoted this composition's finale. This composition’s third section is known as the “Rans des Vaches,” or Call of the Cows, and its opening section is a depiction of dawn in the cellos and basses. This overture opened its composer’s final opera, about a Swiss folk hero who shot an apple off his son’s head. For 10 points, name this Gioachino Rossini overture popularly known as the theme to *The Lone Ranger*.  
ANSWER: ***William Tell* Overture** [or ***Guillaume Tell* Overture**]

5. A running back for this team named Karim Abdul-Jabbar led the NFL in touchdowns in 1997. This team won back-to-back Super Bowls in 1972 and 1973 with players Bob Griese and Larry Csonka. This team popularized the wildcat formation during the 2008 season with running back Ronnie Brown. This team faced a bullying scandal involving Richie Incognito during the 2013 season. For 10 points, name this NFL team with which Dan Marino spent his entire career.  
ANSWER: **Miami** Dolphins [or Miami **Dolphins**]

6. An amorphous "hemi" form of this compound is branching, unlike this compound, which can be dissolved by Schweizer's reagent. This compound is dissolved in order to make synthetic materials like rayon. Ruminants possess bacteria that break down the beta one-four glycosidic bonds in this compound. This compound is distinguished from glycogen and starch in that it is largely indigestible by humans. For 10 points, name this long carbohydrate polymer that makes up the cell walls of plants.  
ANSWER: **cellulose**

7. This war was partly caused by a provision of the Treaty of Kutchuk Kainardji. The coxcomb diagram was invented to examine fatalities during this war. William H. Russell coined the term "thin red line" to describe the action of Colin Campbell's troops during this war's battle of Balaclava. "The lady with the lamp," Florence Nightingale, nursed soldiers during this war.For 10 points, name this war in which allies of the Ottoman empire defeated Russia in the namesake Black Sea peninsula.   
ANSWER: **Crimean** War

8. Integer ratios of orbital periods give rise to this phenomenon in celestial mechanics. One over the square root of inductance times capacitance gives the frequency for this phenomenon in LC circuits. Harmonics are multiples of the frequency at which this phenomenon occurs in tuning forks. For 10 points, name this phenomenon in which the amplitude of vibrations skyrockets at certain frequencies, and which is often blamed for the collapse of the Tacoma Narrows Bridge.  
ANSWER: **resonance** [or word forms]

9. A member of this family ran as the Libertarian vice-presidential candidate in 1980. Members of this family were called "un-American" and accused of "trying to buy the country" in a series of speeches on the Senate floor by Harry Reid. They contribute heavily to Super PACs such as Americans for Prosperity. For 10 points, name this family, which includes a pair of wealthy Kansas industrialists who donate large sums of money to Republican political candidates.  
ANSWER: **Koch** family [or **Kochs**]

10. A character in this play fires a gun at his wife that turns out to be loaded with an umbrella. That character mistakes a biology teacher for a math teacher and screams, "You can't do that!" after learning about her imaginary son's death in a porcupine-related car accident. "Get the Guests" is played in "Walpurgisnacht," this play's second act. This play is about Nick and Honey's visit to George and Martha. For 10 points, name this play by Edward Albee.  
ANSWER: ***Who's Afraid of Virginia Woolf?***

11. In Roman sources, Hades commemorated his lover Leuce by creating a white one of these in the Asphodel Fields. Adonis was born from one of these things that had once been his mother, Myrrha. After giving shelter to Zeus, Baucis and Philemon were turned into two intertwined examples of these things. Dryads lived in these things, and nymphs who fled from amorous gods were often saved by being turned into them. For 10 points, name these natural features from Greek myth whose examples include poplar, myrtle, ash, and cedar.  
ANSWER: **Trees**

12. In this city, small wooden boats called abras are used for transportation, while larger ships can dock at Port Rashid or Port Jebel Ali. The Palm Jumeirah is found in this city, near a group of artificial islands arranged to look like a map of the world. It is home to the world’s tallest building, the Burj Khalifa. This city gives its name to a region northeast of Abu Dhabi. For 10 points, name this most populous city in the United Arab Emirates.  
ANSWER: **Dubai**, United Arab Emirates

13. A "slant" type of one of these can be found by conducting polynomial division. If a rational function's numerator and denominator are the same degree, there exists one at the ratio of the coefficients of their highest-degree terms. Functions have vertical ones when their denominator equals zero. The function one-over-*x* has a horizontal one at *y* equals zero. For 10 points, give this term for points at which a function approaches infinity as *x* approaches it.  
ANSWER: **asymptote**s [or vertical **asymptote**s; or horizontal **asymptote**s; or slant **asymptote**s; or oblique **asymptote**s]

14. This entity is called “thou on whose stream, ‘mid the steep sky’s commotion, loose clouds like earth’s decaying leaves are shed.” In the final stanza, the poet instructs this entity, “Make me thy lyre, even as the forest is.” This entity is asked, “If Winter comes, can Spring be far behind?” in the poem addressing it. For 10 points, name this entity referred to as “thou breath of Autumn’s being” in an ode by Percy Bysshe Shelley, a wind that blows east.  
ANSWER: the **West Wind**

15. Under this arrangement, Texas received a payment of ten million dollars to surrender lands to a newly organized territory. This series of laws rejected the anti-slavery Wilmot Proviso. Henry Clay and Stephen Douglas championed this arrangement, which banned the slave trade in Washington in exchange for a harsher Fusitive Slave Law. For 10 points, name this group of five bills passed to hold the United States together and allow California to enter the Union.  
ANSWER: **Compromise of 1850**

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| High School Academic Pyramid Questions | **VHSL Scholastic Bowl**  **Regular Season 2014**  **Round 27**  **Tiebreaker/replacement questions** |

1. This landform is home to the walled ruin of Tulum. Its state of Quintana Roo is home to a master-planned tourist city which opened in 1974, Cancun. Its namesake state contains the Temple of Kulkukan, a step pyramid. This peninsula’s town of Chicxulub is the epicenter of an asteroid impact that caused the K-T boundary and the extinction of the dinosaurs. For 10 points, name this peninsula that was once home to the Mayan civilization, in southern Mexico.  
ANSWER: **Yucatán** Peninsula

2. The song “O welche Lust” is sung by a group in this opera after they are allowed into the gardens. Near the end of this opera, a trumpet sounding signifies the arrival of Don Fernando. In this opera, Marzelline refuses the advances of Jaquino, who works for the corrupt Pizarro. Leonore dresses up as the title character of this opera to save her husband, Florestan, from a political prison. For 10 points, name this only opera by Ludwig van Beethoven.  
ANSWER: ***Fidelio***

3. In 1944, this country made a pact with Nazi Germany to not forge its own peace treaty with the Allies in the Ryti–Ribbentrop Agreement. This country's Mannerheim Line failed to protect it from an invasion over the disputed territory of Karelia, leading to this country fighting the Continuation War and the Winter War against the Soviet Union. For 10 points, name this country whose postwar economy rebounded thanks to the Nokia company and Angry Birds.  
ANSWER: **Finland**

4. In a novel by this author, a mysterious Black Knight is eventually revealed to be Richard the Lionhearted in disguise. This author’s popular novels were collectively known as the “Waverley novels” after the first he published. This author of *Rob Roy* wrote about the disinherited knight Cedric of Rotherwood in an influential historical romance. For 10 points, name this Scottish novelist who wrote *Ivanhoe.*  
ANSWER: Walter **Scott**

5. An exponential, plus one, is in the denominator of some statistics named for Paul Dirac and this other physicist. This man won a Nobel Prize for discovering transuranium elements that didn't actually exist. The Pauli exclusion principle applies to subatomic particles named for this physicist, which have half-integer spin. On the football field at the University of Chicago, this scientist supervised Chicago Pile-1, the first self-sustaining nuclear chain reaction. For 10 points, name this Italian-American physicist.  
ANSWER: Enrico **Fermi**

What lake north of the Everglades is the largest freshwater lake in Florida?  
ANSWER: Lake **Okeechobee**

What is the equation of a circle centered at the point negative one, one, given that the point four, negative eleven is on the circle?  
ANSWER: **x plus 1, squared, plus y minus 1, squared, equals 169** [or **x plus 1** quantity **squared plus y minus 1** quantity **squared equals 169**; or **x plus 1** quantity **squared over 169 plus y minus 1** quantity **squared over 169 equals 1**; or **x plus 1** all **over 13** quantity **squared plus y minus 1** all **over 13** quantity **squared equals 1**]